

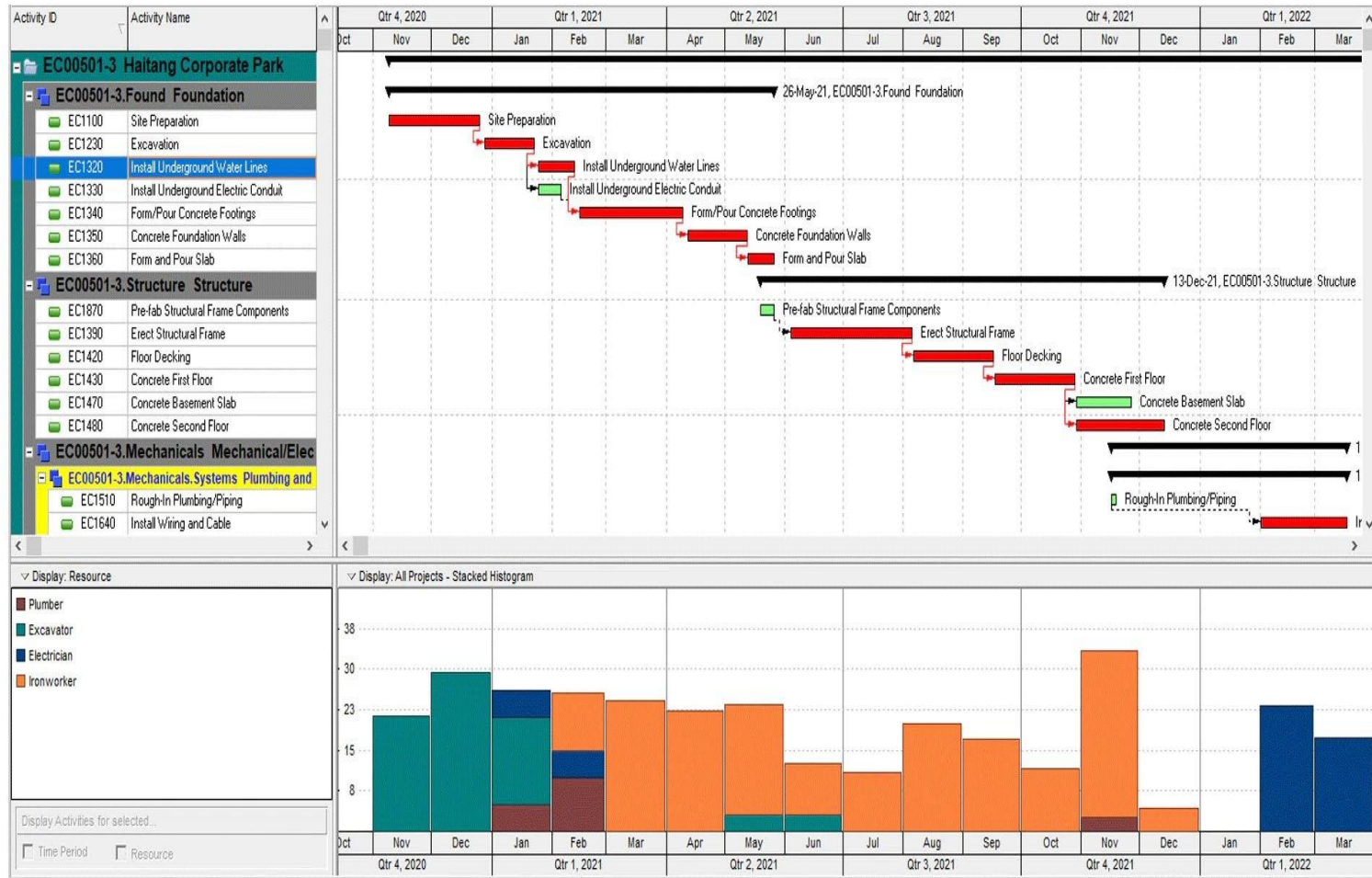
# Project Planning & Scheduling Using Primavera P6



JAN- 2 0 2 6

[elyazajmal@yahoo.com](mailto:elyazajmal@yahoo.com)

# Primavera P6 Professional



# Topics

- Project Management Overview
- Create New a Project
- Create a Project Calendars
- Creating a Work Breakdown Structure
- Adding Activities
- Creating Relationships
- Activities Duration
- Scheduling
- Formatting Schedule Data

# Topics

- Currencies
- Unite of Measure
- Define Resources
- Assigning Resources and Quantities
- Aggregating Resources
- Optimizing the Project Plan
- Baselining the Project Plan
- Project Execution and Control
- Reporting

# What Is Primavera P6 use in?

- ❖ **Planning, Monitoring and Controlling Projects and Programs**
- ❖ **Scheduling, Budget estimation, Cost control, Resource Management**
- ❖ **Standalone & Cloud Based**

# What's Project

**Project** is a **temporary** endeavor undertaken to create a **unique** product, service, or result.

## Examples:

- The Provision of Consultancy services
- The construction of a building or bridge



- a project is a set of objectives has a definite beginning and end to achieve specific goals in specific timeline and with specific budgets .

المشروع هو سلسلة من الأنشطة أو المهام لها أهداف محددة، يجب أن يُنجز ضمن مواصفات محددة وله وقت محدد وله تمويل محدد ويستغل موارد مختلفة من مواد وعمالة ومعدات، ويُعتبر المشروع ناجحًا إذا تم في أقصر وقت وبأقل تكلفة وأفضل جودة.

# Project Management Definitions

- **Project Management** is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements.
- إدارة المشاريع هي تطبيق المعرفة، والمهارات، والأدوات، والتقنيات  
The – على أنشطة المشروع من أجل تحقيق متطلباته وأهدافه.
- **Project Management Life Cycle** – A sequence of phases that defines the overall process from the beginning to the end of a project.

## PROJECT MANAGEMENT





# Triple Constraint Model of Project Management

- Balancing the constraints of scope, cost, time with in the frame of the quality to meet the customer expectations



# KEY TERMINOLOGY

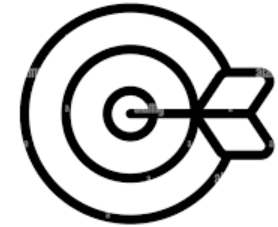
## Goal :

An achievable outcome that is generally **broad** and **longer term**  
 Includes what the project is trying to achieve



- Is your objective **Specific**? ..... **SPECIFIC** ✓
- Can you **Measure** progress towards goal? ..... **MEASURABLE** ✓
- Is the goal realistically **Achievable**? ..... **ACHIEVABLE** ✓
- How **Relevant** is the goal to your organization? ..... **RELEVANT** ✓
- What is the **Time** for achieving this goal? ..... **TIME BASED** ✓

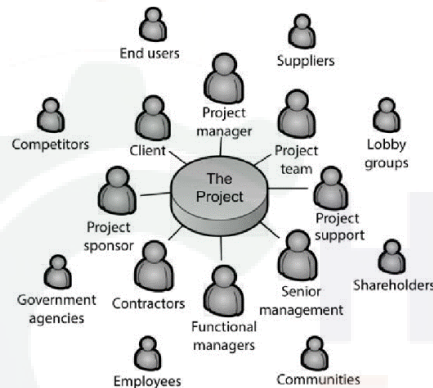
## Objectives:



Measurable tasks need to be achieved in shorter Term to reach the project Goal

## Stakeholder

:



Any individual , group or organization that direct or in directly affected by the project

A project milestone is a or checkpoint that indicates a major goal, event, or task within a project's lifecycle

## Milestones



# Project Management Life Cycle

Can be divided into five process groups:





## PROJECT PHASES: INITIATION

in the initiation phase, you'll define the project, including :

- ✓ Project goals, scope, and Objectives



- ✓ What stakeholders expect out of the project

- ✓ Communicating with stakeholders



- ✓ Carry out all the feasibility studies and assessments



## PROJECT PHASES: PLANNING

A good project plan should :

✓ Identify the Project Deliverables



✓ Identify the project Activities and Milestones that lead up to goal completion



✓ Developing a Schedule Plan ( Baseline plan)



✓ Development of Detailed Budget



## PROJECT PHASES: PLANNING

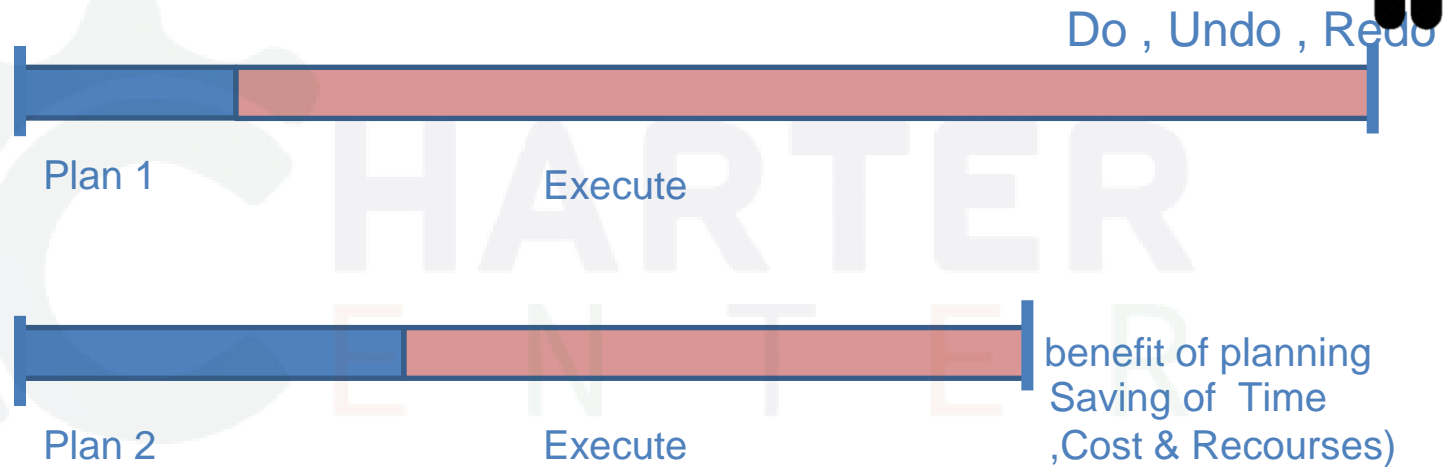
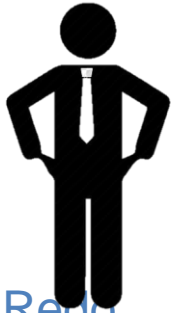
A good project plan should :

- ✓ Clarifying resources , (Man, Equipment, Material)
- ✓ Risk Assessment
- ✓ Development of the Project Team and their Roles





## BENEFITS OF PLANNING





## PROJECT PHASES: PLANNING ,

**Projects Fail at the beginning not at the end**



## PROJECT PHASES: EXECUTION ,

Executing a project means putting your plan into action and keeping the team on track.

- ✓ Execute the project scope
- ✓ Manage the team's work
- ✓ Recommend changes and corrective actions
- ✓ Manage project communication with stakeholders



- ✓ Conduct team-building
- ✓ Team motivation
- ✓ Celebrate project milestones
- ✓ Track work in progress and actual costs

## PROJECT PHASES: EXECUTION

Actively promoting a supportive environment can save time in the long term. .

**TASK**

**Skill**



**Supporting** 

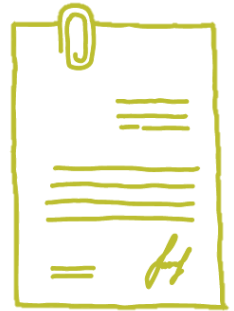


**THE TEAM**

When assigning Tasks to the team, TASK must be :

- ✓ Clear
- ✓ Specific
- ✓ Ownership

# PROJECT PHASES MONITORING AND CONTROLLING



## Monitoring

is the evaluation of project status at key points along its schedule

Process of regularly observing and tracking the progress of the project to ensure that the project meets the goal and objective and making any necessary proactive corrections.



## Controlling

Taking any action needed for issues or changes that have been identified during the monitoring stage.

# PROJECT PHASES

## MONITORING AND CONTROLLING



# PROJECT PHASES CLOSURE

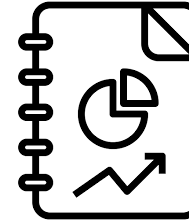
Project handover



Disbanding the Project Team and Reassigning All Project Resources



Creating a project closeout report



Final Payments




Review and evaluation

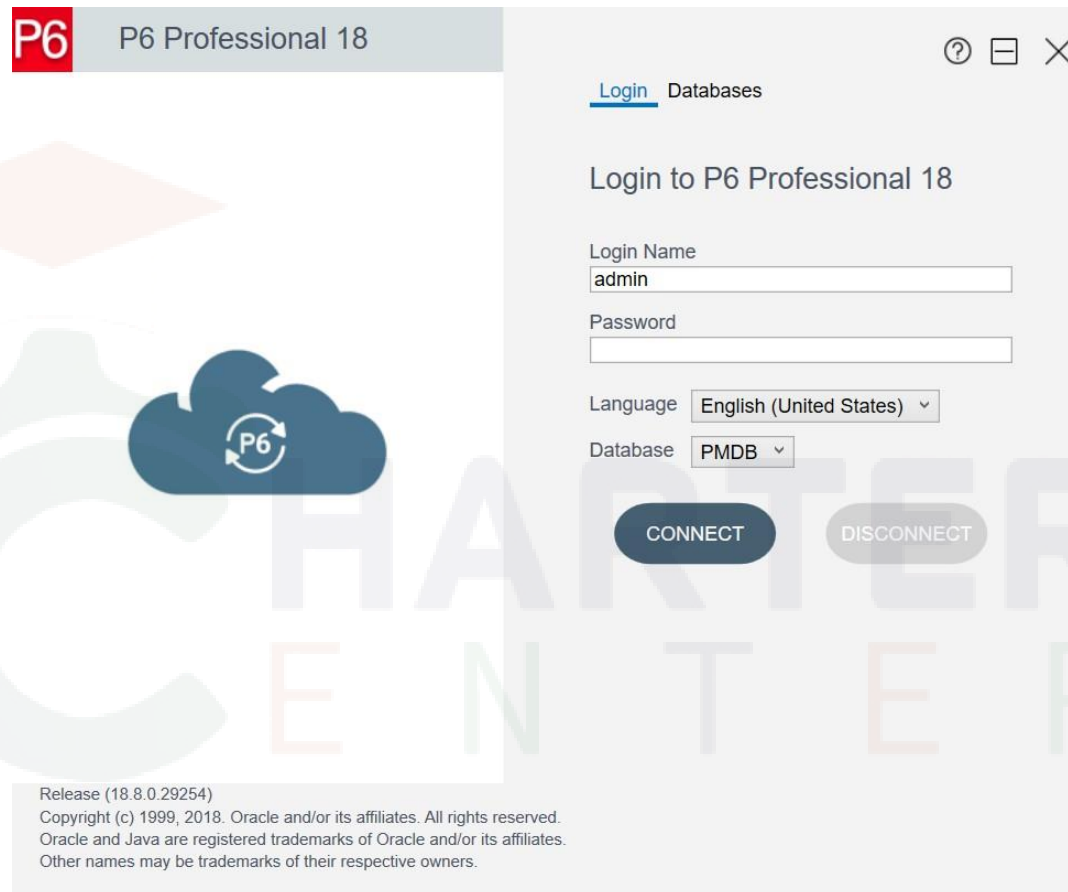


Celebrating the end of the project and your successes



# P6 Professional

- When you open P6 Professional R20.12 form  **Start** this screen will Appear to ask for Primavera login Name and Password as usual same (admin-admin)



The screenshot shows the P6 Professional 18 login interface. The title bar at the top left reads 'P6 P6 Professional 18'. The main window has a light gray background with a large, faint watermark of a gear and the word 'CHARTER' in the background. On the right side, there is a login panel with the following elements:

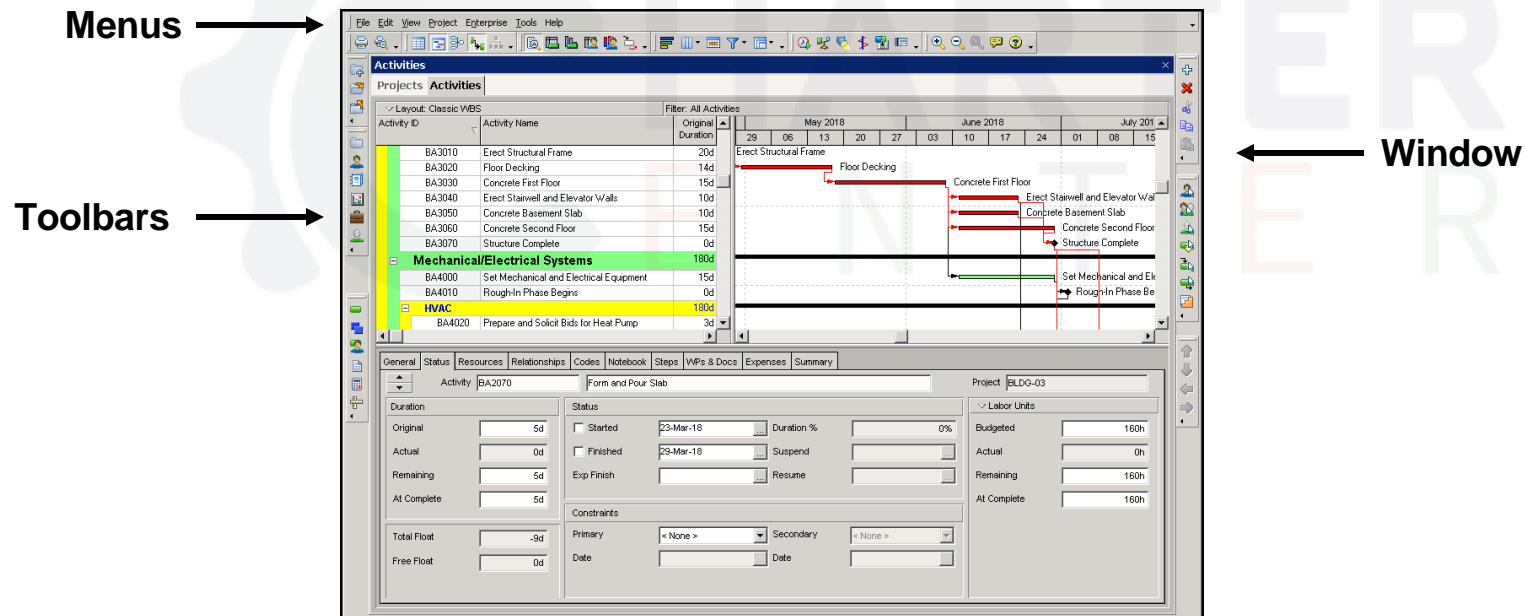
- Buttons: '?', '≡', and 'X' in the top right corner.
- Links: 'Login' (underlined) and 'Databases'.
- Title: 'Login to P6 Professional 18'.
- Fields: 'Login Name' with the value 'admin' and an empty 'Password' field.
- Dropdowns: 'Language' set to 'English (United States)' and 'Database' set to 'PMDB'.
- Buttons: 'CONNECT' and 'DISCONNECT' at the bottom.

At the bottom of the window, the following text is displayed:

Release (18.8.0.29254)  
Copyright (c) 1999, 2018. Oracle and/or its affiliates. All rights reserved.  
Oracle and Java are registered trademarks of Oracle and/or its affiliates.  
Other names may be trademarks of their respective owners.

# Windows and Menus

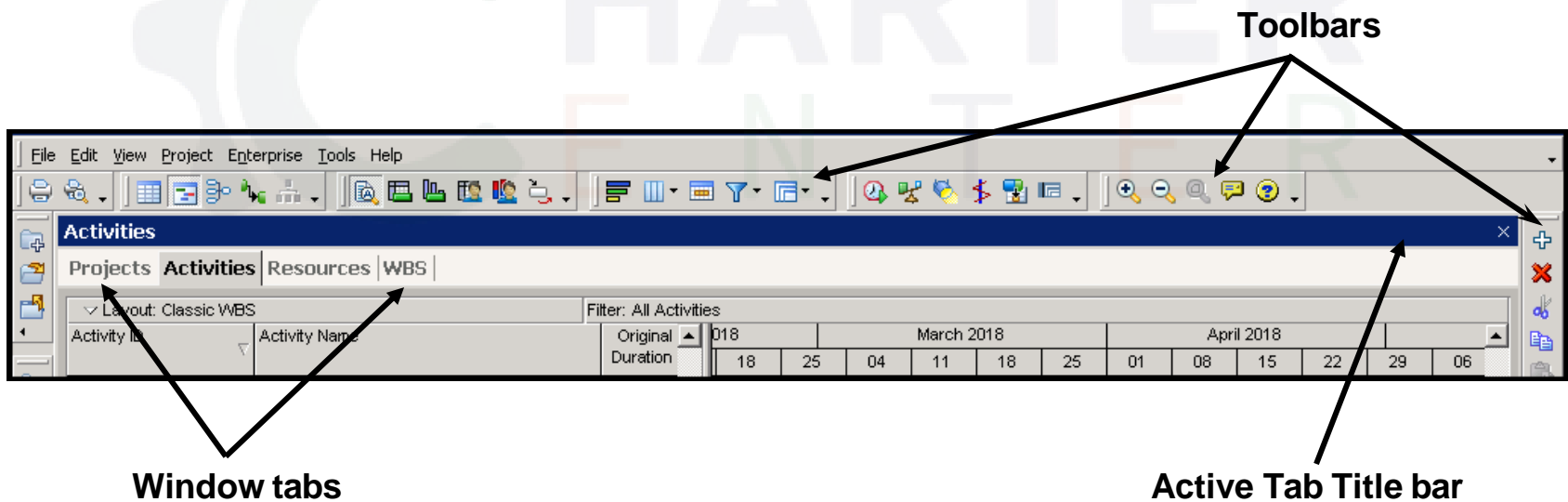
- P6 Professional is organized into 11 windows, each focusing on an aspect of project management.
  - Examples: Projects, Resources, WBS, Activities, Expenses
- Launched from menus or toolbars.











# Tabs and Toolbars

- Multiple windows can be open at one time.
  - Windows displayed on tabs.
  - Active Tab Title bar indicates the active window.



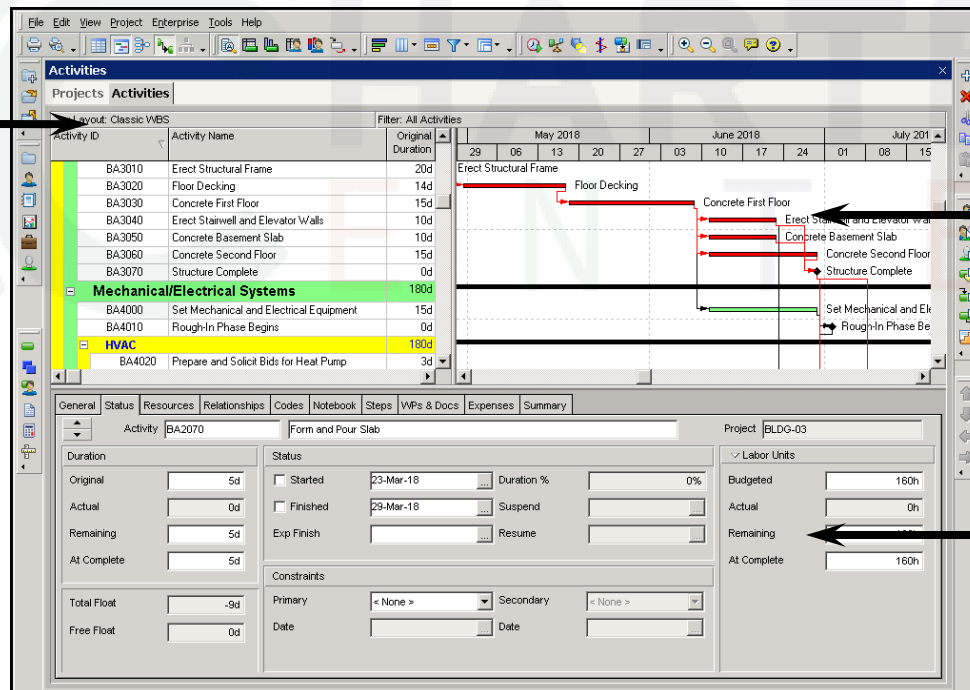
# Commonly Used Toolbar

	<b>Enterprise</b> Projects Resources Reports Tracking Project Portfolios Roles		<b>Tools</b> Schedule Level Resources Progress Spotlight Progress Line Update Progress Disable Auto-Reorganization		<b>Edit</b> Add/Insert Delete Cut Copy Paste
	<b>Project</b> Activities WBS Resource Assignments WPs & Docs Expenses Maintain Baselines		<b>Assign</b> Resources Resources by Role Roles Activity Codes Predecessors Successors Steps		<b>Layout</b> Bars Columns Time Scale Filter By Group and Sort by

# Layouts

- Customized view of information.
  - Available in Projects, WBS, Activities, and Tracking views.
- Consists of top layout and bottom layout.
- Key layout functions on Layout Options bar.

Layout Options bar

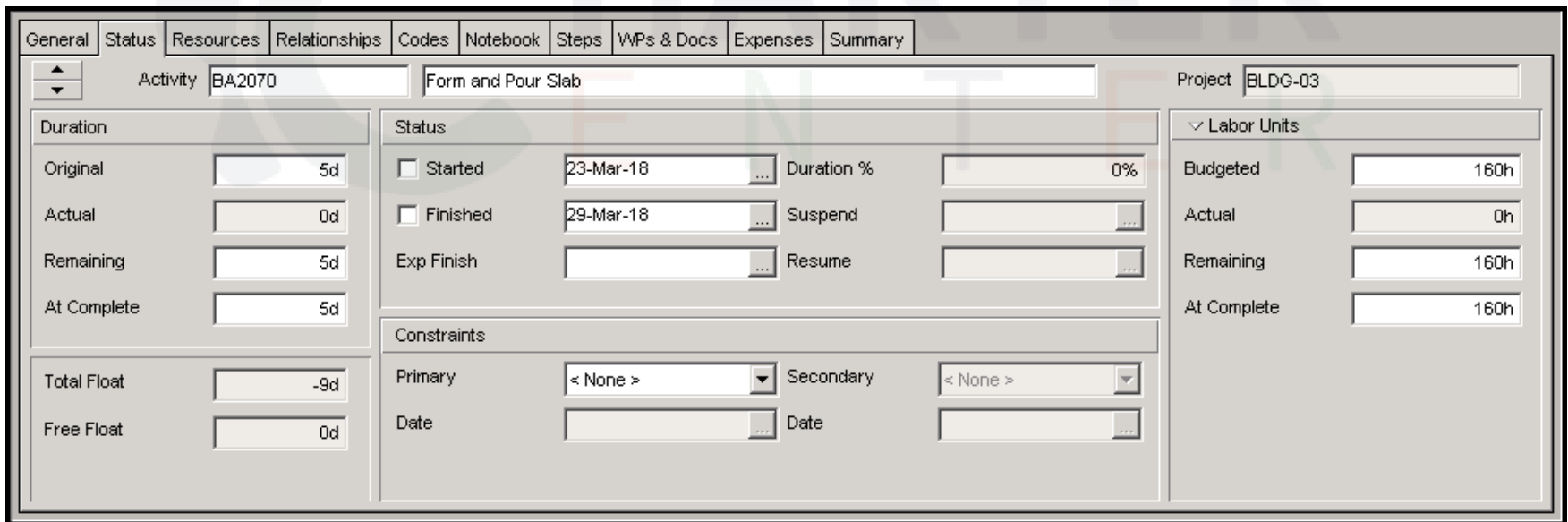


Top Layout

Bottom Layout

# Details

- Displays detailed information about selected item.
- Available in all windows, except Tracking.
- Always in bottom layout.
- Organized into tabs.
  - Tabs can be customized in some windows.



The screenshot shows the 'Details' window for activity BA2070, 'Form and Pour Slab', under project BLDG-03. The window is organized into tabs: General, Status, Resources, Relationships, Codes, Notebook, Steps, WPs & Docs, Expenses, and Summary. The 'General' tab is active, displaying various fields for duration, status, constraints, and labor units.

Duration		Status		Constraints		Labor Units	
Original	5d	<input type="checkbox"/> Started	23-Mar-18	Duration %	0%	Budgeted	160h
Actual	0d	<input type="checkbox"/> Finished	29-Mar-18	Suspend		Actual	0h
Remaining	5d	Exp Finish		Resume		Remaining	160h
At Complete	5d					At Complete	160h
Total Float	-9d	Primary	< None >	Secondary	< None >		
Free Float	0d	Date		Date			

# Project ,Programs , Portfolio

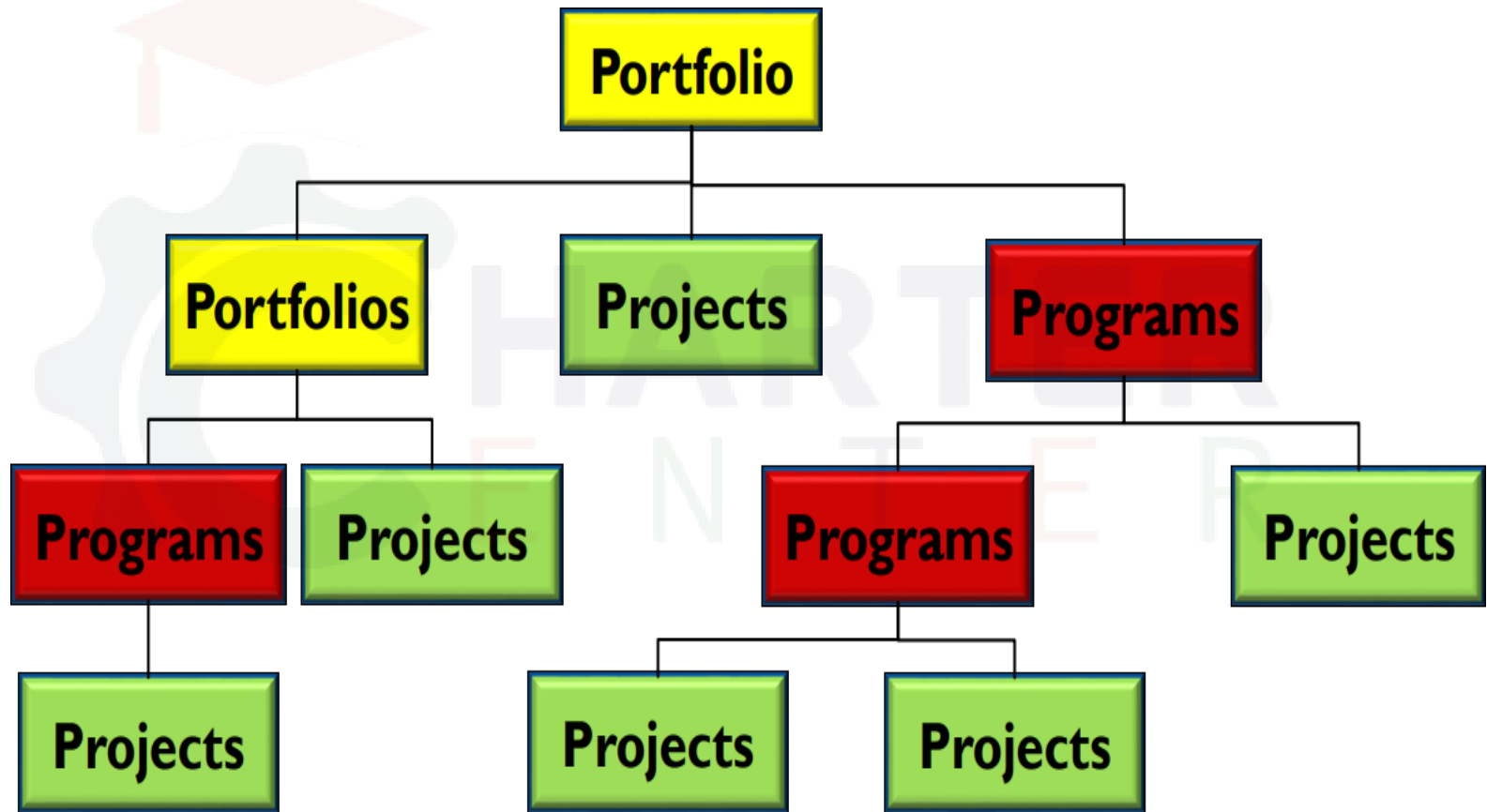
a Project Is a set of objectives has a definite beginning and end to achieve specific goals with specific budgets .

**An Enterprise** is any company that has multiple divisions, levels, departments, Managed by **CEO**

**A program** is a group of projects that are similar or related to one another, and which are managed by **PROGRAM MANGER**

A **portfolio** is a group of different programs and/or projects within the same organization, which may be related or unrelated to one another  
Managed by **PORTFOLIO MANGER**

# Project ,Programs , Protfolio



# Creating a Project

There are three ways to create a project:

- **Create new** – Best suited for new endeavors or for implementation of new processes / policies.
- **Import** – Add data from P6, spreadsheet applications or Microsoft Project.
- **Copy/paste** – Duplicate existing project or elements of existing project.

# Required Information for Creating a Project

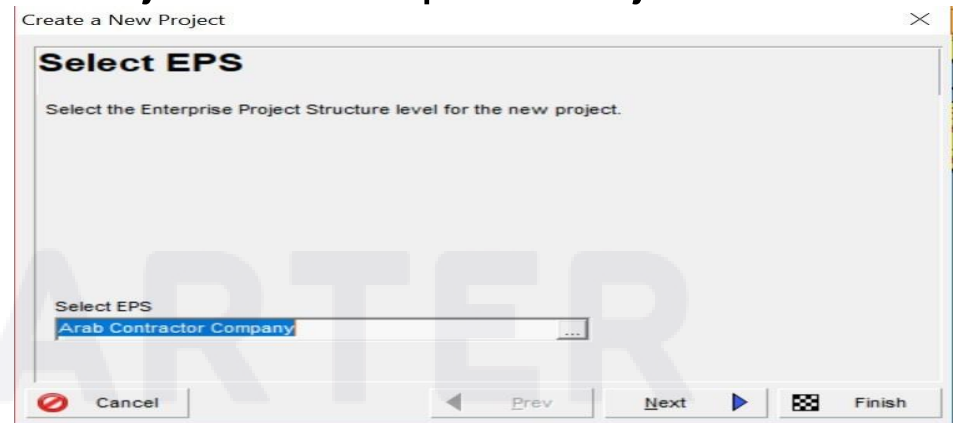
When creating a new project, certain information is required:

- Project ID
- Project Name
- EPS location
- Responsible Manager
- Planned Start date



# Required Information for Creating a Project

- Form Menu File (+new) this screen will Appear to ask for (EPS)  
Select where there location of the Project in Enterprise Project Structure the NEXT



Create a New Project

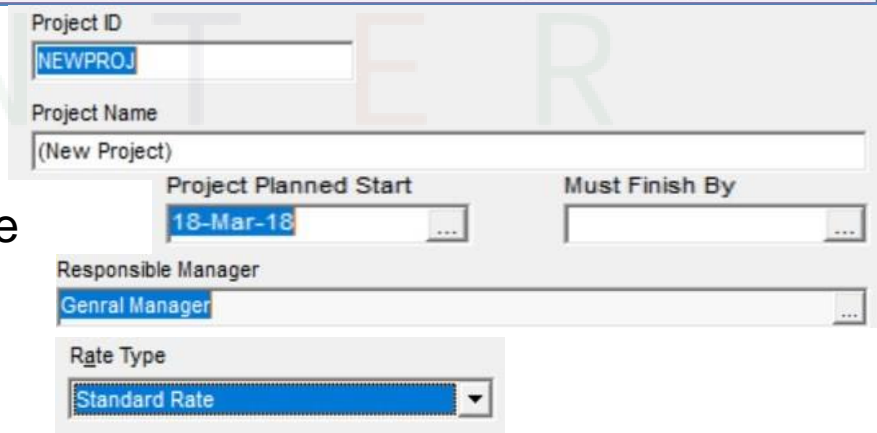
**Select EPS**

Select the Enterprise Project Structure level for the new project.

Select EPS  
Arab Contractor Company

Cancel Prev Next Finish

- P6 ask about Project Id &Name
- P6 ask about Project Start &Finish Date
- P6 ask about Responsible Manager
- P6 ask about Assignment Rate type
- P6 ask to Finish



Project ID  
NEWPROJ

Project Name  
(New Project)

Project Planned Start  
18-Mar-18

Must Finish By

Responsible Manager  
Genral Manager

Rate Type  
Standard Rate

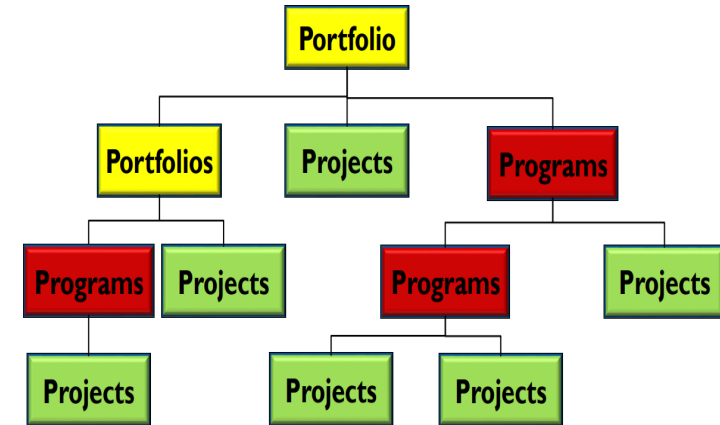
## Congratulations

Your new project has been created. To modify your project properties and define properties not covered by this wizard, click on the Enterprise menu, and then click Projects.

# EPS ,OBS

EPS: Enterprise Project Structure is a hierarchy that represents the breakdown of the projects in your organization

هيكل مشروعات المؤسسة او بنيه المؤسسة

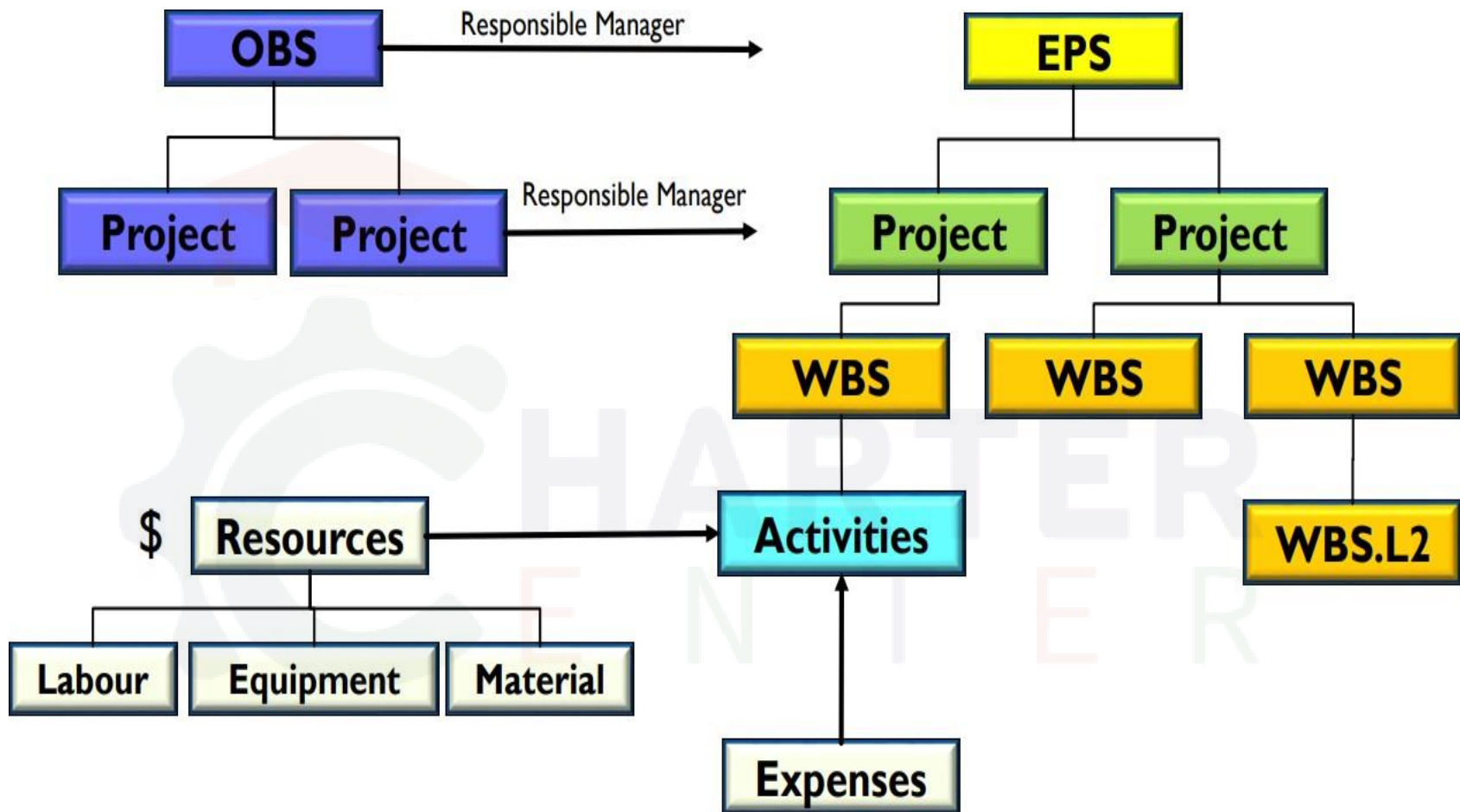


The organizational breakdown structure (OBS) is a hierarchical way to represent the managers responsible for the projects in your enterprise.

هيكل تنظيم المؤسسة او بنيه الاداره

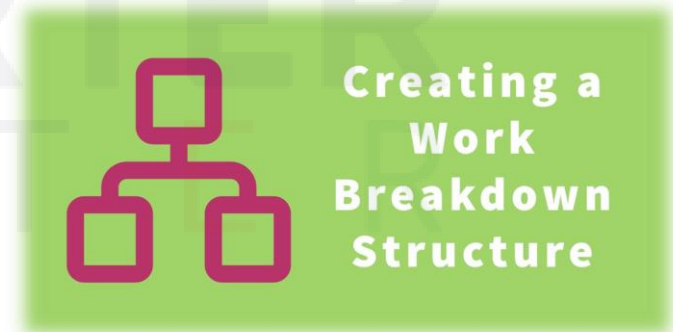


# EPS ,OBS



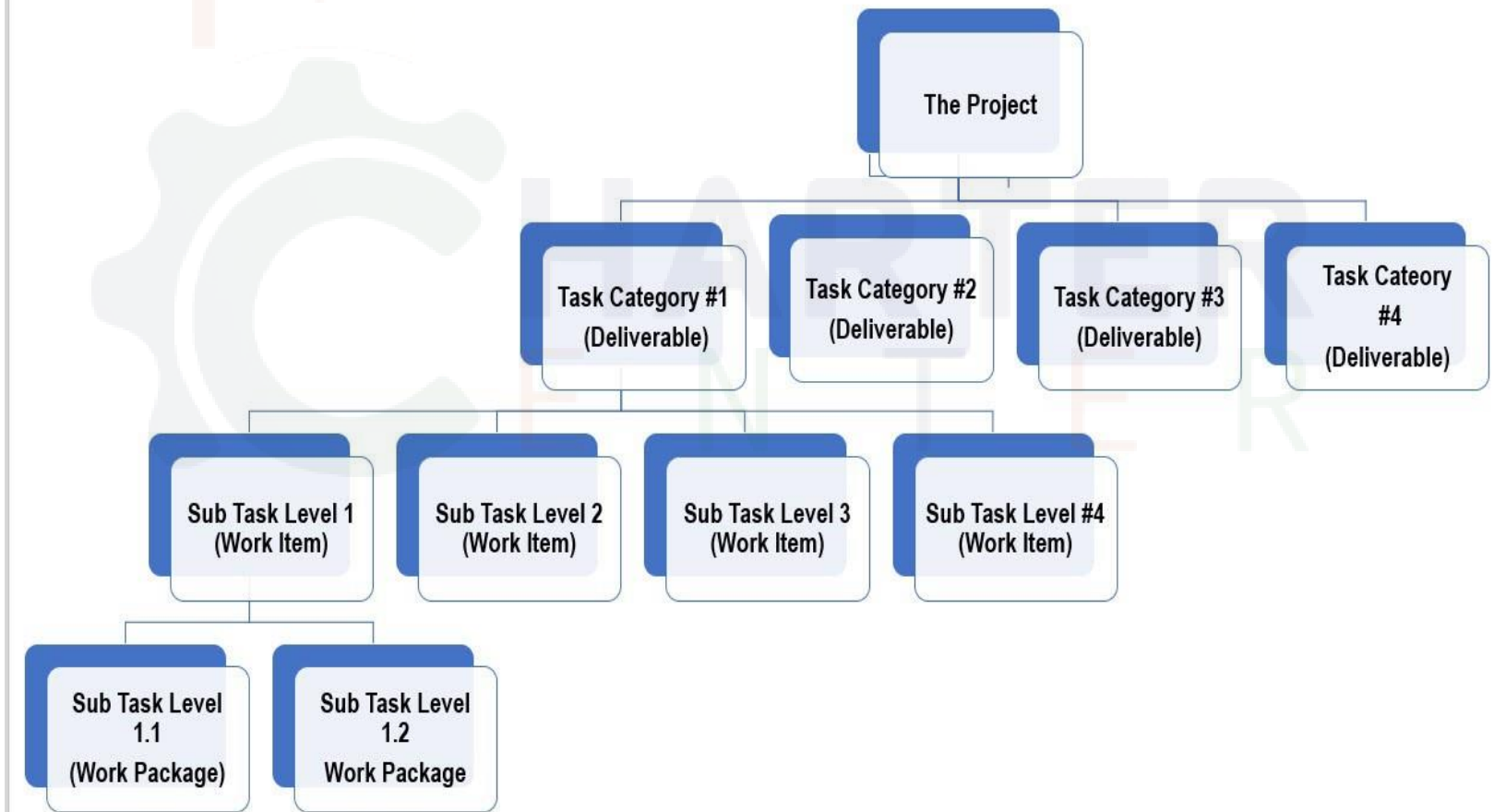
# Creating a Work Breakdown Structure

- ❖ The process of subdividing project work into a smaller , more manageable component.
- ❖ A hierarchical arrangement of the products and services produced during, and by, a project.
- ❖ Element represents a deliverable, product, or service
- ❖ Each element contains the activities needed to produce the deliverable
- ❖ Enables you to divide a project into logical pieces for the purpose of planning and control



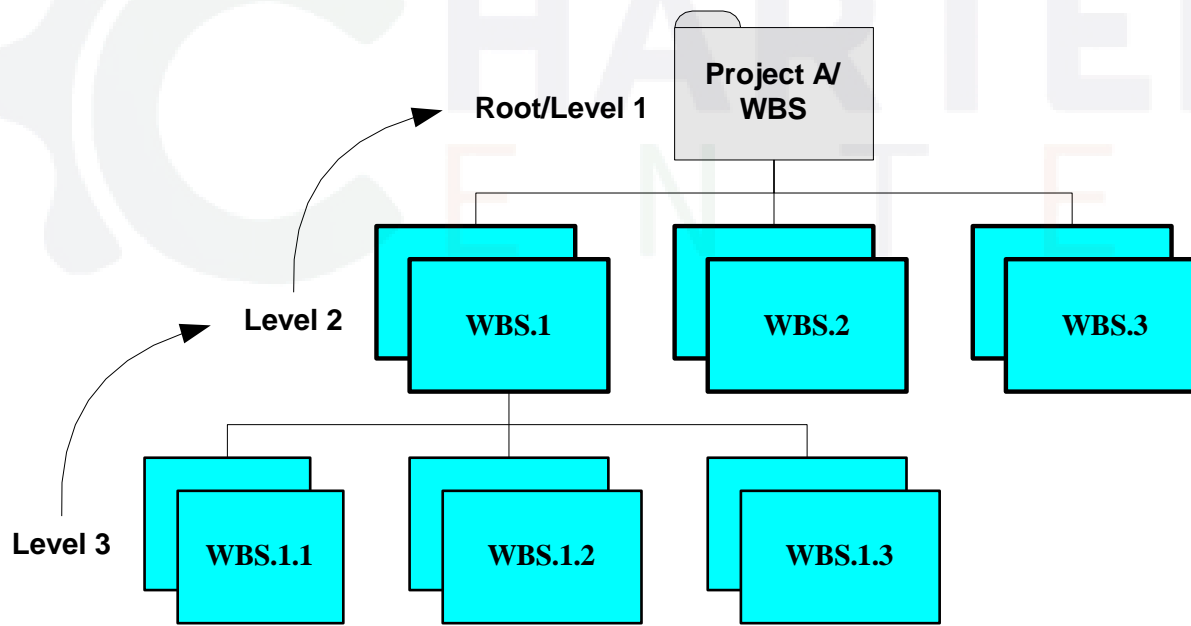
- A WBS is defined by the PMBOK as “a deliverable-oriented hierarchical decomposition of the work to be executed by the project team to accomplish the project objectives and created the required deliverables

# Work Breakdown Structure (WBS)

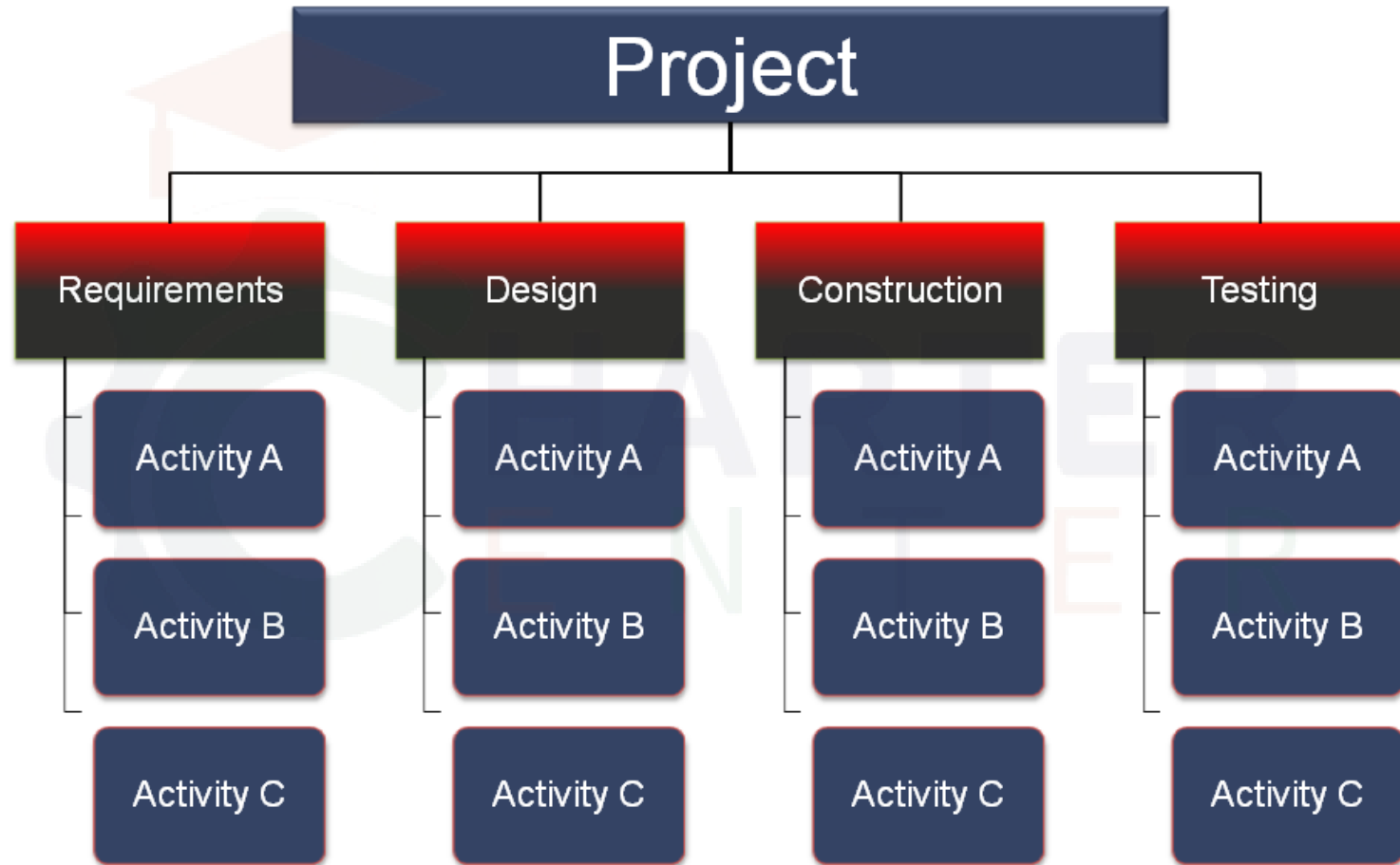


# WBS

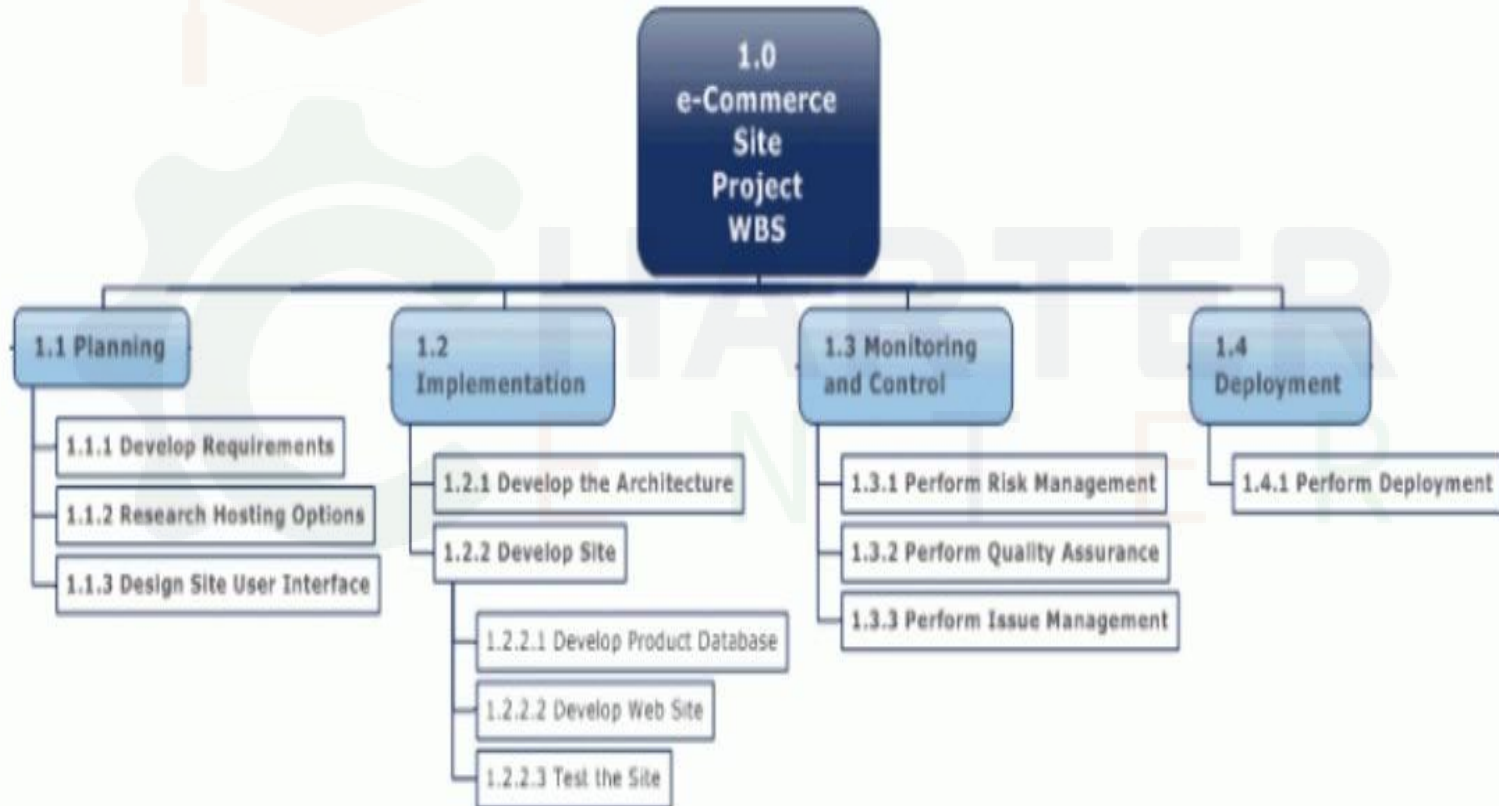
- Project is root node of WBS.
- Child/parent relationships between elements enable lower levels to be rolled up and summarized.



# WBS Example

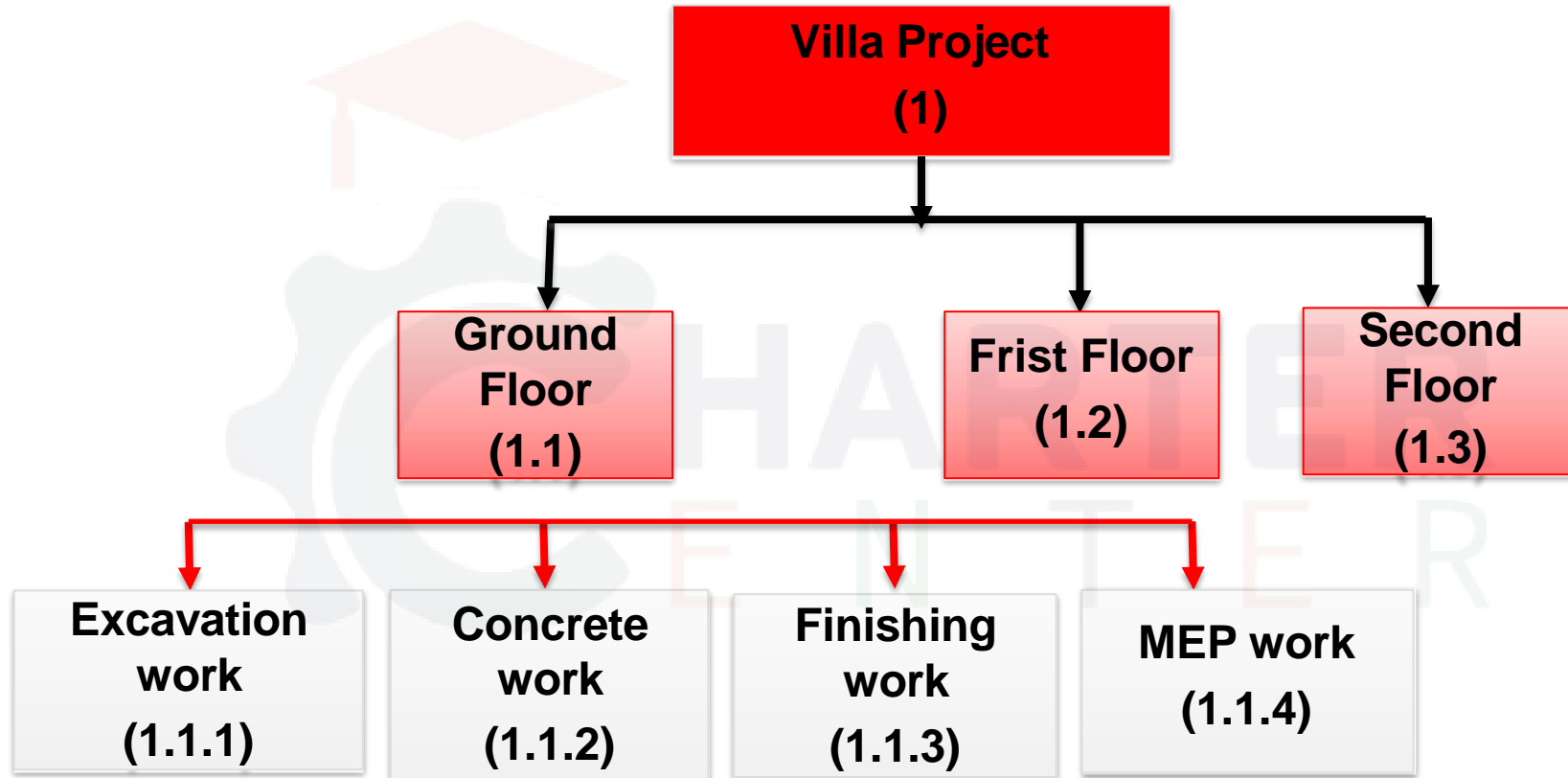


# WBS Example

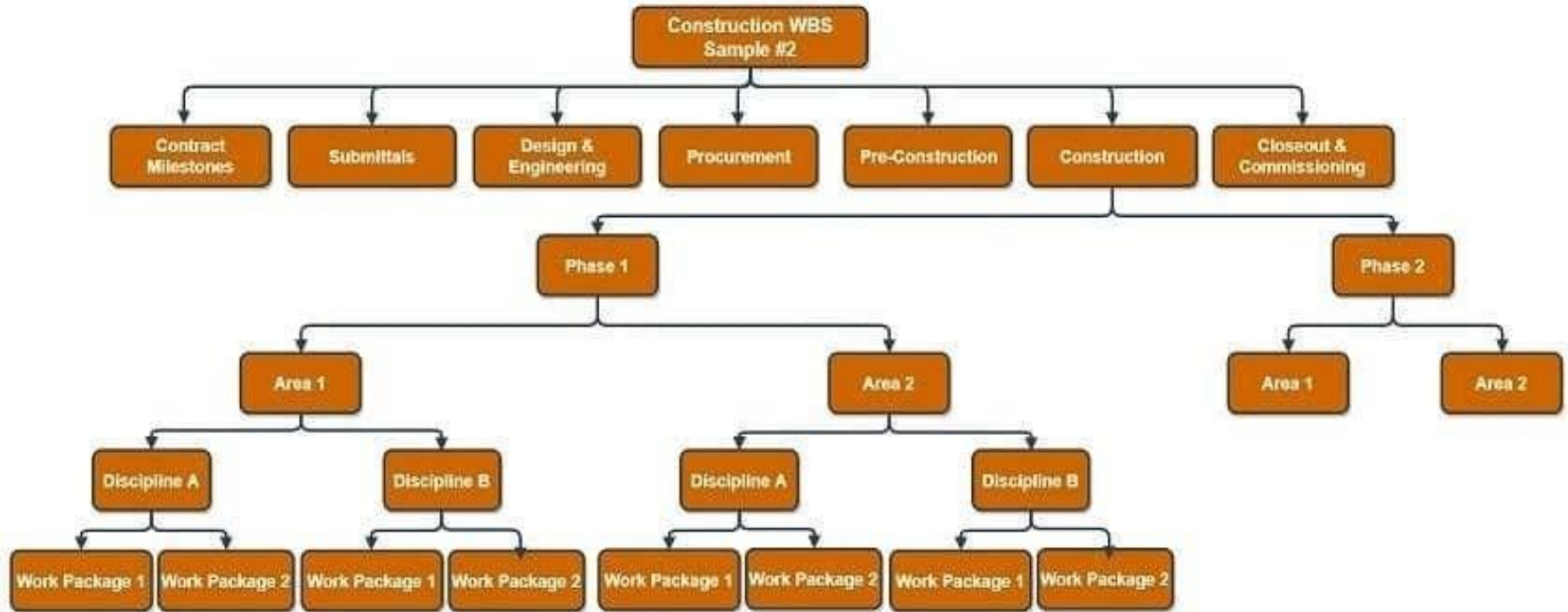
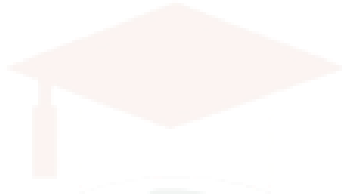




# WBS Example



# WBS Example



# WBS Example



# Work Breakdown Structure

Find This icon

P6 Primavera P6 Professional 18.0

File Edit View Project Enter



Projects

Activities Projects

Layout: Projects

Project ID

Enterprise

A

HR

BLDG-17

E&C

EC00515

EC00530

EC00501

EC00610

EC00620

EC00630

Energy

NRG00870

NRG00950

NRG00800

NRG00940

NRG00820

WBS

ProjectsWBSActivitiesResourcesReports

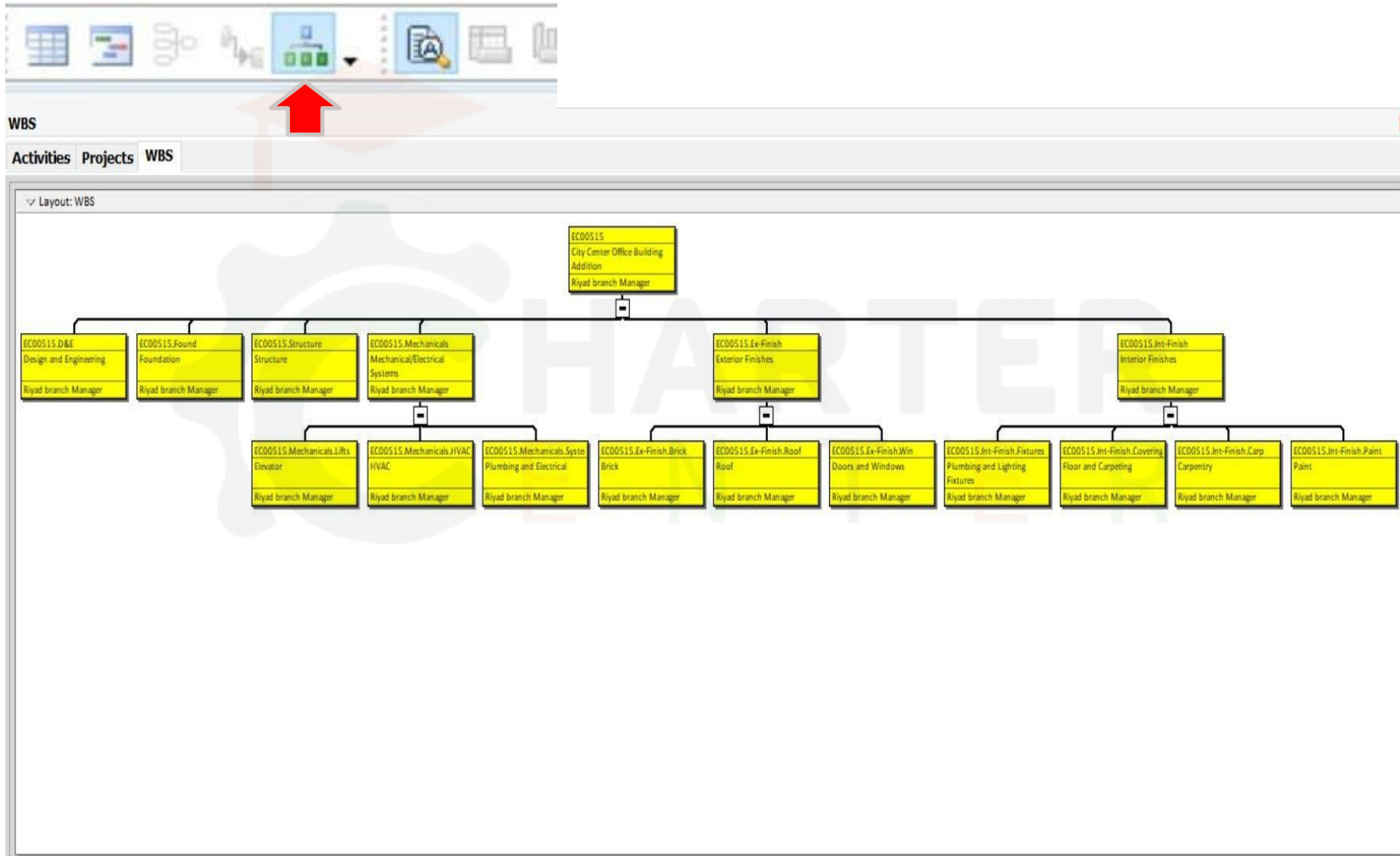
Layout: WBS

WBS Code	WBS Name	Total Activities	Total Float	Original Budget	Actual Expense	BLZ	Mar 12					Mar 19									
							Tue	W	Thr	Fri	Sat	Sun	M	Tue	W	Thr	Fri	Sat	Sun	M	Tu
0	Water Tank Project	8	0d		SR0.00																
0.1	Mobilization work	1			SR0.00																
0.2	Excavtion work	2			SR0.00																
0.3	Concrete work	2	5d		SR0.00																
0.4	Import & Install work	2	0d		SR0.00																
0.5	Hand Over work	1	0d		SR0.00																

2



# Work Breakdown Structure



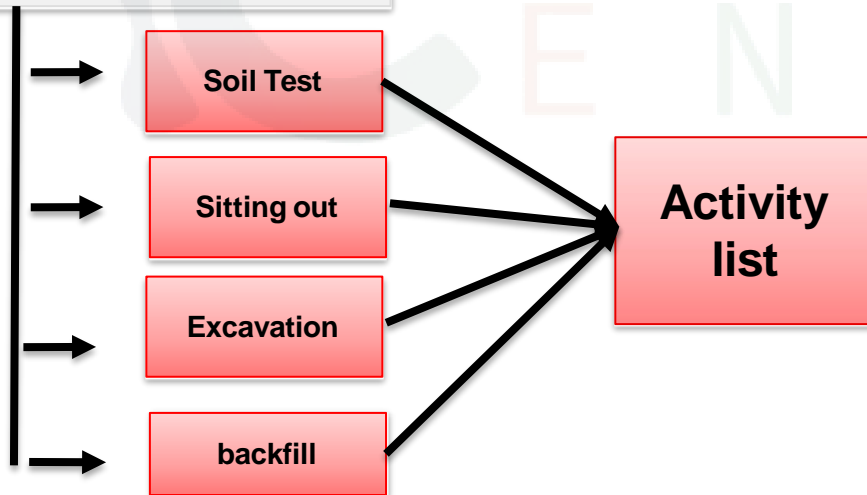
## Define Activities

- is the process of identifying and documenting the specific actions to be performed to produce the project deliverables.
- **Define Activities Tools & Techniques-**

### ➤ Decomposition:

We will start from decomposing the work packages in WBS to activities (activity: effort necessary to complete a work package)

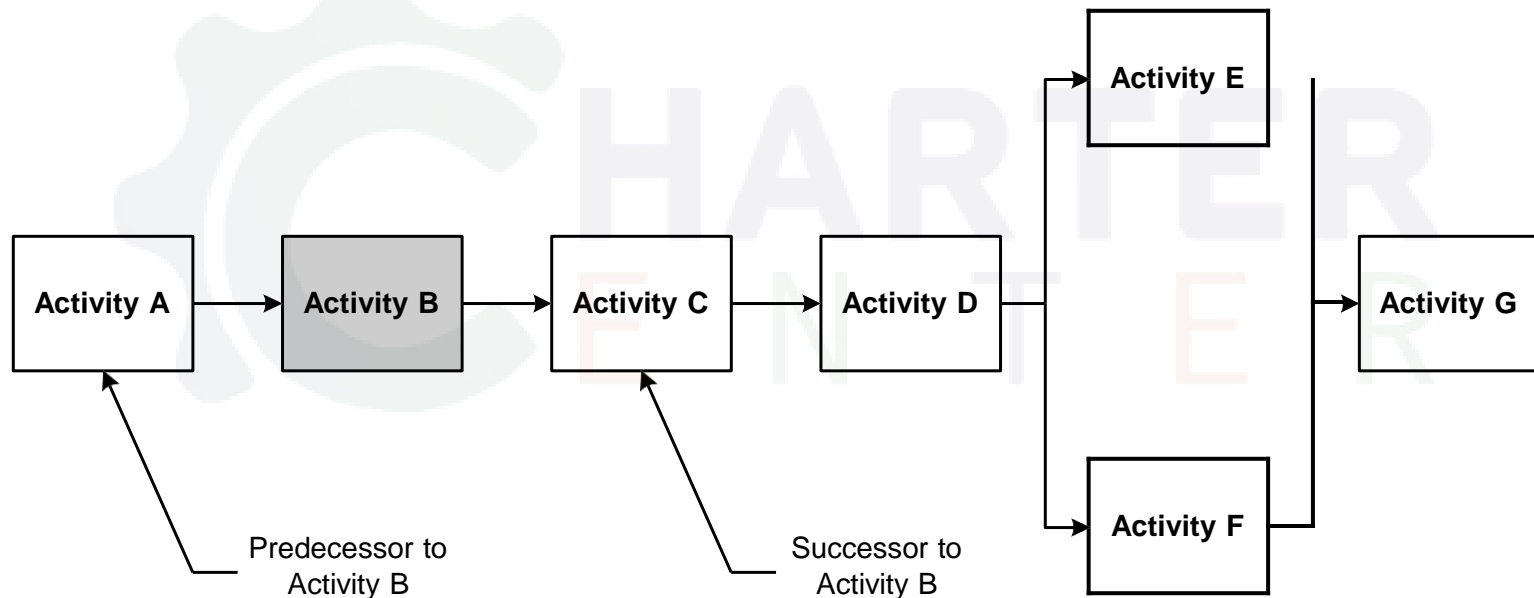
#### Excavation work (1.1.1)



# Sequence Activities

## Network Logic Diagram

A network logic diagram is a graphic representation of all of the activities in a project and their logical (dependent) relationships.





# Relationship Types

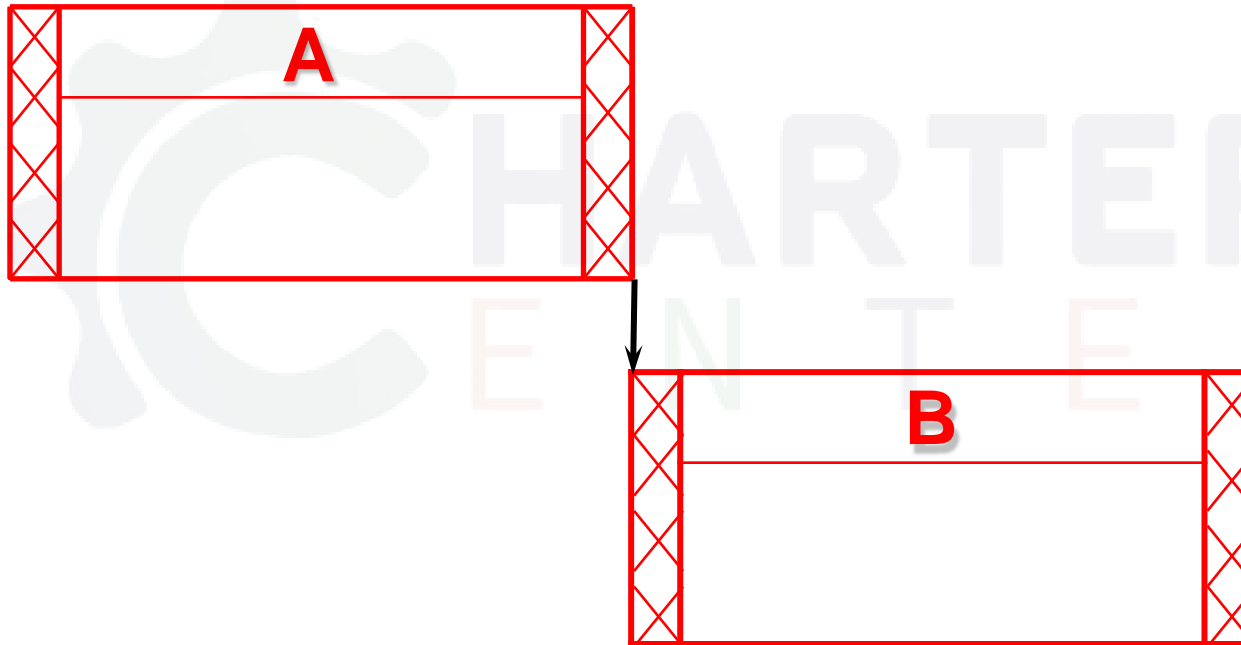
There are four relationship types:

- **Finish to Start (FS)** – When A finishes, B can start.
- **Start to Start (SS)** – When A starts, B can start.
- **Finish to Finish (FF)** – When A finishes, B can finish.
- **Start to Finish (SF)** – When A starts, B can finish.



## Finish to Start (FS)

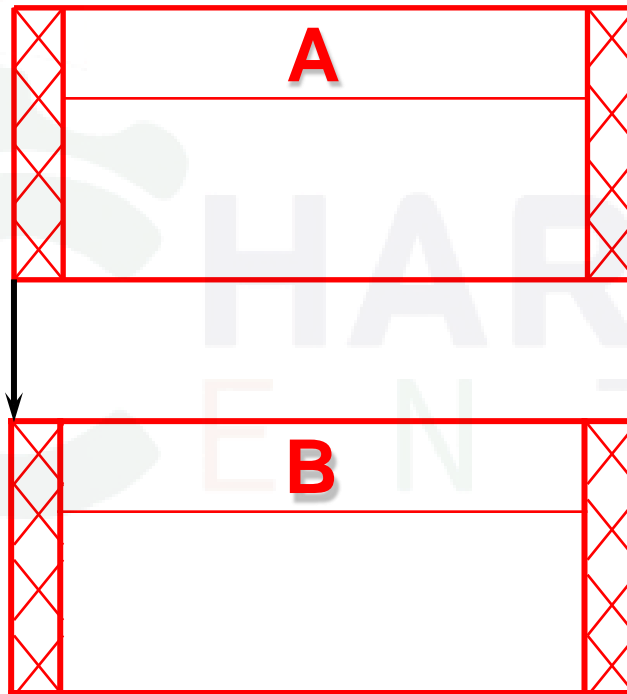
When activity A finishes, activity B can start. This is the most common type of relationship.



Example: When we finish writing the report, we can send it to the client.

## Start to Start (SS)

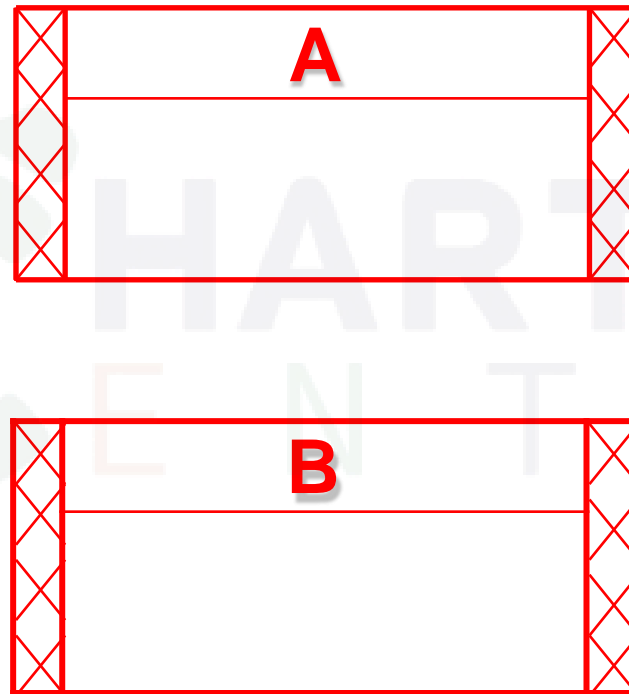
When activity A starts, then activity B can start.



Example: When we start selling our new software, we will start offering support service.

## Finish to Finish (FF)

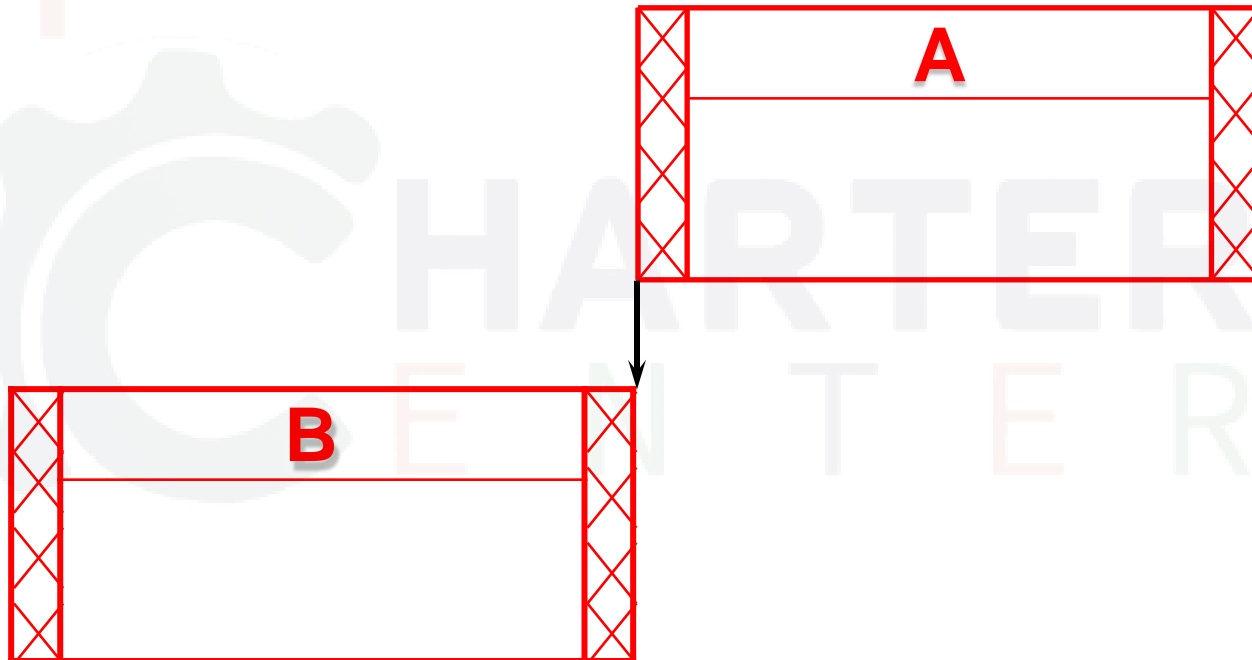
When activity A finishes, then activity B can finish.



Example: When we finish testing, we can finish collecting data.

## Start to Finish (SF)

When activity A starts, then activity B can finish.



Example: When we begin manufacturing our own components, we finish releasing of all POs

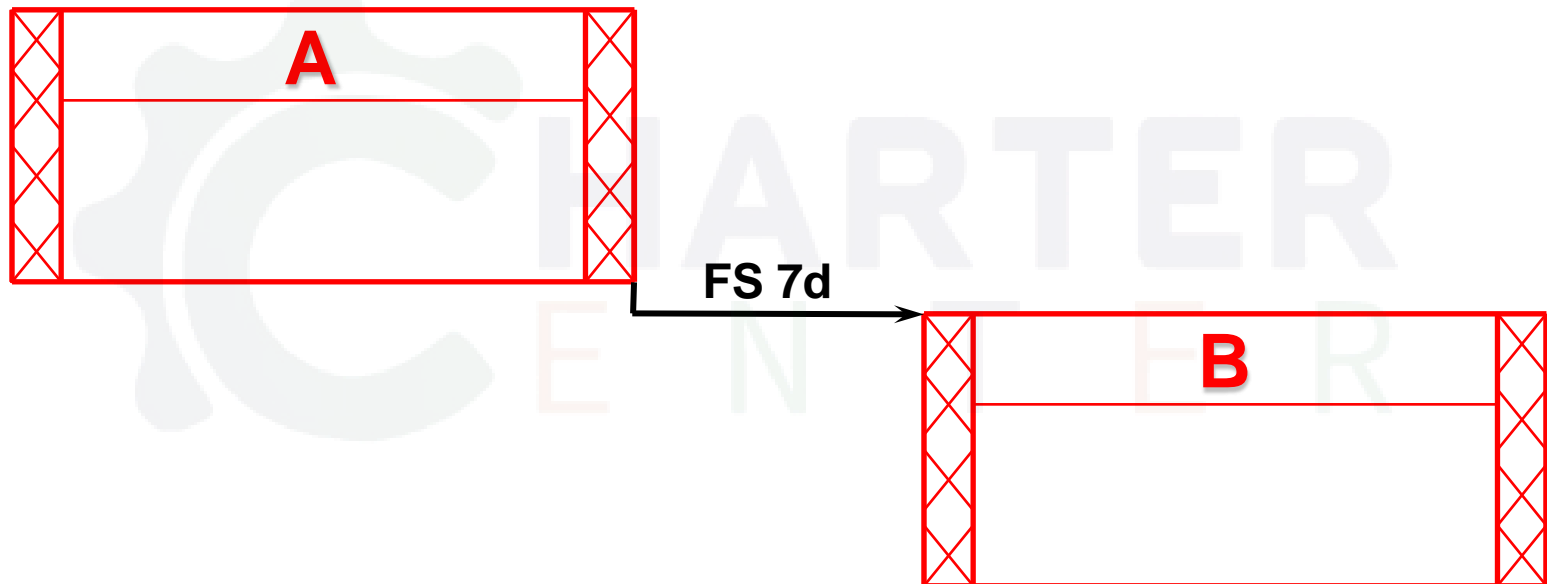
# Relationships with Lag

Lag specifies an offset or delay between an activity and its successor.

- Can be added to any relationship type.
- Can be a positive or a negative value.

## Finish to Start with Lag

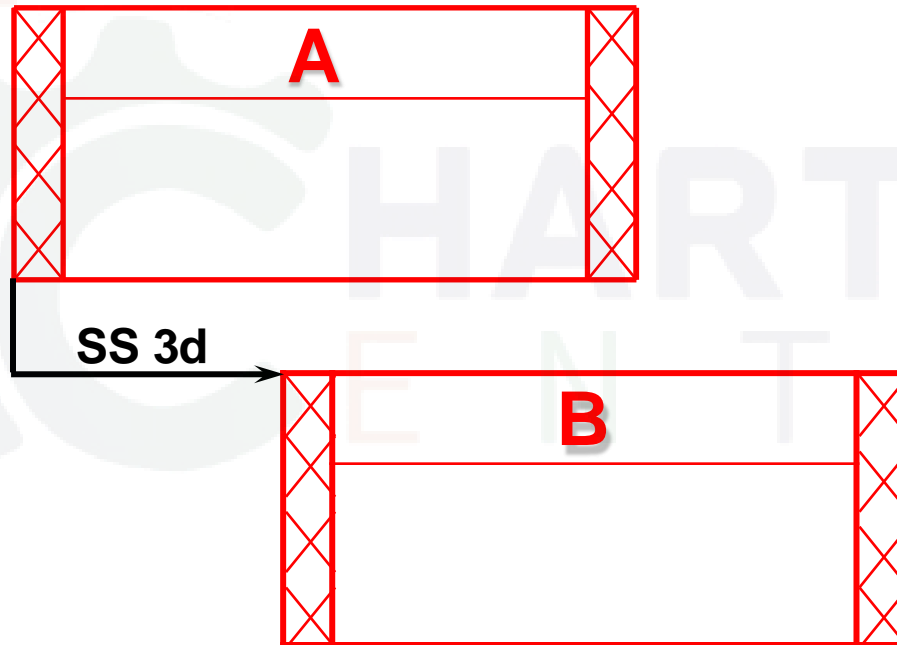
Activity B can start after activity A finishes and seven days have passed.



Example: After the concrete floor is poured and cures for seven days, we can begin constructing the walls.

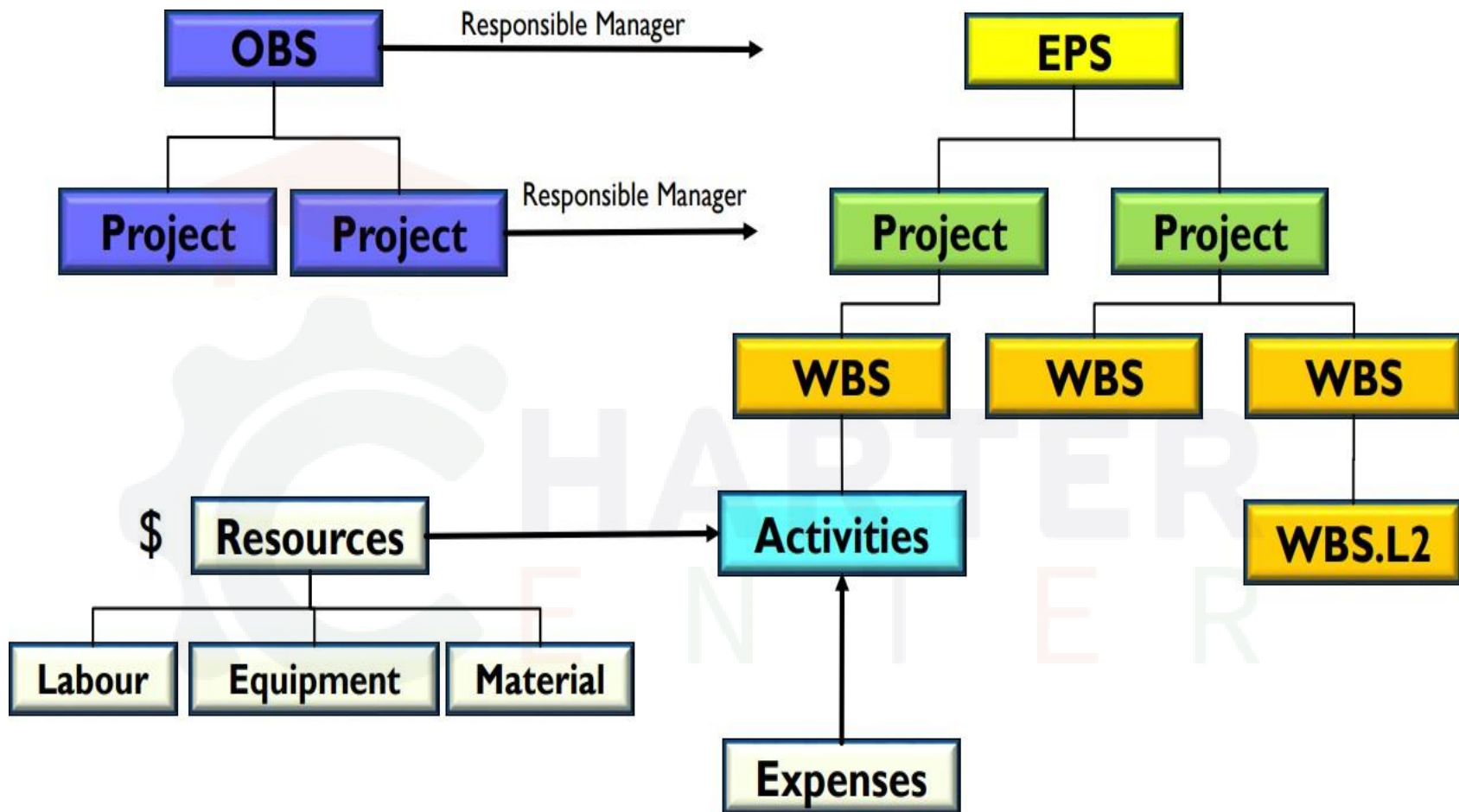
## Start to Start with Lag

After activity A starts and 3 days of work have passed, then activity B can start.



Example: We can start laying the drainage pipes three days after we start digging the trenches.

# EPS ,OBS



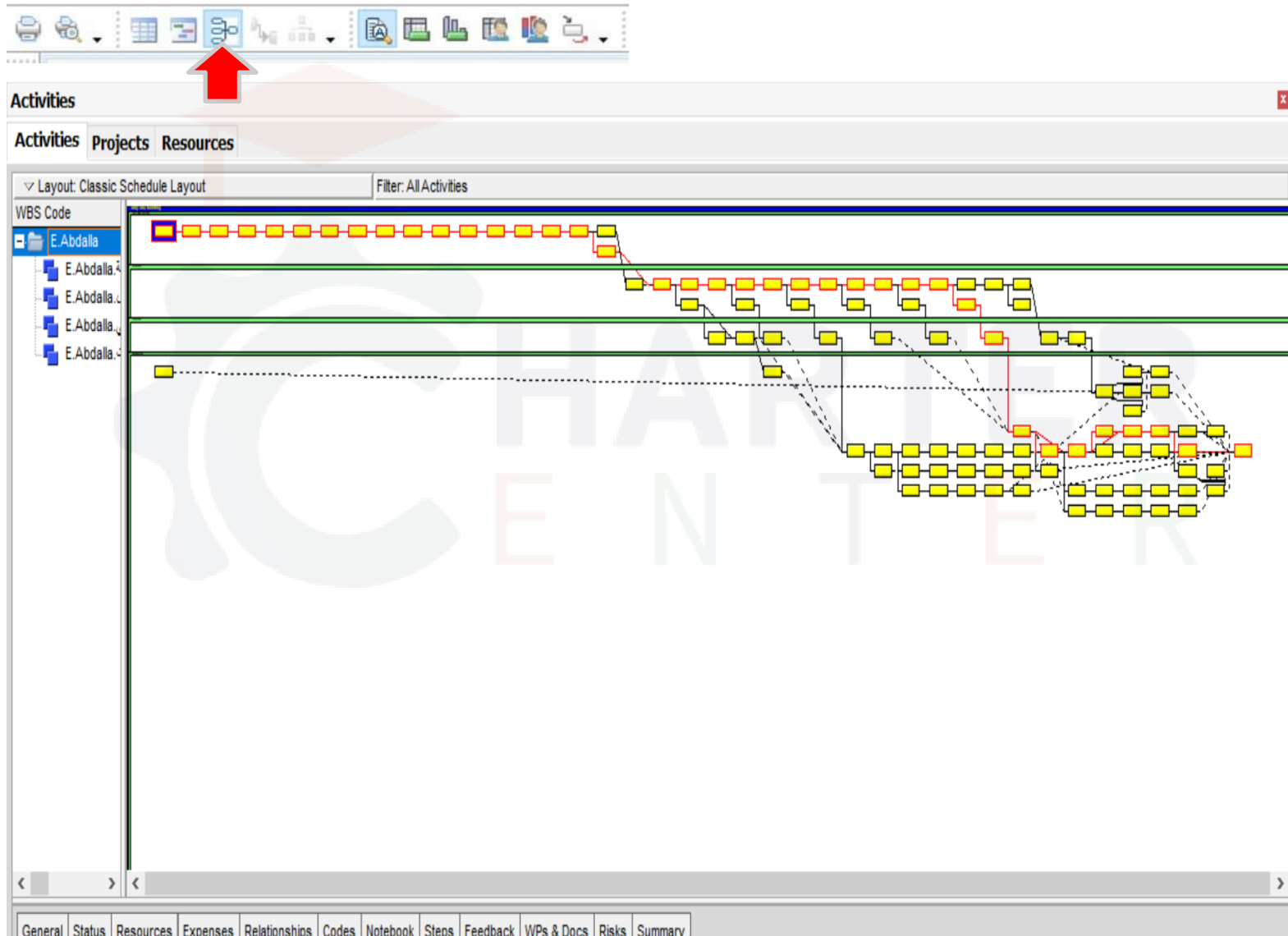


# Precedence Diagramming Method (PDM)

PDM is a technique for creating network logic diagrams.

- A box or rectangle represents each activity.
- Lines with arrows connect the boxes and represent the logical relationships between the activities.
  - **Predecessor** - Controls the start or finish of another activity.
  - **Successor** - Depends on the start or finish of another activity.
- Start with either the first activity in the network and enter each successor, or start with the last activity in the network and enter each predecessor.

# Project Schedule Network Diagram



# Estimate Activity Durations

- Is the process of estimating the number of work periods needed to complete each individual activity with the estimated resources.
- **Estimate Activity Durations Tools & Techniques-**

## 1. Analogous Estimating (Top-down)

Technique for estimating the duration or cost of an activity or a project using historical data from a similar activity or project.

It is used when there is a limited amount of detailed information about the project, especially in the early stages of project.

## 2. Parametric Estimating

Uses a statistical relationship between historical data and other variables. Activity can be quantitatively determined by Dividing the quantity of work by unit of work Per labor hours

# Estimate Activity Durations

## 3. Three-point Estimates (PERT)

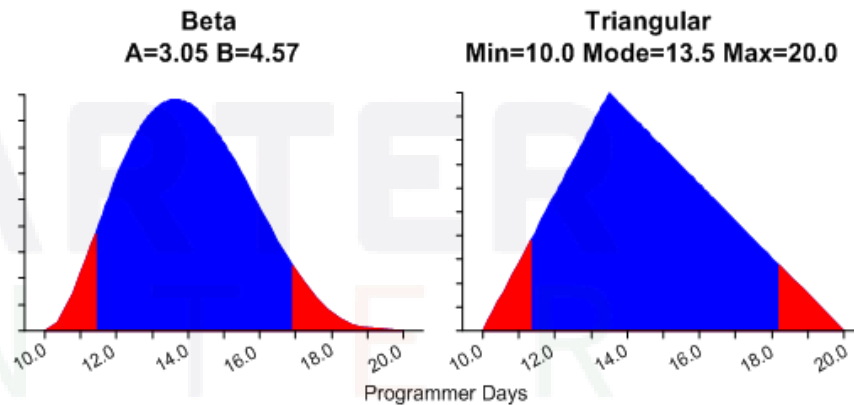
This concept originated with the program evaluation and review technique Uses three estimates to calculate average: Most likely ,Optimistic ,Pessimistic

➤ Triangular Distribution  $E=(O+M+P)/3$

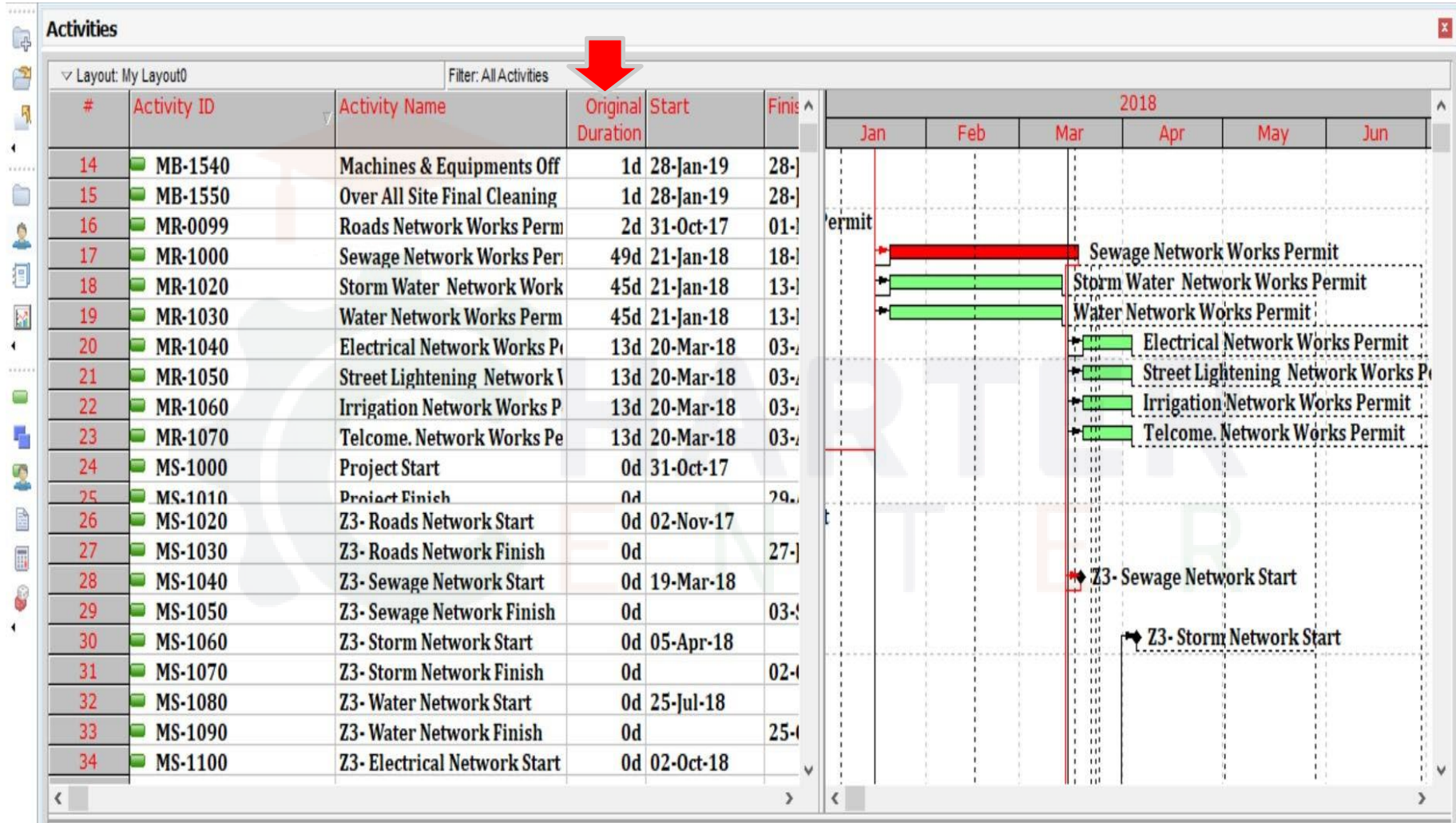
➤ Beta Distribution  $E=(O+4M+P)/6$

## 4-Bottom-up Estimating

In bottom-up estimating, each task is broken down into smaller components. Then, individual estimates are developed to determine what specifically is needed to meet the requirements of each of these smaller components of the work. This technique is highly accurate and can be used in both estimating cost and resources however its time consuming.



# Activity Durations in P6:



# Scheduling

## Scheduling Purpose

**Identify start and completion of the project.**

**Identify start and completion dates of all activities.**

# Scheduling

## Scheduling steps

**Step 1:** Determine Activity Sequence By Creating a Network Diagram

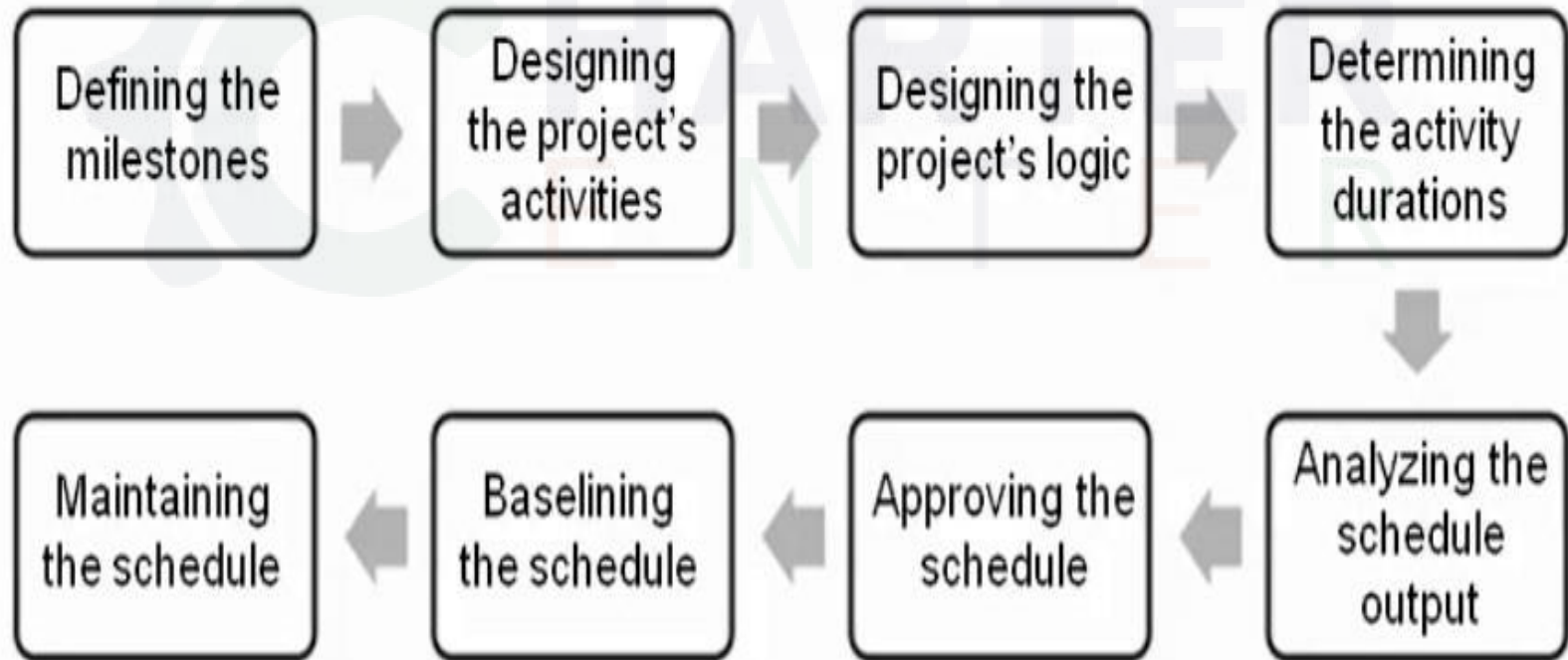
**Step 2:** Estimate Activity Durations

**Step 3:** Calculate the Schedule Using Critical Path Method (CPM) Procedures



# Develop Schedule

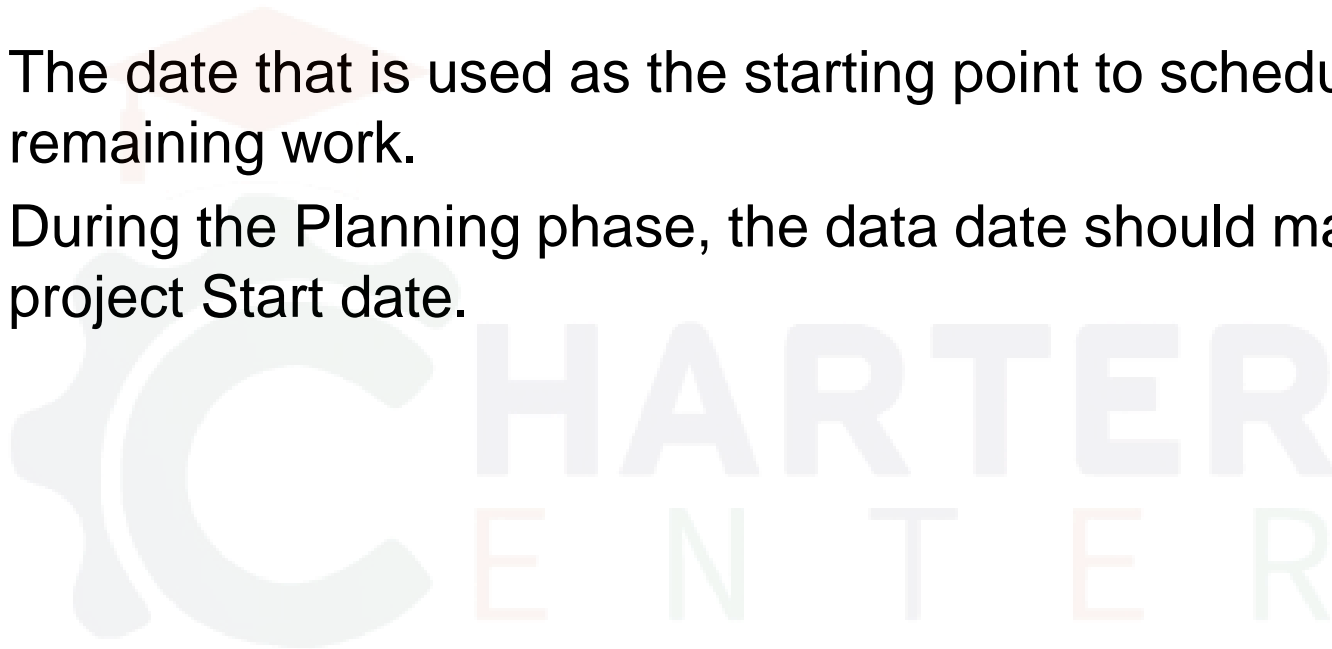
- Develop Schedule is an iterative process of analyzing activity sequence, duration, resource requirement and schedule constraints to create the schedule model, its key benefit that it gathers all the available information into a scheduling tool to generate the schedule model with planned dates for completing project activities.



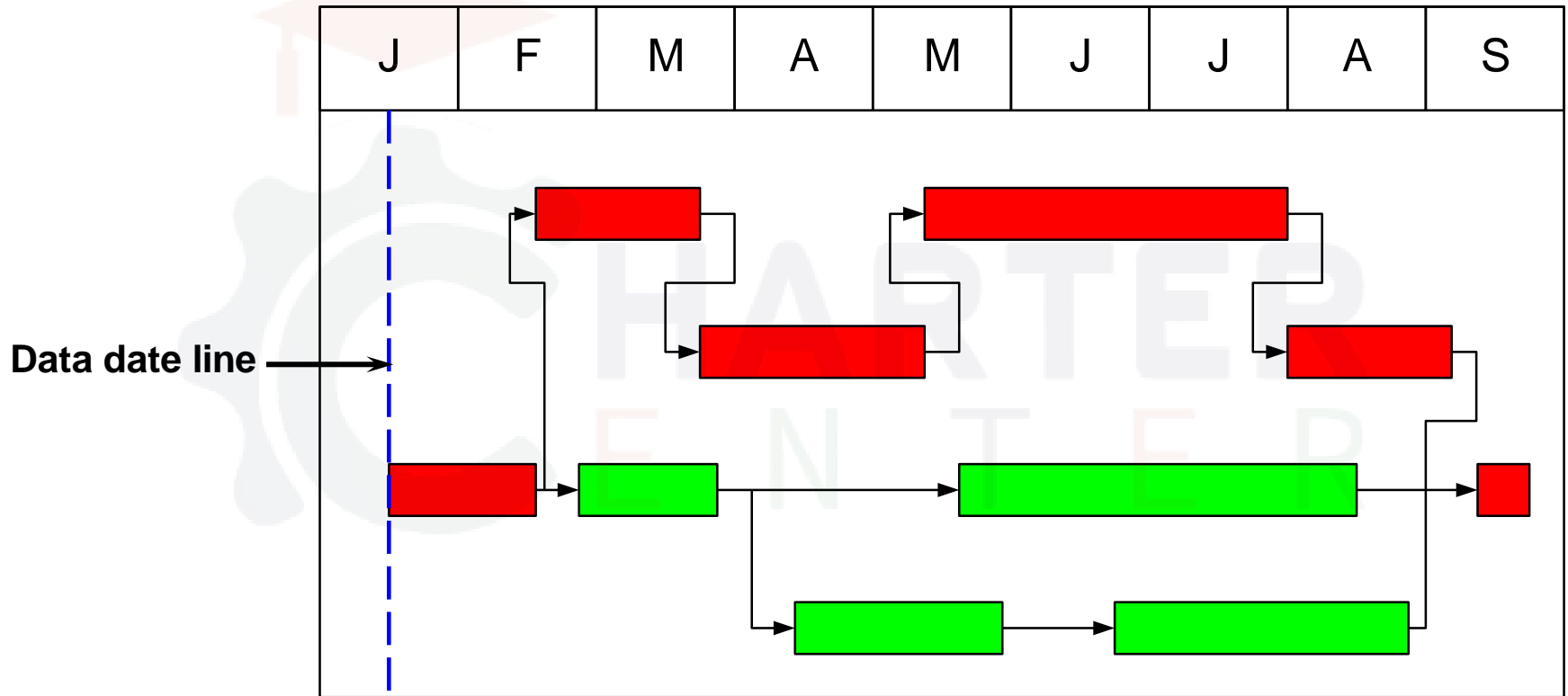


# Data Date

- The date that is used as the starting point to schedule all remaining work.
- During the Planning phase, the data date should match the project Start date.



# Data Date



# Critical Path Method Scheduling

The Critical Path Method (CPM) is the traditional technique for calculating project schedules and determining the minimum total project duration.

- Uses activity durations and relationships between activities to calculate schedule dates.
- Calculation is done in two passes – forward and backward – through the activities in a project.

# Critical Path

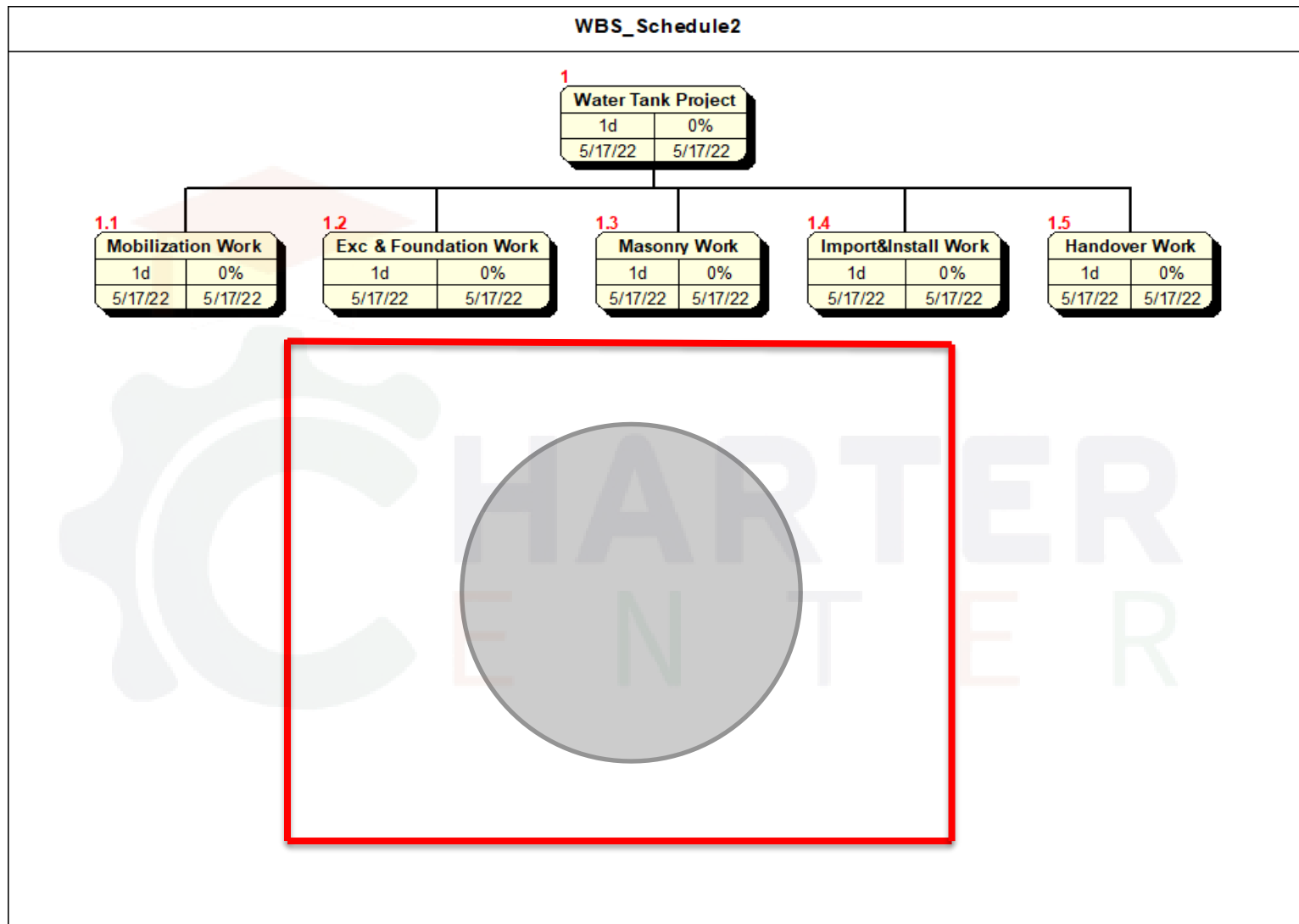
- The sequence of activities that determines a project's minimum total duration and completion date.
- Generally the longest continuous path of activities through the project.
- The duration of the activities on the critical path controls the duration of the entire project. A delay to any activity on the critical path will delay the Finish date of the project.

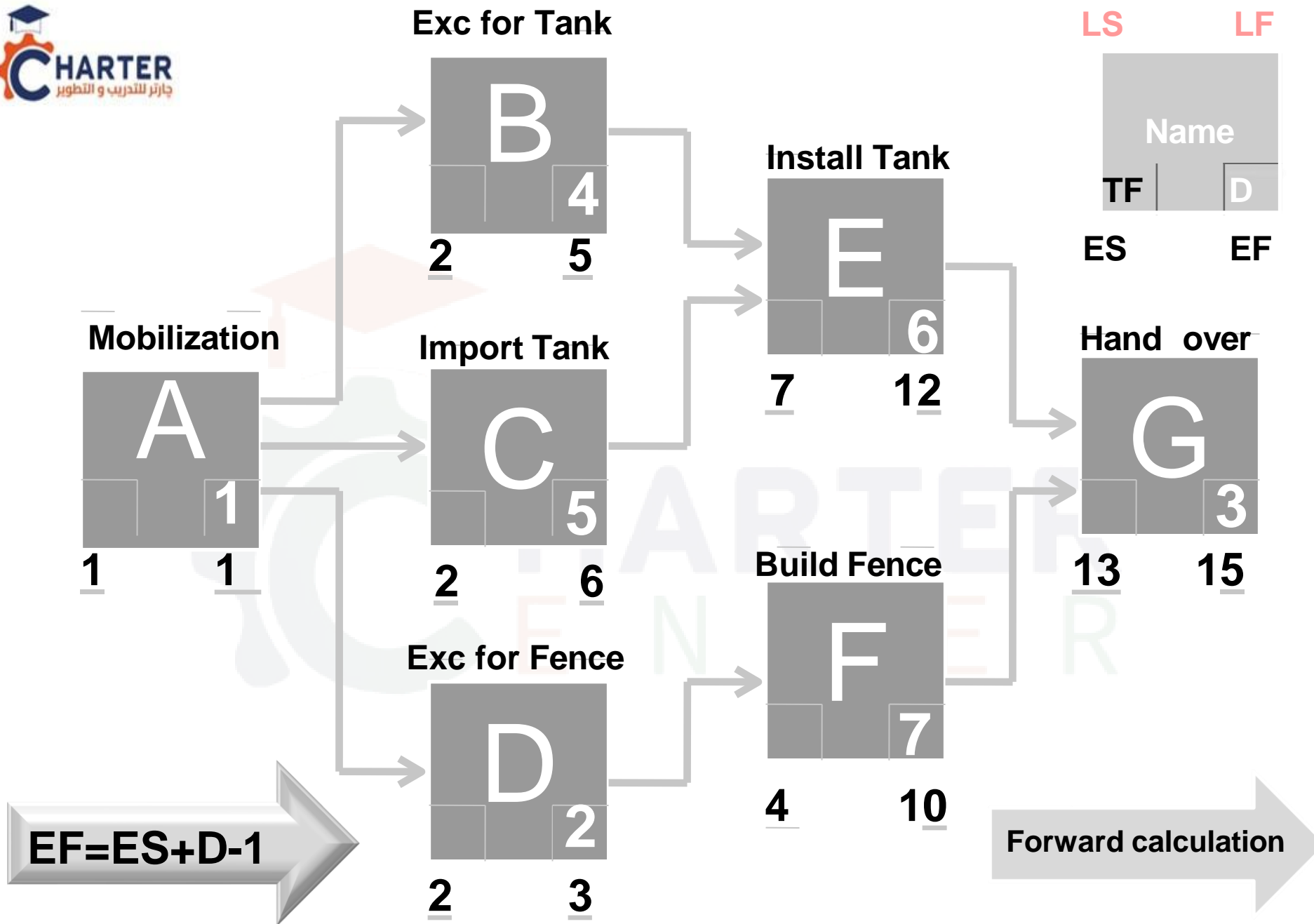
# Critical Path Method

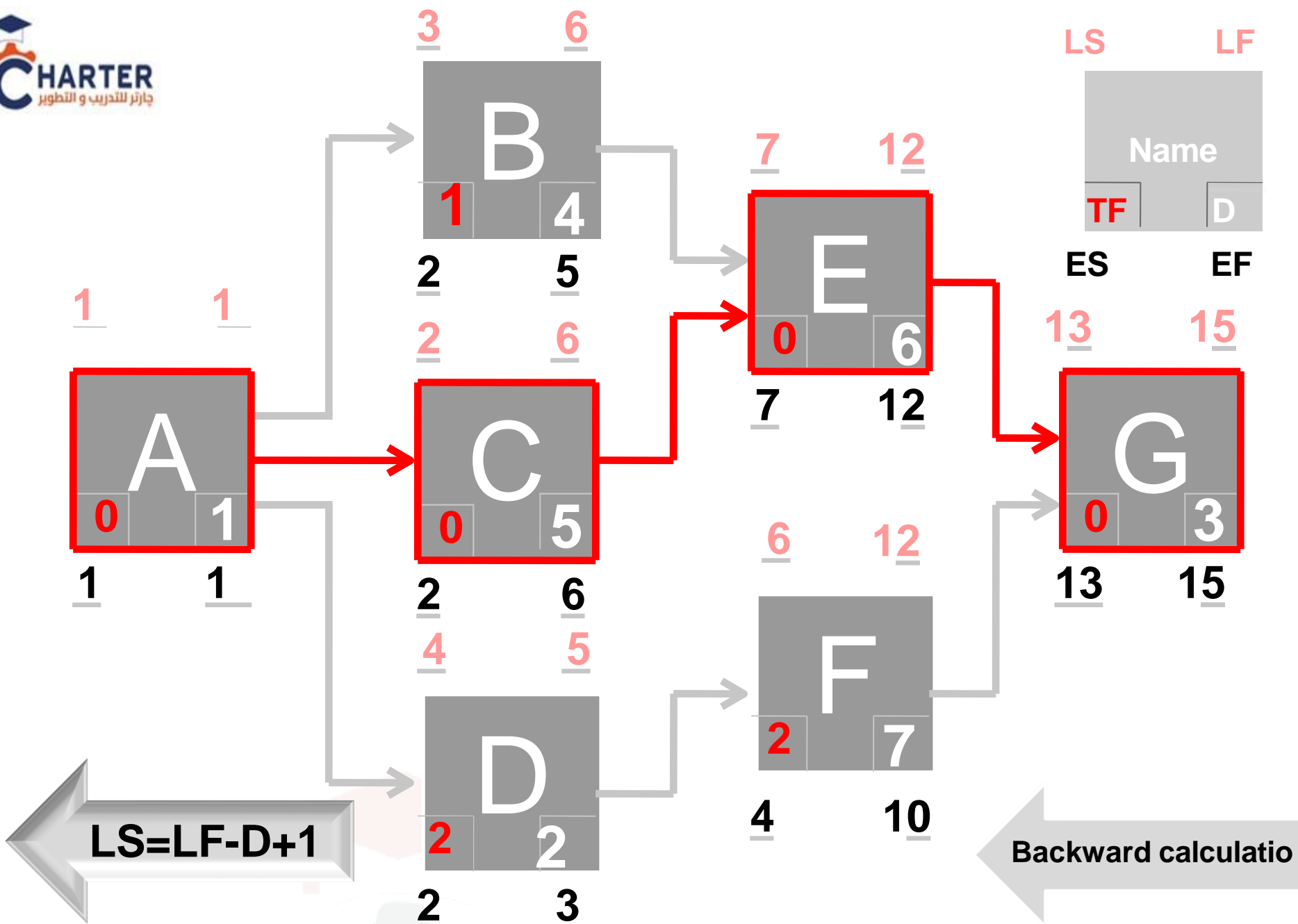


- Calculates the following for each activity
- Float (slack): is an indication of activity flexibility in relation to time, there are 3 float types:
  - Total float: measures the positive differences between early and late dates. The amount of time that a schedule activity can be delayed without delaying the project. **Total Float= LS- ES OR = Lf- EF**
  - Free float: the amount of time that a schedule activity can be delayed without delaying the early start date of any immediate successor activity within the network path. **Free Float(a)= ES(b)-EF(a)**
  - Project float: the amount of time that the overall project can be delayed without delaying the required completion date provided by the customer.

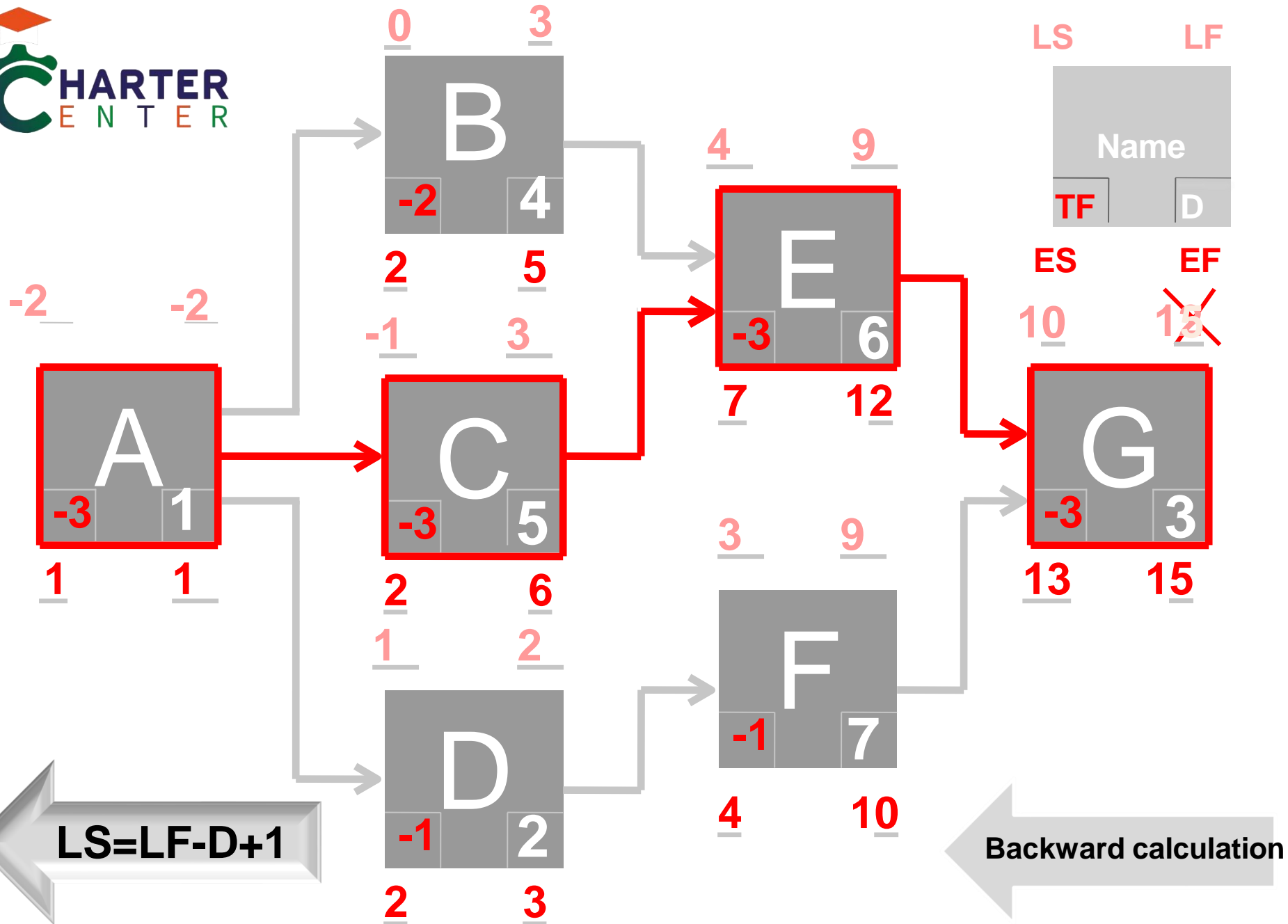
# Water Tank Project









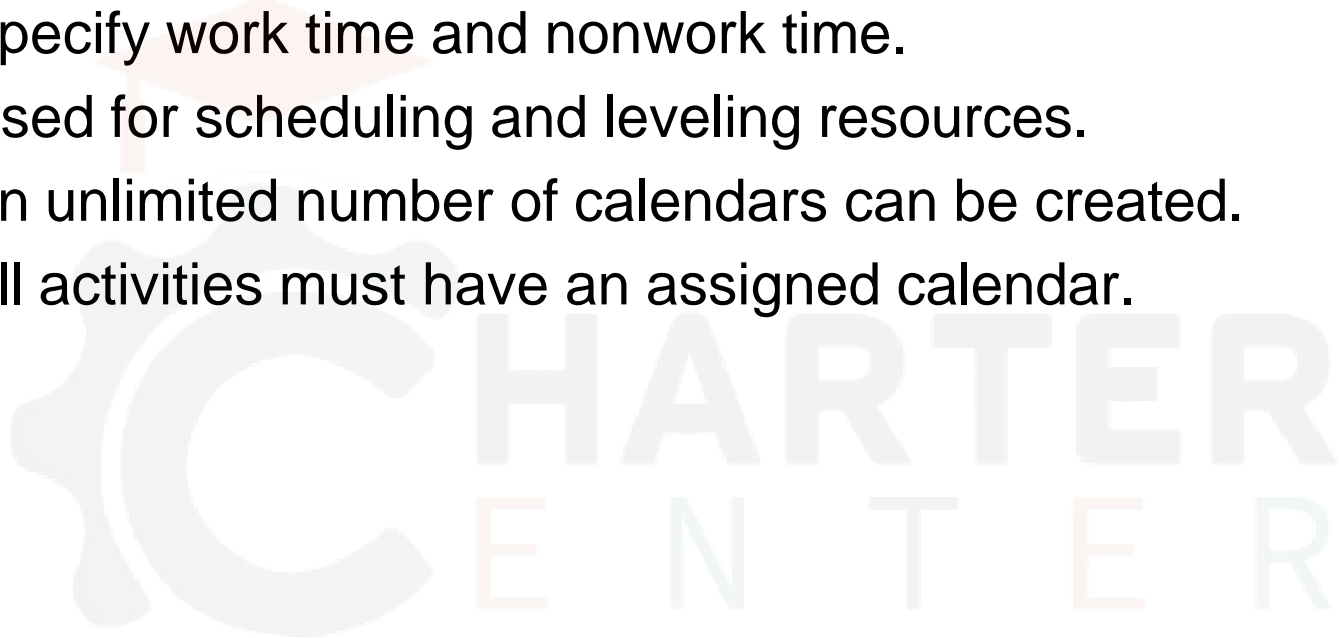


# What's is the Critical Path?

- **Riskiest path in a project**
- **Path with longest duration**
- **Path with smallest total float**
- **Path with the most important activities**

# Calendars

- Specify work time and nonwork time.
- Used for scheduling and leveling resources.
- An unlimited number of calendars can be created.
- All activities must have an assigned calendar.



# Calendar Pools

- There are three calendar pools:
  - Global
  - Project
  - Resource
- Determines whether the calendar is available to:
  - All projects, resources, and activities.
  - One project and its activities.
  - Resources only.

# Calendar Pools

- Global
  - Calendars that can be used by all projects and resources.
  - Example: 5-day workweek, 8 hours/day (usually with holidays and non-work days from the organization's calendar).
- Project
  - Project-specific calendars.
  - Example: 6-day workweek calendar to accelerate project.
- Resource
  - Resource calendar can be assigned to resource only – not to an activity.
  - Example: Personal vacation days for an individual resource.

# Calendar

- Form **Enterprise** Menu Select **Calendars**

Projects

Enterprise Project Structure...

Tracking

Project Portfolios...

Resources...

Roles...

QBS...

Resource Codes...

Project Codes...

Activity Codes...

User Defined Fields...

**Calendars...**

Resource Shifts...


Activity Step Templates...

Cost Accounts...

Funding Sources...

Resource Curves...

External Applications...

 Calendars

☒ Global
 ☐ Resource
 ☐ Project

▼ Display: Calendars

Calendar Name	Default
6x24	<input type="checkbox"/>
7 Days SBG	<input type="checkbox"/>
7x24	<input type="checkbox"/>
AI Amr Group	<input type="checkbox"/>
Almoqawel	<input type="checkbox"/>
Corporate - Standard Full Time	<input type="checkbox"/>
MRKZ - 1 - Standard 5 Day W	<input type="checkbox"/>
MRKZ - 3 - 3R3R - 1 - saudi	<input type="checkbox"/>
My Calender	<input type="checkbox"/>
my calender..	<input type="checkbox"/>
project calender	<input type="checkbox"/>
s-1	<input type="checkbox"/>
Standard 5 Day Workweek w/ Basic	<input type="checkbox"/>
Trades - 5 Day Workweek	<input type="checkbox"/>
Villa Ali Calender	<input type="checkbox"/>
w.t cal	<input type="checkbox"/>
<b>water Tank calender</b>	<input checked="" type="checkbox"/>

Close

Add

Delete

Modify...

Used By...

To Global

To Shared

To Personal

Help

# Add Project calendars

**P6 Calendars**

Global Resource Project

Select Calendar To Copy From

Display: Global Calendars

Search

Calendar Name	Default
5 Day Workweek Calendar	<input checked="" type="checkbox"/>
5x10	<input type="checkbox"/>
6x24	<input type="checkbox"/>
7 - 8hr Days Workweek	<input type="checkbox"/>
7x24	<input type="checkbox"/>
Corporate - Standard Full Time	<input type="checkbox"/>
Full time	<input type="checkbox"/>
Signature Corp Holidays	<input type="checkbox"/>
Standard 5 Day Workweek	<input type="checkbox"/>
Trades - 5 Day Workweek	<input type="checkbox"/>

Close

1 →

2 →

+

×

Delete

Modify...

Used By...

To Global

To Shared

To Personal

Help

**P6 Calendars**

Global Resource Project

Display: Calendars

Calendar Name	Default
(My Ca	<input checked="" type="checkbox"/>
5 Day Workweek Calendar	<input type="checkbox"/>
5x10	<input type="checkbox"/>
6x24	<input type="checkbox"/>
7 - 8hr Days Workweek	<input type="checkbox"/>
7x24	<input type="checkbox"/>
Corporate - Standard Full Time	<input checked="" type="checkbox"/>
Full time	<input type="checkbox"/>
Signature Corp Holidays	<input type="checkbox"/>
Standard 5 Day Workweek	<input type="checkbox"/>
Trades - 5 Day Workweek	<input type="checkbox"/>
water tank	<input type="checkbox"/>
Winter Calendar (Asphalt Pavement)	<input type="checkbox"/>

Close

+

×

Delete

Modify...

Used By...

To Global

To Shared

To Personal

Help



## Modify calendars

**Global Calendar: Full time**

Global Resource Project

Display: Calendars

Calendar Name	Default
5 Day Workweek Calendar	<input type="checkbox"/>
5x10	<input type="checkbox"/>
6x24	<input type="checkbox"/>
7 - 8hr Days Workweek	<input type="checkbox"/>
7x24	<input type="checkbox"/>
Corporate - Standard Full Time	<input checked="" type="checkbox"/>
<b>Full time</b>	<input type="checkbox"/>
Signature Corp Holidays	<input type="checkbox"/>
Standard 5 Day Workweek	<input type="checkbox"/>
Trades - 5 Day Workweek	<input type="checkbox"/>
water tank	<input type="checkbox"/>
Winter Calendar (Asphalt Pavement)	<input type="checkbox"/>

Close

Add

Delete

Modify...

Used By...

To Global

To Shared

To Personal

Help

Total work hours/day Detailed work hours/day

September 2019

Sun	Mon	Tue	Wed	Thr	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Work hours/day

8.0

OK

Cancel

Help

Work

Nonwork

Standard

Workweek...

Time Periods

Standard ☐ Nonwork ☐ Exception ☐

Inherit holidays and exceptions from Global Calendar:

<None>



# Total work/day-Detailed hours/day

☒ Total work hours/day ☐ Detailed work hours/day

1

September 2019

Work hours/day: 8.0

OK Cancel Help

Calendar Weekly Hours

Standard work hours

Day	Work hours
Sun	8
Mon	8
Tue	8
Wed	8
Thu	8
Fri	0
Sat	8

OK Cancel Help

2

Workweek... Time Periods

Standard ☐ Nonwork ☐ Exception ☐

Inherit holidays and exceptions from Global Calendar:

<None>

☐ Total work hours/day ☒ Detailed work hours/day

3

Calendar Weekly Hours

Standard work hours

Day of the Week	Work hours
Sunday	00-30 30-60
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	

OK Cancel Help

4

Workweek... Time Periods

Standard ☐

Inherit holiday...

<None>

# Time Periods

☐ Total work hours/day
 ☒ Detailed work hours/day

<

September 2019

>

Sun	Mon	Tue	Wed	Thr	Fri	Sat
1	2	3	4	5	6	7
8						
15						
22						
29						

Work hours

	00-30	30-60
1		
2		
3		
4		
20		
21		
22		
23		

OK  
 Cancel  
 Help

Hours per Time Period

Specify the number of work hours for each time period.

Hours/Day	Hours/Week	Hours/Month	Hours/Year
8.0	48.0	12.0	2304.0

OK  
 Cancel  
 Help

☐ Standard
 ☐ Nonwork
 ☒ Exception
 ☐

 Inherit holidays and exceptions from Global Calendar:  
 <None>
 

1

→

Workweek...  
 Time Periods

# Assign Project calendars

Primavera P6 Professional 18: BLDG-17, A (BLDG - Methods for Applying Progress, مشروع قاعة احتفالات مركز التدريب تحلية الجبيل)

File Edit View Project Enterprise Tools Admin Help



Projects

Activities Projects

Layout: Projects

Project ID	Project Name	Total Activities	January 2018	February 2018	March 2018	April 2018	May 2018	June 2018	July 2018	August 2018
07	14	21	28	04	11	18	25	01	08	15
01	08	15	22	29	06	13	20	27	03	10
03	10	17	24	01	08	15	22	29	05	12
Enterprise All Initiatives 2264			15-Feb-18							
A	مشروع قاعة احتفالات مركز التدريب تحلية الجبيل	0								
HR	Abu Hadriyah Highway	0								
BLDG-17	BLDG - Methods for Applying Progress	10	8 A 15-Feb-18							
E&C Engineering & Construction 508										
EC00515	City Center Office Building Addition	71								
EC00530	Nesbid Building Expansion	71								
EC00501	Haitang Corporate Park	71								
EC00610	Harbour Pointe Assisted Living Center	131								
EC00620	Juniper Nursing Home	132								
EC00630	Saratoga Senior Community	132								
Energy Energy Services 689										
NRG00870	Baytown, TX - Offline Maintenance Work	132								
NRG00950	Red River - Refuel Outage	98								
NRG00800	Sunset Gorge - Routine Maintenance Work	132								
NRG00940	Sillersville - Refuel Outage	98								
NRG00820	Johnstown - Routine Maintenance Work	131								

General Notebook Budget Log Spending Plan Budget Summary Dates Funding Codes Defaults Resources Settings Calculations

Defaults for New Activities

Duration Type Fixed Duration & U  
Percent Complete Type Duration  
Activity Type Task Dependent

Cost Account

Calendar

water tank

Auto-numbering Defaults

Activity ID Prefix

Activity ID Suffix

1000

Increment

10

# Resource Calendars

There are two types of resource calendars:

- Shared:
  - Share among multiple resources.
  - Can convert to personal calendar.
- Personal:
  - Assign to single resource.
  - Calendar is deleted if resource is deleted.
  - Resource can edit personal resource calendar.

# Work Time Types

A calendar can include four types of work time:

- Standard day
  - Work hours in day match calendar's work week.
- Nonwork
  - Zero working hours in day.
- Exception
  - Work hours in day do not match calendar's work week.
  - Example: Weekend work hours for a resource normally on a 5-day workweek.
- Nonwork Exception
  - A full day of nonwork time not covered by the standard work week (e.g., vacation).

# Calendars and Activity Types

Activity Type determines which calendar is used when a project is scheduled.

- **Task Dependent:** Resource assignments are scheduled according to the calendar assigned to the activity.
- **Resource Dependent:** Resource assignments are scheduled according to the calendar assigned to the resource.

# Objectives

After completing this lesson, you should be able to:

- Describe available constraint types.
- Apply Must Finish By constraint to a project.
- Apply a Start On or After constraint to an activity.
- Add a Notebook topic to a constrained activity.

# Constraints

- Date restrictions used to reflect project requirements that cannot be built into the network logic.
- More accurately reflect real-world aspects of a project.
- Provide added control of a project.
- Apply to the entire project or to individual activities.
  - Commonly used project-level constraint: Must Finish By
  - Commonly used activity-level constraint: Start On or After
- No more than 10 percent of a project's activities should be constrained.



# Must Finish By

- Used when an overall project deadline must be met.
- Forces all activities in the project to finish by the date (and time) specified.
- Establishes the date from which late dates are calculated in the backward pass.
- Affects the Total Float of the entire project.

# Start On or After

- Used to set the earliest date an activity can begin.
- Forces the activity to start no earlier than the constraint date.
- Pushes the activity's early start date to the constraint date.
- Affects the early dates of the activity's successors.

# Additional Start Constraints

- **Start On** — Forces an activity to start on the constraint date:
  - Shifts both early and late start dates to the constraint date.
  - Used to specify dates submitted by contractors or vendors.
- **Start On or Before** — Forces an activity to start no later than the constraint date:
  - Shifts the late start to the constrained date.
  - Affects the late dates of its predecessors.
  - Used to place a deadline on the start of the activity.

# Additional Finish Constraints

- **Finish On** — Forces an activity to finish on the constraint date:
  - Shifts both early and late finish dates to the constraint date.
  - Used to satisfy intermediate project deadlines.
- **Finish On or Before** — Forces an activity to finish no later than the constraint date:
  - Pulls the late finish date to the constraint date.
  - Affects the late dates of its predecessors.
  - Used to set intermediate completion points in the project.
- **Finish On or After** — Forces an activity to finish no earlier than the constraint date:
  - Shifts the early finish to the constrained date.
  - Affects the early dates of its successors.

# Additional Constraints

- **As Late as Possible** — Delays activity as late as possible without delaying successors:
  - Shifts early dates as late as possible.
  - Also called a zero free float constraint.
- **Mandatory Start and Finish** — Forces early and late dates to be equal to the constraint date:
  - Affects late dates of predecessors and early dates of successors.
  - May violate network logic.

# Objectives

After completing this lesson, you should be able to:

- Group activities according to specific criteria.
- Sort activities.
- Apply a filter.
- Create a filter.

## Objectives

Using Action Verbs for Objectives

In the slide, use the introductory phrase "After completing this lesson, you should be able to"

followed by a colon. Use action verbs to introduce each bulleted objective. Your choice of action verb depends on the content of the lesson: If the content is designed to cover facts and terms, use such verbs as identify, choose, select, match, label, list, and so on.

If the content is designed to teach a concept, use such verbs as identify, choose, select, indicate, match, classify, and so on.

If the content is about application of knowledge or execution of a procedure or process, use such verbs as use, run, create, modify, construct, drop, and so on. For detailed and high-level content, use such verbs as conclude, analyze, separate, compare, contrast, justify, differentiate, perform, and so on

# Grouping

**STUDENT CONTENT:**  
In slide: High-level concepts only. Avoid tool descriptions – focus on concepts .  
Below slide: Additional information that relates to slide content if it doesn't fit or isn't appropriate for slide. KEEP IT BRIEF! Remember, you have the activity guide section to include additional information.

- A flexible way to organize data into categories that share a common attribute.
- Can be used to create customized layouts.
- Organized by grouping bands.

Jan 2010			11-Jan-10
BA1000	Building Addition Kickoff		11-Jan-10
BA1010	Design Building Addition		11-Jan-10
BA1020	Review and Approve Designs		11-Jan-10
BA2000	Begin Building Construction		22-Jan-10
BA2010	Site Preparation		22-Jan-10
Feb 2010			17-Feb-10
BA2020	Excavation		17-Feb-10*
Mar 2010			03-Mar-10
BA2030	Install Underground Water Lines		03-Mar-10
BA2040	Install Underground Electric Conduit		03-Mar-10
BA2050	Form/Pour Concrete Footings		10-Mar-10
BA2060	Concrete Foundation Walls		24-Mar-10
Apr 2010			07-Apr-10
BA2070	Form and Pour Slab		07-Apr-10
BA2080	Backfill and Compact Walls		14-Apr-10
BA2090	Foundation Phase Complete		
BA3000	Begin Structural Phase		15-Apr-10
BA3010	Erect Structural Frame		15-Apr-10
May 2010			13-May-10
BA3020	Floor Decking		13-May-10
Jun 2010			03-Jun-10
BA3030	Concrete First Floor		03-Jun-10
BA3040	Erect Stairwell and Elevator Walls		24-Jun-10
BA3050	Concrete Basement Slab		24-Jun-10
BA3060	Concrete Second Floor		24-Jun-10
Jul 2010			15-Jul-10

# Grouping

<b>Jan 2010</b>		<b>27d</b>
BA2010	Site Preparation	18d
BA1010	Design Building Addition	12d
BA1020	Review and Approve Designs	9d
BA2000	Begin Building Construction	0d
BA1000	Building Addition Kickoff	0d
<b>Feb 2010</b>		<b>10d</b>
BA2020	Excavation	10d
<b>Mar 2010</b>		<b>25d</b>
BA2060	Concrete Foundation Walls	10d
BA2050	Form/Pour Concrete Footings	10d
BA2040	Install Underground Electric Conduit	5d
BA2030	Install Underground Water Lines	5d
<b>Apr 2010</b>		<b>26d</b>
BA3010	Erect Structural Frame	20d
BA2070	Form and Pour Slab	5d
BA2080	Backfill and Compact Walls	1d
BA3000	Begin Structural Phase	0d
BA2090	Foundation Phase Complete	0d
<b>May 2010</b>		<b>14d</b>
BA3020	Floor Decking	14d
<b>Jun 2010</b>		<b>30d</b>
BA3060	Concrete Second Floor	15d
BA3030	Concrete First Floor	15d
BA3050	Concrete Basement Slab	10d
BA3040	Erect Stairwell and Elevator Walls	10d
<b>Jul 2010</b>		<b>17d</b>
BA5080	Insulation and Built-up Roofing	10d
BA5070	Brick Exterior Walls	7d
BA3070	Structure Complete	0d
BA5060	Close-In Phase Begins	0d
<b>Aug 2010</b>		<b>18d</b>

- Activities can be grouped:
  - By hierarchical fields (WBS, activity codes, project codes).
  - By data fields (dates, costs, Total Float, other numeric data).
- Can be used to:
  - Quickly view subtotal data in grouping bands.
  - View summary bars in the Gantt Chart.
  - Summarize data for reporting purposes.



# Sorting

- Determines the sequence in which activities are listed within grouping bands.
- Based on data item, you can sort:
  - Alphabetically
  - Numerically
  - Chronologically
- Click on column header to quickly sort ascending, descending

Jan 2010	11-Jan-10
BA1000	11-Jan-10
BA1010	11-Jan-10
BA1020	11-Jan-10
BA-ADMIN	11-Jan-10
BA2000	22-Jan-10
BA2010	22-Jan-10
BA6040	22-Jan-10
BA5000	25-Jan-10*
BA1030	28-Jan-10
BA5010	28-Jan-10
Feb 2010	02-Feb-10
BA1040	02-Feb-10
BA6050	03-Feb-10
BA4020	16-Feb-10
BA6060	16-Feb-10
BA2020	17-Feb-10*
BA4030	19-Feb-10
BA4040	23-Feb-10
BA5020	24-Feb-10
BA6070	24-Feb-10
BA4050	24-Feb-10
Mar 2010	01-Mar-10

Sorted by Start date  
Ascending

Jan 2010	11-Jan-10
BA5010	28-Jan-10
BA1030	28-Jan-10
BA5000	25-Jan-10*
BA6040	22-Jan-10
BA2010	22-Jan-10
BA2000	22-Jan-10
BA-ADMIN	11-Jan-10
BA1020	11-Jan-10
BA1010	11-Jan-10
BA1000	11-Jan-10
Feb 2010	02-Feb-10
BA4050	24-Feb-10
BA6070	24-Feb-10
BA5020	24-Feb-10
BA4040	23-Feb-10
BA4030	19-Feb-10
BA2020	17-Feb-10*
BA6060	16-Feb-10
BA4020	16-Feb-10
BA6050	03-Feb-10
BA1040	02-Feb-10
Mar 2010	01-Mar-10

Sorted by Start date  
Descending

# Filtering

- Determines which activities are displayed in a layout.
- Enables you to create customized layouts that:
  - Limit the number of activities displayed.
  - Help you focus on a particular group of activities (critical activities, for example).

Jan 2010		-12d
BA-ADMIN	Project Administration	-12d
BA1000	Building Addition Kickoff	-12d
BA1010	Design Building Addition	-12d
BA1020	Review and Approve Designs	-12d
BA1030	Assemble Technical Data for Heat Pump	21d
BA2000	Begin Building Construction	-12d
BA2010	Site Preparation	-12d
BA5000	Assemble Brick Samples	21d
BA5010	Review and Approve Brick Samples	30d
BA6040	Assemble and Submit Flooring Samples	1d
Feb 2010		27d

Filter

Jan 2010		-12d
BA1000	Building Addition Kickoff	-12d
BA1010	Design Building Addition	-12d
BA1020	Review and Approve Designs	-12d
BA2000	Begin Building Construction	-12d
BA2010	Site Preparation	-12d
Feb 2010		-12d

## SECTION III

# **Assigning Resources and Baseline**

**Understanding Roles and Resources**

**Assigning Roles and Resources**

**Optimizing the Project Plan**

**Baselining the Project Plan**

**Importing and Exporting Data**

# Understanding Roles and Resources

# Objectives

After completing this lesson, you should be able to:

- Define Currencies.
- Define Unite of Measure.
- Describe resources.
- Identify the differences between labor, nonlabor, and material resources.
- View the resource dictionary.

# Currencies

- Form **Admin Menu** **Select Currencies.**

**Currencies**

Display: Currencies

Base	Currency ID	Currency Name	Currency Symbol	Exchange Rate
<input checked="" type="checkbox"/>	SAR	Saudi Riyal	\$	1.000000
<input type="checkbox"/>	GBP	Pound Sterling	£	0.618603
<input type="checkbox"/>	JPY	Japanese Yen	¥	91.270800
<input type="checkbox"/>	EUR	Euro	€	0.689711
<input type="checkbox"/>	CNY	Chinese Yuan Renminbi	¥	6.825020
<input type="checkbox"/>	CAD	Canadian Dollar	\$	1.037570
<input type="checkbox"/>	RUB	Russian Ruble	RUB	0.033948

Close

+ Add

✕ Delete

? Help

General | Appearance

Currency ID: SAR

Currency name: Saudi Riyal

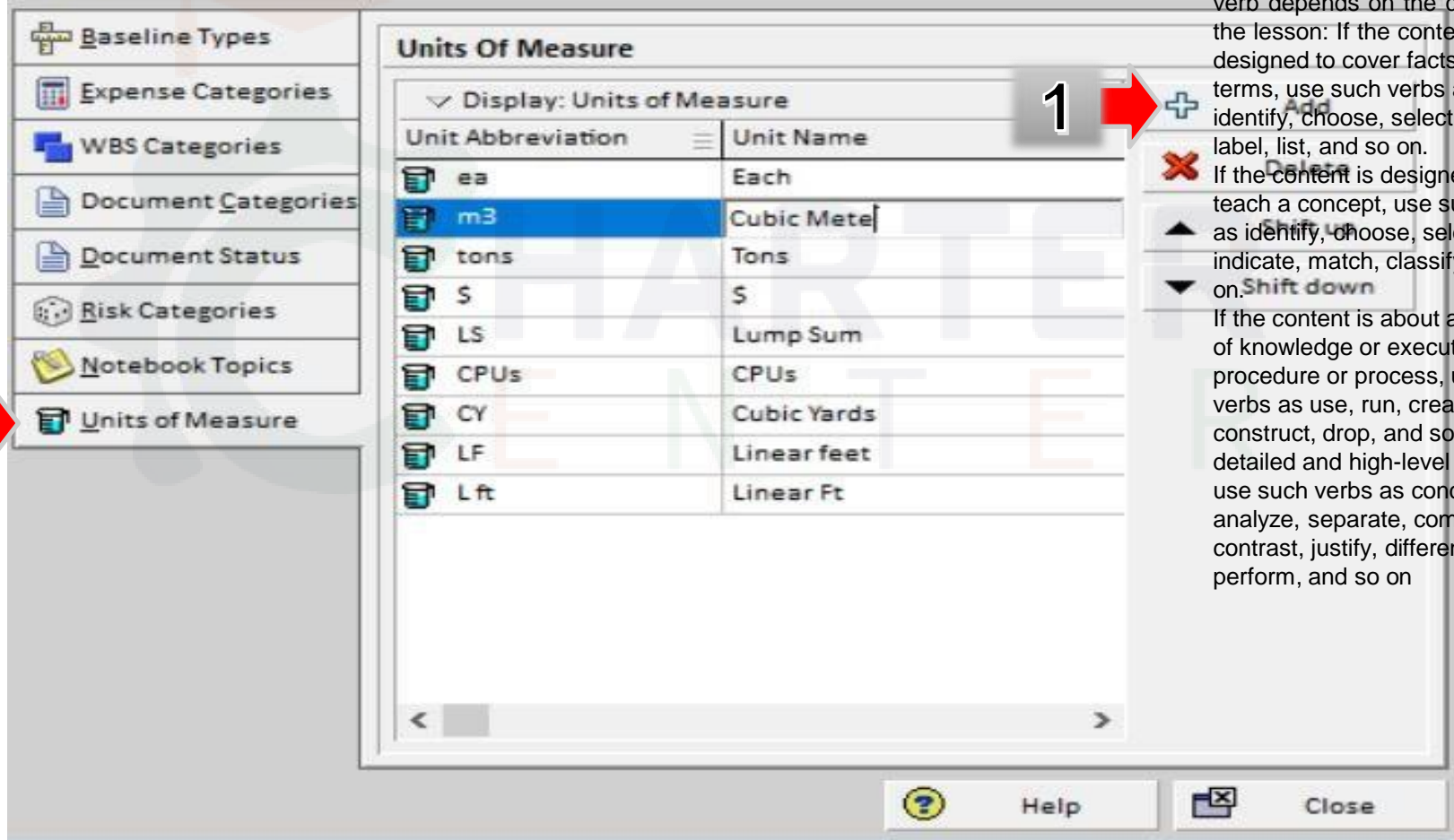
Currency symbol: SAR

Exchange rate: 1.000000

# Currencies

- Form Admin Menu Select Admin Categories

## Admin Categories



**Units Of Measure**

▼ Display: Units of Measure

Unit Abbreviation	Unit Name
ea	Each
m3	Cubic Mete
tons	Tons
\$	\$
LS	Lump Sum
CPUs	CPUs
CY	Cubic Yards
LF	Linear feet
Lft	Linear Ft

Buttons: Add, Delete, Shift up, Shift down

Buttons: Help, Close

### Objectives

Using Action Verbs for Objectives  
In the slide, use the introductory phrase "After completing this lesson, you should be able to"

followed by a colon. Use action verbs to introduce each bulleted objective. Your choice of action verb depends on the content of the lesson: If the content is designed to cover facts and terms, use such verbs as identify, choose, select, match, label, list, and so on. If the content is designed to teach a concept, use such verbs as identify, choose, select, indicate, match, classify, and so on.

If the content is about application of knowledge or execution of a procedure or process, use such verbs as use, run, create, modify, construct, drop, and so on. For detailed and high-level content, use such verbs as conclude, analyze, separate, compare, contrast, justify, differentiate, perform, and so on

# Roles and Resources

**Role:** A job title or skill needed to complete an activity.

**Resource:** The specific individual used to complete the activity.



Project Manager



Tim Harris



# Roles and Resources

- Both are enterprise data – available for use across all projects.
  - Both are usually defined by the application administrator.
- Roles are associated with resources according to their function.
  - Each resource can also be assigned one primary role, which defines the resource's core skill or responsibility in the organization.
- Roles can be placeholders in activity assignments until specific resources are assigned to do the work.

# Roles and Resources



**Resource:** Paul Kim

**Roles:** Civil Engineer, Cost Engineer, Planning Engineer








**Primary Role:** Civil Engineer

# Relationship Between Roles and Resources

★  
PRIMARY  
ROLE



ROLE

<div>ROLES →</div> <div>↓ RESOURCES</div>	 Project Mgr	 Civil Engineer	 Plan Engineer	 Cost Engineer
 Tim Harris	★			
 Oliver Rock		✓		★
 Paul Kim		★	✓	✓

# Resource Types

## Labor (people)

- Resources and roles
- Measured in units of time.
- Generally re-used between activities/projects.
- Recorded in terms of price/unit (for example, \$50/hour).



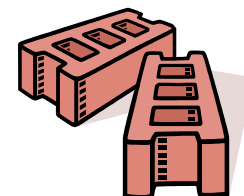
## Nonlabor (equipment)

- Measured in units of time.
- Recorded in terms of price/unit (for example, \$500/hour).



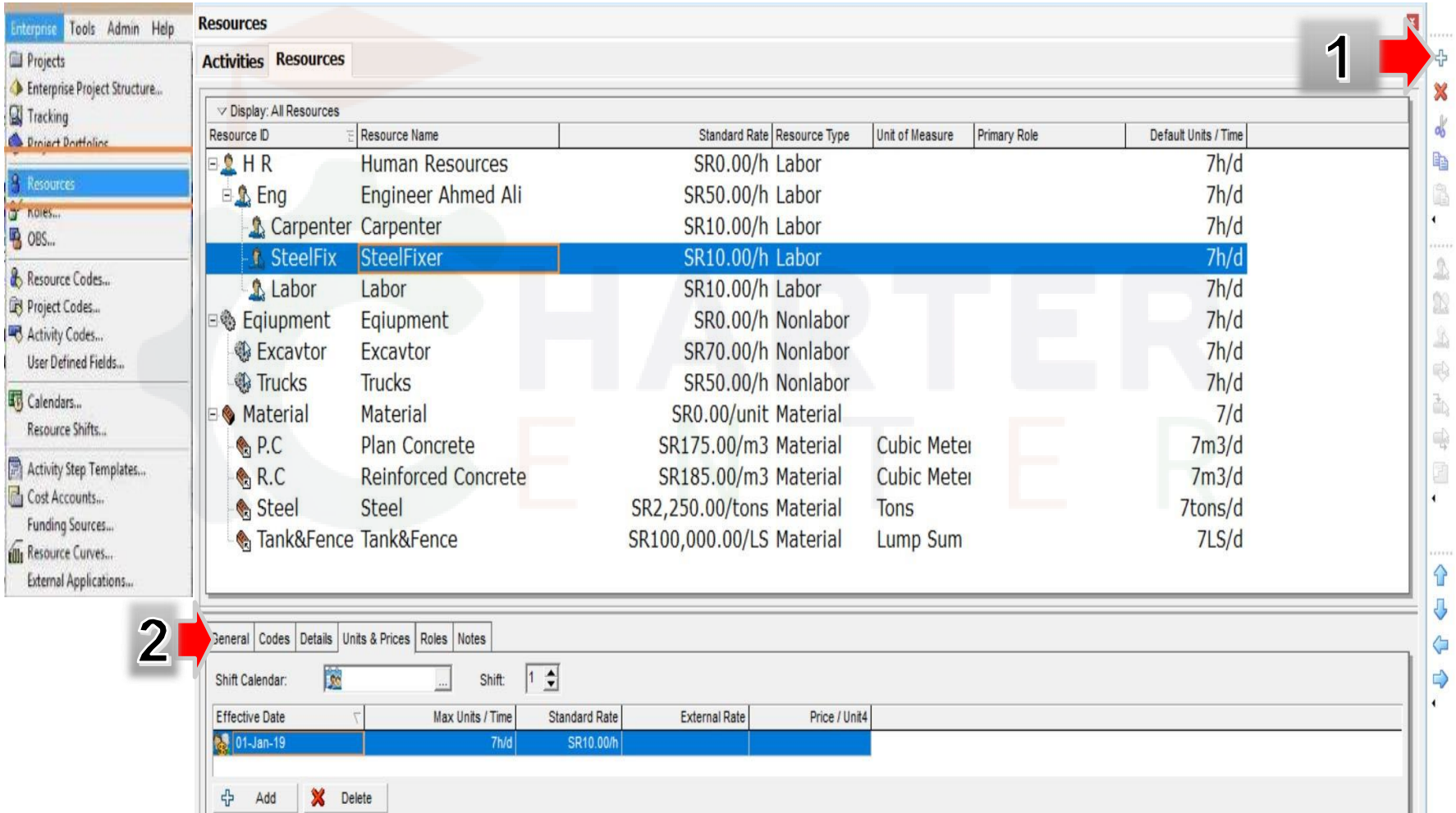
## Material (consumables)

- Measured in units other than time (for example, \$5/sq.ft.).



# Define Resource

- Form **Enterprise Menu Select Resource.**




**Resources**

Activities Resources

▼ Display: All Resources

Resource ID	Resource Name	Standard Rate	Resource Type	Unit of Measure	Primary Role	Default Units / Time
H R	Human Resources	SR0.00/h	Labor			7h/d
Eng	Engineer Ahmed Ali	SR50.00/h	Labor			7h/d
Carpenter	Carpenter	SR10.00/h	Labor			7h/d
SteelFix	SteelFixer	SR10.00/h	Labor			7h/d
Labor	Labor	SR10.00/h	Labor			7h/d
Equipumt	Equipumt	SR0.00/h	Nonlabor			7h/d
Excavtor	Excavtor	SR70.00/h	Nonlabor			7h/d
Trucks	Trucks	SR50.00/h	Nonlabor			7h/d
Material	Material	SR0.00/unit	Material			7/d
P.C	Plan Concrete	SR175.00/m3	Material	Cubic Meter		7m3/d
R.C	Reinforced Concrete	SR185.00/m3	Material	Cubic Meter		7m3/d
Steel	Steel	SR2,250.00/tons	Material	Tons		7tons/d
Tank&Fence	Tank&Fence	SR100,000.00/LS	Material	Lump Sum		7LS/d

**General** Codes Details Units & Prices Roles Notes

Shift Calendar:  Shift: 1

Effective Date	Max Units / Time	Standard Rate	External Rate	Price / Unit4
01-Jan-19	7h/d	SR10.00/h		

+ Add - Delete

# Assigning Roles and Resources

# Objectives

After completing this lesson, you should be able to:

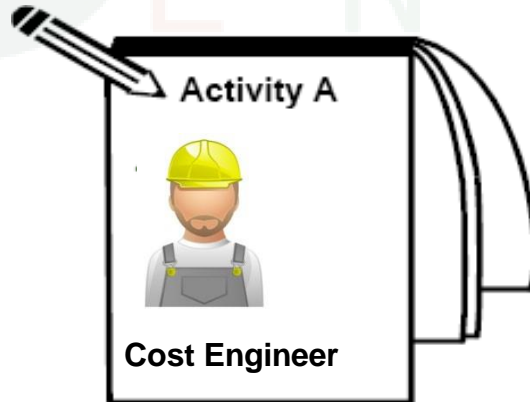
- Assign roles to an activity.
- Assign rates on roles.
- Assign resources to an activity by role and directly from the resource dictionary.
- Adjust Budgeted Units/Time for a resource.
- Assign expenses to activities.

# Assigning Roles

## Step 1 Roles Dictionary



## Step 2 Assign Role to Activity



## Step 3 Replace Role with Resource





# Assigning Resources

Assign by role:

- At least one role must be assigned to an activity.
- Replace role assignment with a specific resource.
- Replace single role assignments individually or multiple role assignments simultaneously.

Assign directly from the resource dictionary:

- Labor resources without role assignments.
- Required method when assigning nonlabor and material resources.

# Steps for Resource Management

1. Define resource in the resource dictionary.



**Resource:** Oliver Rock

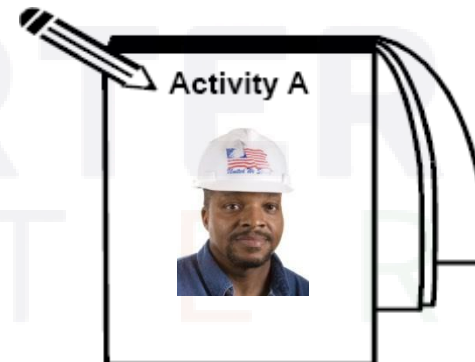
**Roles:** Cost Engineer,  
Purchasing

**Primary Role:** Cost Engineer

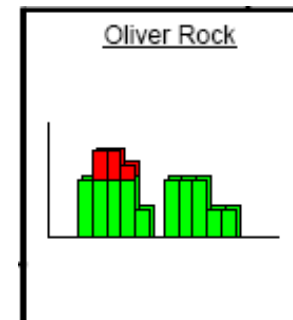
**Max Units/Time:** 8h/d

**Rates:** Commercial \$32/h  
GSA \$29/h  
Internal \$26/h

2. Assign resource to activities.



3. Analyze resources and costs.



# Optimizing the Project Plan

# Objectives

After completing this lesson, you should be able to:

- Analyze schedule dates.
- Shorten a project schedule.
- Analyze resource availability.
- Resolve resource overallocation.
- Analyze project costs.

## Objectives

Using Action Verbs for Objectives  
In the slide, use the introductory phrase "After completing this lesson, you should be able to"

followed by a colon. Use action verbs to introduce each bulleted objective. Your choice of action verb depends on the content of the lesson: If the content is designed to cover facts and terms, use such verbs as identify, choose, select, match, label, list, and so on.

If the content is designed to teach a concept, use such verbs as identify, choose, select, indicate, match, classify, and so on.

If the content is about application of knowledge or execution of a procedure or process, use such verbs as use, run, create, modify, construct, drop, and so on. For detailed and high-level content, use such verbs as conclude, analyze, separate, compare, contrast, justify, differentiate, perform, and so on

# Project Constraints

## STUDENT CONTENT:

In slide: High-level concepts only. Avoid tool descriptions – focus on concepts .

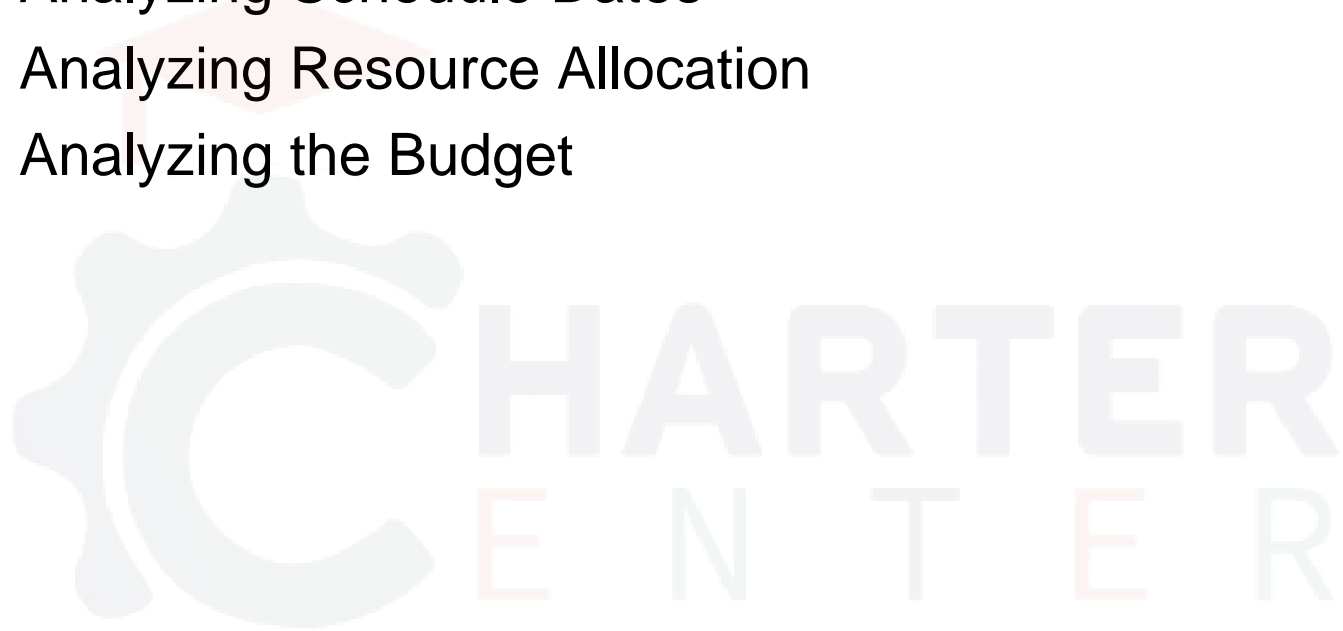
Below slide: Additional information that relates to slide content but doesn't fit or isn't appropriate for slide. KEEP IT BRIEF! Remember, you have the activity guide section to include additional information.

Successful projects must balance multiple constraints

- Scope
- Quality
- Schedule
- Budget
- Resources
- Risk

# Optimizing the project plan

- 1. Analyzing Schedule Dates
- 2. Analyzing Resource Allocation
- 3. Analyzing the Budget



# Analyzing Schedule Dates

- Finish date – Most important date in the schedule:
  - Compare the scheduled Finish date to the Must Finish By date.
  - If the scheduled Finish date is later than the Must Finish By date, the project must be shortened.
  - Finish date is calculated; it cannot be edited.
- Project deliverables should also be scheduled to finish by the dates imposed by project sponsors.
  - Identify milestone dates and ensure that the schedule meets them.

# Shortening the Project

- Focus on critical activities.
- Refine duration estimates.
  - Break down long activities.
  - Assign additional resources to reduce duration.
- Use relationships to overlap activities.
- Apply/modify constraints.
- Change calendar assignments.
  - Put critical activities on a longer workweek.
  - Add exceptions to non-work time.



# Analyzing Resource Allocation

- Determine which resources are overallocated.
- Identify activities contributing to resource overallocation.
- Remove overallocation from appropriate resources.
  - Replace the overallocated resource with another available resource.
  - Increase the resource's workweek.
  - Increase the hours/day that the resource works.
  - Assign additional resources to the activity.

# Analyzing the Budget



Review budgeted costs for individual activities, WBS elements, and the entire project.

- Confirm that costs are within budget.

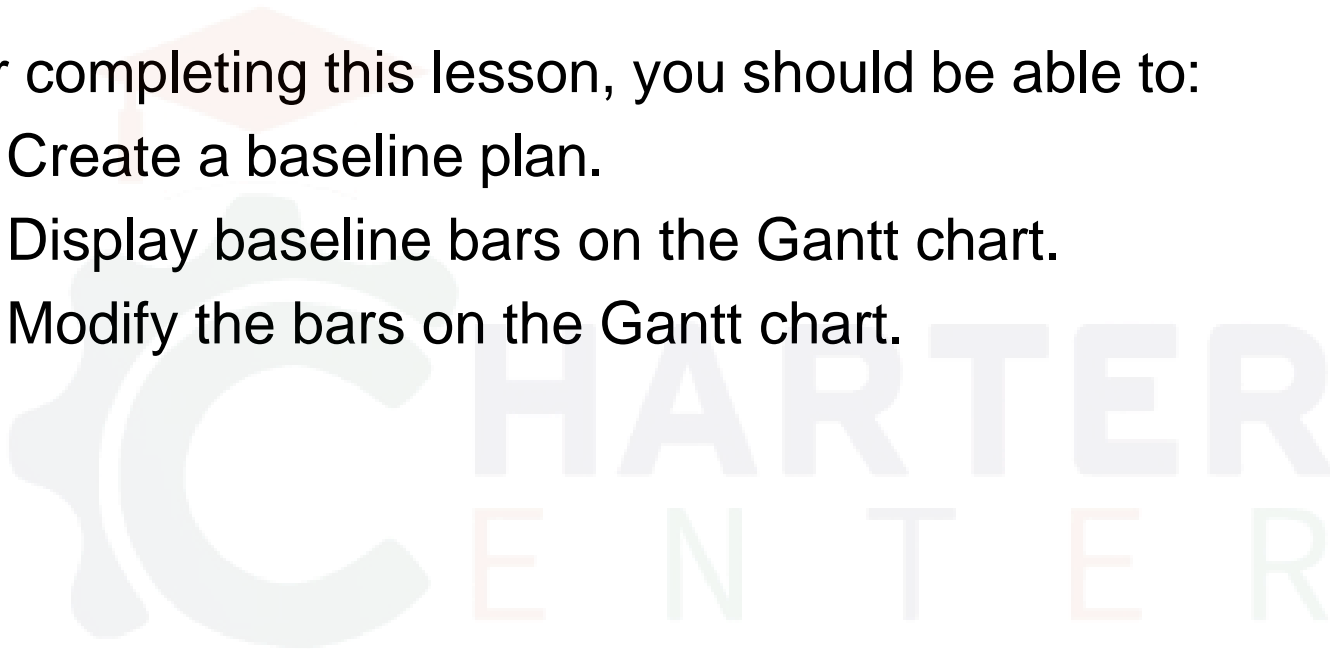


# Baselining the Project Plan

# Objectives

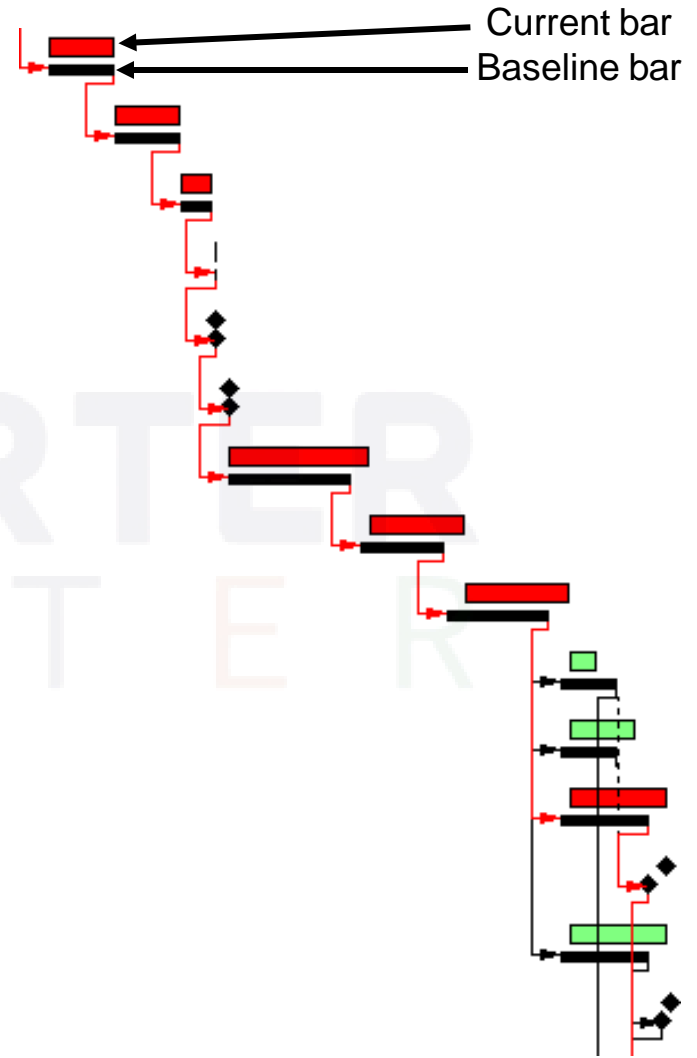
After completing this lesson, you should be able to:

- Create a baseline plan.
- Display baseline bars on the Gantt chart.
- Modify the bars on the Gantt chart.



# What is a Baseline?

- A copy of the project plan used as a basis for comparison when evaluating the progress of an updated project.
  - Create a baseline before updating a schedule for the first time.
- Provides a target against which to track a project's cost, schedule, and resource performance.



# Importing and Exporting Data

# Objectives

After completing this lesson, you should be able to:

- Describe the process of importing and exporting data.
- Export a project.
- Import a project.

## Objectives

Using Action Verbs for Objectives

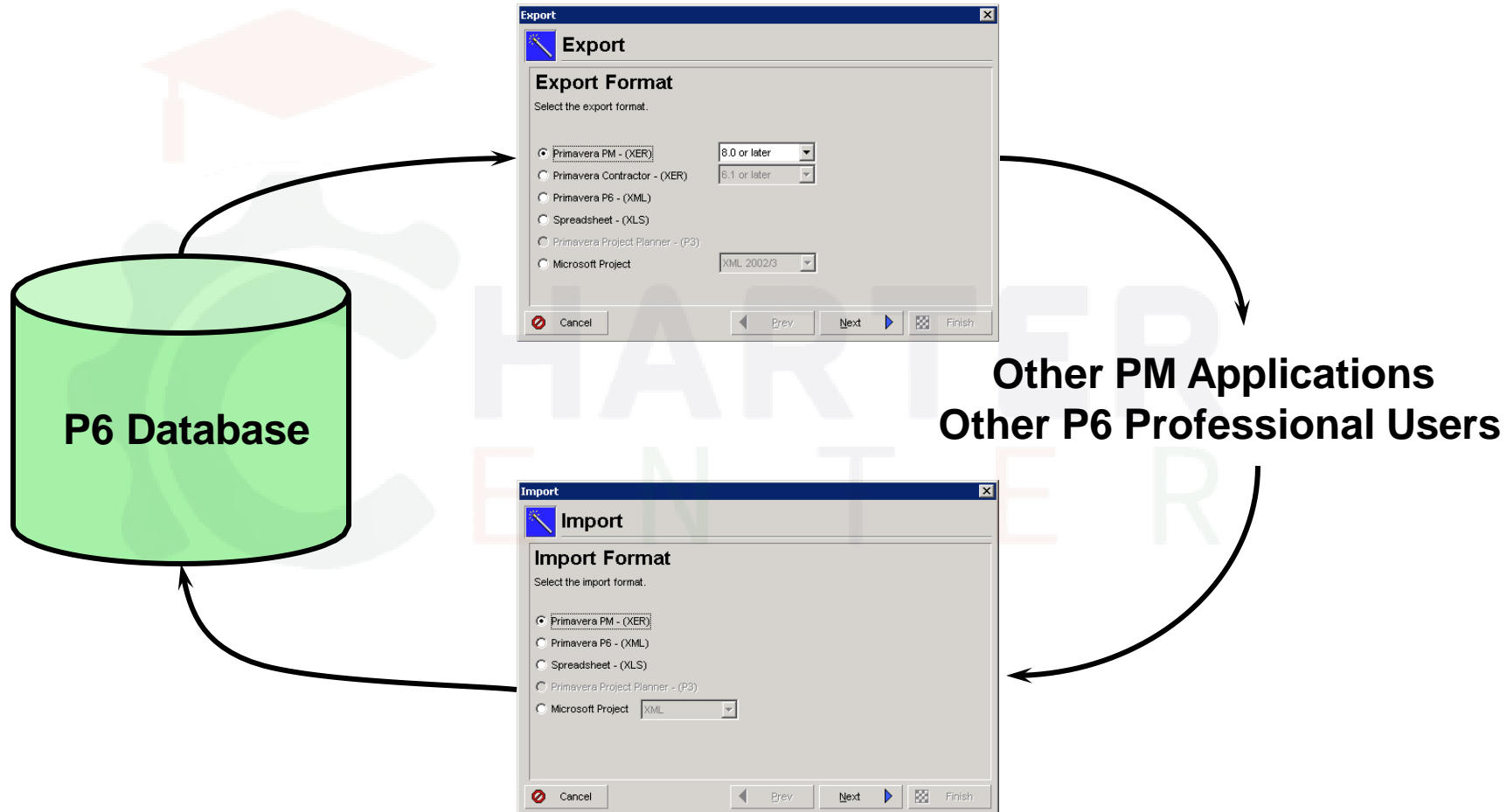
In the slide, use the introductory phrase "After completing this lesson, you should be able to"

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# Import / Export Wizards





# Reasons to Import/Export Project Data

Sample: This graphic depicts the incident response life cycle flows clockwise through six phases: Preparation, Identification, Containment, Eradication, Recovery, and Follow-up Accessibility. No-Vision or Low-Vision Graphic and screenshot descriptions need to be included in the notes area of every course. Keep the descriptions concise.

Be consistent with repeated occurrences of the same graphic or screenshot. Describe only those graphics that are pertinent to the course—not decorative icons. Use screenshots sparingly. Do not use screenshots of code or text.

Descriptions must be included even if you don't have any other notes for the course.

- Share project information with:
  - Other P6 EPPM users.
  - Users of other project management tools.
  - Your organization's human resource and accounting departments.
- Archive projects or create backups.
  - Single or multiple projects can be imported/exported at one time.
  - The Export wizard enables you to choose the format and data type (activities, resources, expenses, or complete projects) that you want to export.

# Import/Export Formats

## Primavera PM (XER)

- P6's proprietary format.
- Independent of database type used (Oracle or MS SQL).

## Primavera PM (XML)

- Share project information between P6 EPPM databases.
- Compatible with Microsoft Project 2002 or later.

## Spreadsheet (XLS)

- Compatible with Excel and other spreadsheet applications.

## Primavera Project Planner (P3)

- Share project information with Oracle Primavera Project Planner version 3.x.

## Microsoft Project (MPX, XML)

- Integrate with Microsoft Project and other third-party tools.

Sample: This graphic depicts how the incident response life cycle flows clockwise through six phases: Preparation, Identification, Containment, Eradication, Recovery, and Follow-up Accessibility. No-Vision or Low-Vision Graphic and screenshot descriptions need to be included in the notes area of every course. Keep the descriptions concise.

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Descriptions must be included

even if you don't have any other

notes for the course.

## SECTION IV

# **Project Execution and Control**

**Methods of Applying Progress**

**Executing the Project Plan**

**Reflection Projects**

**Analyzing the Updated Project**

**Reporting Performance**



# 17

## Methods of Applying Progress

# Objectives

After completing this lesson, you should be able to:

- Describe methods for applying progress to a project.



# Updating a Project

- After a project has started, actual project data should be updated regularly.
- Updates can be monthly, weekly, daily, or hourly depending on project length and the precision of project control.
- A variety of methods can be used for updating the project.
- A single method need not be used exclusively. Multiple updating methods can be used within a single project.

# Updating a Project

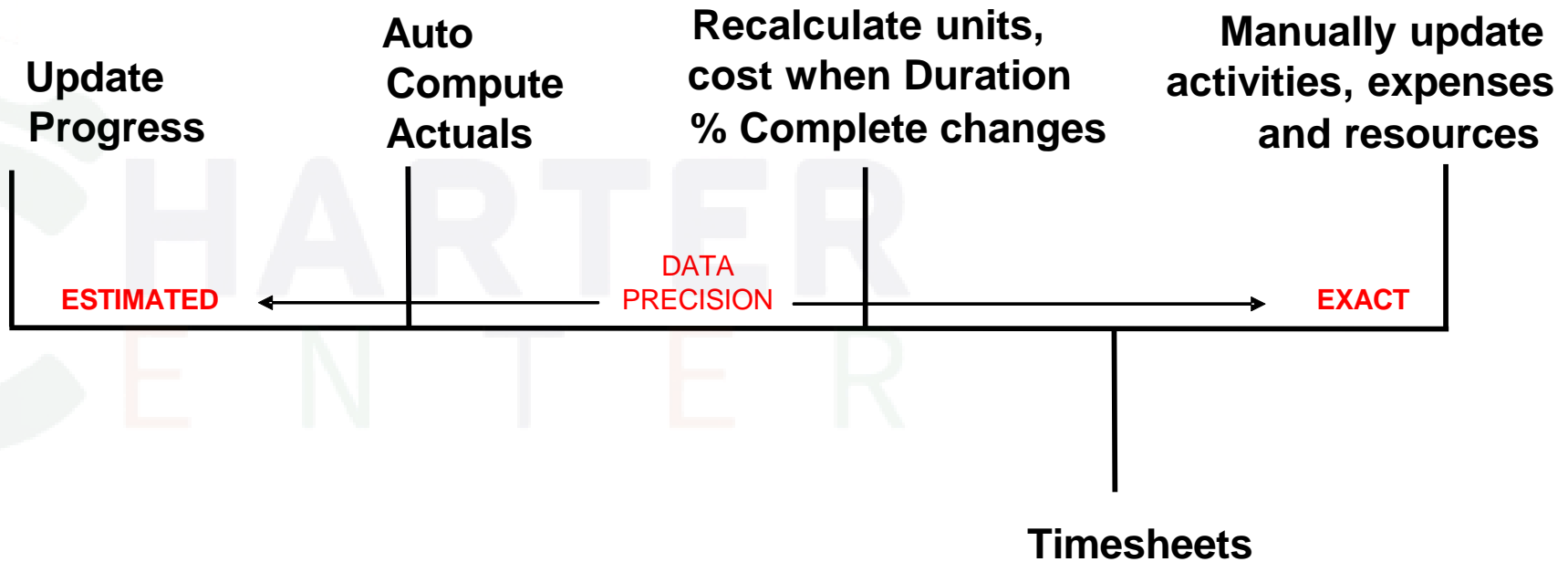
Consider these factors when deciding on a method:

- Data precision: The degree to which project data is exact (based on manual data entry) or estimated (based on automated calculations).
  - Is project data entered manually?
  - Is project data automatically calculated and applied?
- Internal or external: The extent to which individuals other than the project manager are empowered to update project data.
  - Do other persons – resources, for example – update project data?

# Spectrum of Updating Methods

INTERNAL UPDATES

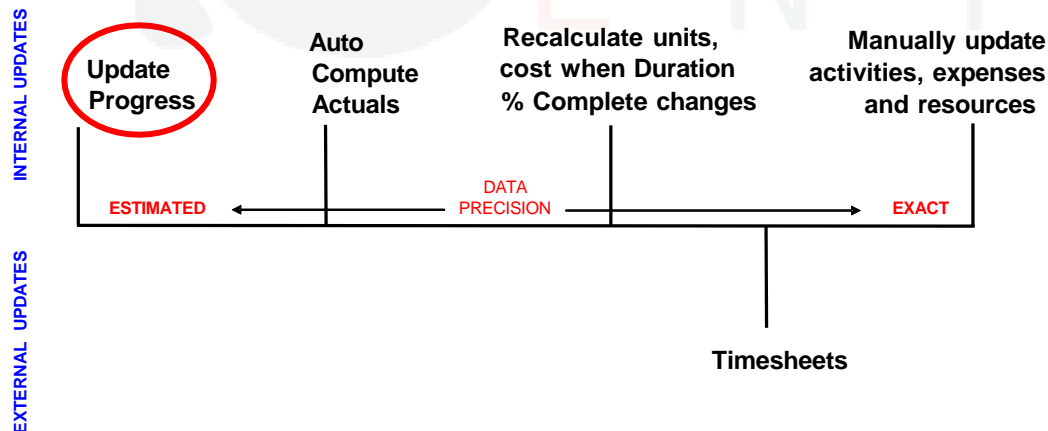
EXTERNAL UPDATES





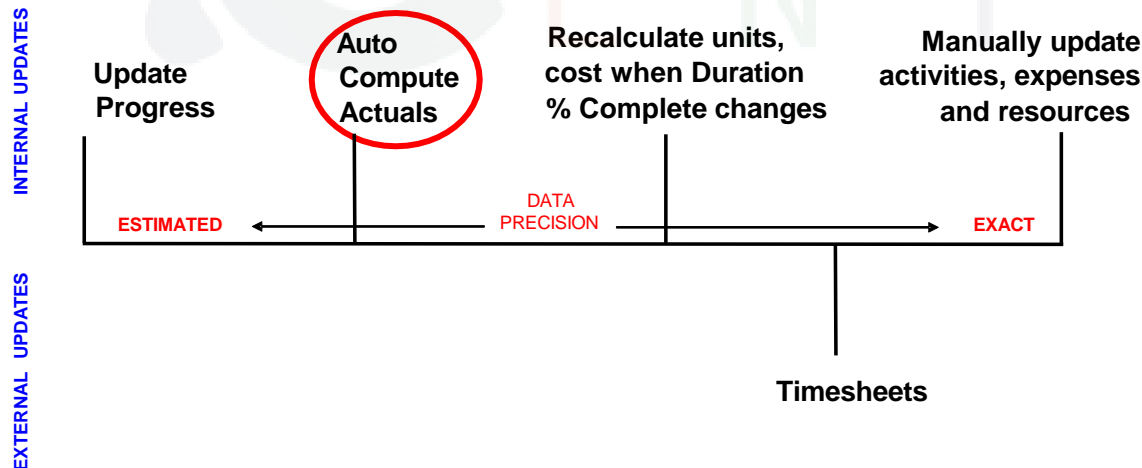
# Update Progress

- Updates activity dates, expenses, and resource utilization according to project plan
- Internal update
- Data precision: Estimated



# Auto Compute Actuals

- Updates activity dates, expenses, and resource utilization according to project plan – however, enables you to select which elements are computed automatically
- Internal update
- Data precision: Estimated

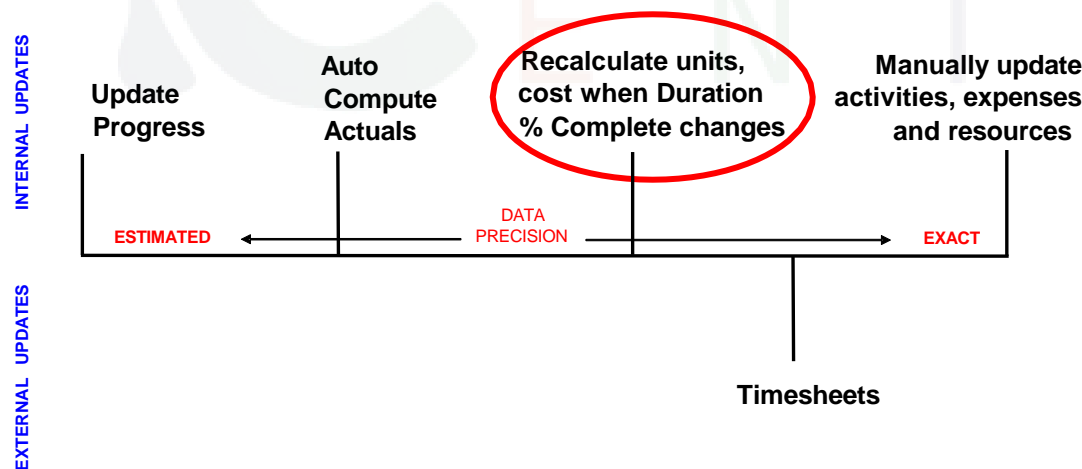


# Auto Compute Actuals

- Values are computed based on element you select for auto compute:
  - If activity is selected, resources and expenses also automatically updated.
  - If just resource or expense is selected, only those elements are automatically updated.
- Doesn't affect successor activities outside of status period until project is scheduled.

# Recalculate Units, Cost When Duration % Complete Changes

- Project-level setting computes units based on Duration % Complete
- Internal update
- Data precision: Units and costs estimated based on exact Duration % Complete



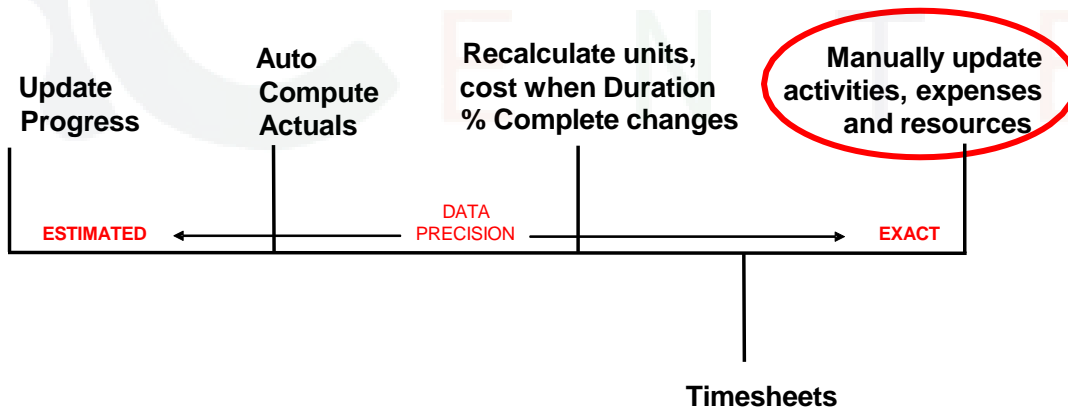
# Recalculate Units, Cost When Duration % Complete Changes

- Based on Budgeted Units/Time, application calculates Actual Units and subtracts from Budgeted Units
- Example: 10-day activity with 80 Budgeted Units (8 h/d)
  - 2 days progress (Duration % Complete = 20%)
  - Actual Units automatically recalculated to 16h
  - Remaining Units automatically recalculated to 64h

# Manually Update Activities, Expenses, and Resources

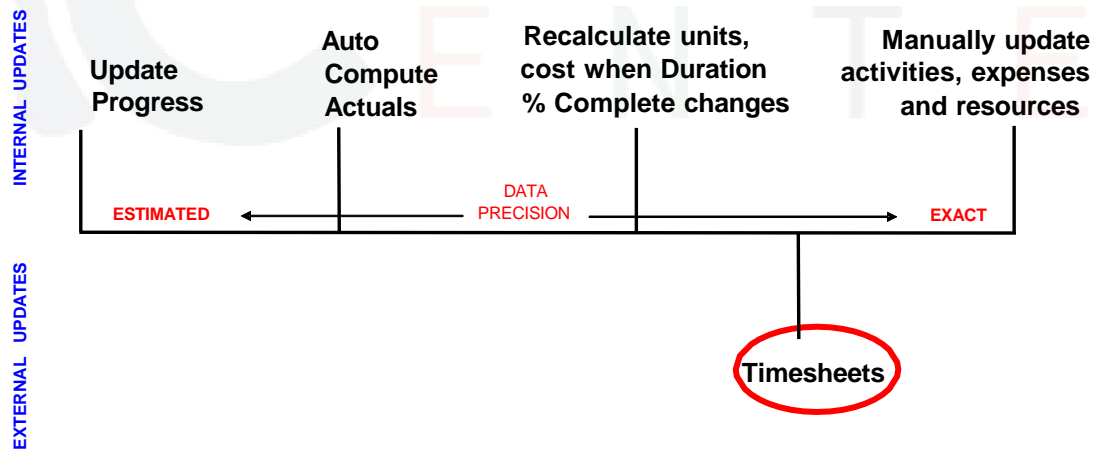
- Manually enter values for each element.
- Internal update
- Data precision: Exact

INTERNAL UPDATES  
EXTERNAL UPDATES



# Timesheets

- Resources record hours worked.
- Manager approves / rejects timesheets and then applies actuals
- External update
- Data precision: Exact



# Timesheets

- Resources record hours worked against activities.
- Primary resource also can mark activities started or finished and update Remaining Duration.
- After approving / rejecting timesheets, manager applies actuals.
  - Only statused activities are recalculated.
  - Does not affect activities not in the status period.
  - Activities within the status period that are not progressed are pushed out to new data date.



# Delegating Status Updates

Project updates can be delegated to external resources, such as subcontractors. Methods include:

- Reflection project
  - Reflection project is updated by subcontractor, resource, or individual designated as Activity Owner.
  - Can status activities, update resource assignments
  - Project manager has ability to view and then approve/reject updates before merging reflection project into source project.
  - Available in P6 Professional only.
- Import updated project
  - Copy of project updated by another individual and then imported.

# 18

## Executing the Project Plan

# Objectives

After completing this lesson, you should be able to:

- Use Progress Spotlight.
- Update the status of completed activities and activities in progress.
- Reschedule the project.

## Objectives

Using Action Verbs for Objectives  
In the slide, use the introductory phrase "After completing this lesson, you should be able to"

followed by a colon. Use action verbs to introduce each bulleted objective. Your choice of action verb depends on the content of the lesson: If the content is designed to cover facts and terms, use such verbs as identify, choose, select, match, label, list, and so on.

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If the content is about application of knowledge or execution of a procedure or process, use such verbs as use, run, create, modify, construct, drop, and so on. For detailed and high-level content, use such verbs as conclude, analyze, separate, compare, contrast, justify, differentiate, perform, and so on

# Updating a Project

Once a project has started, actual activity information should be updated at regular intervals.

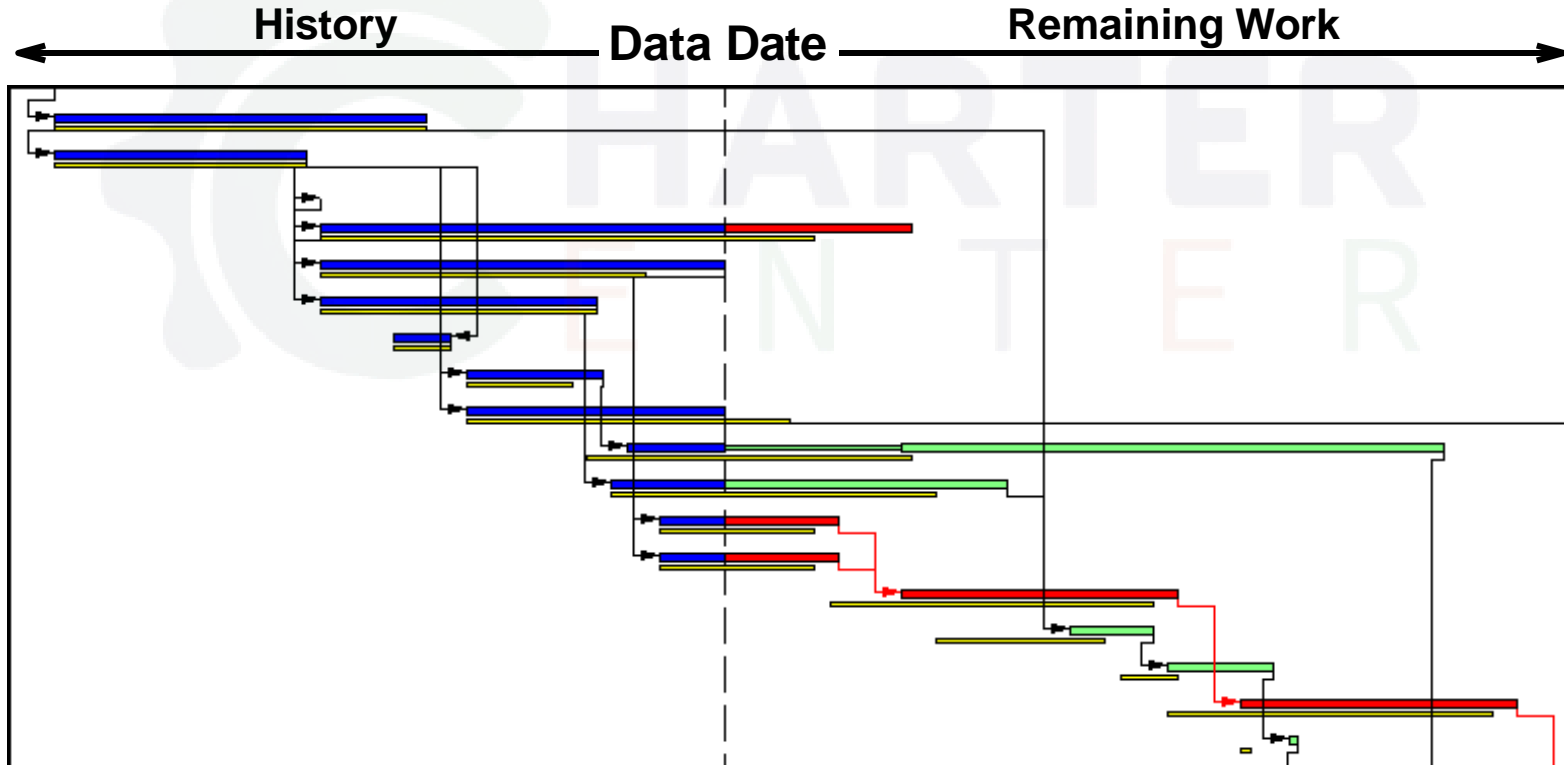
- Schedule dates and durations
- Resource usage
- Expenses



# Data Date

**STUDENT CONTENT:**  
In slide: High-level concepts only. Avoid tool descriptions – focus on concepts .  
Below slide: Additional information that relates to slide content but doesn't fit or isn't appropriate for slide. KEEP IT brief. Remember, you have the activity guide section to include additional information.

The data date is the date up to which actual performance data is reported and the date from which future work is scheduled.  
The data date always starts at the beginning of the day.



# The Updating Process

## STUDENT CONTENT:

In slide: High-level concepts only. Avoid tool descriptions – focus on concepts .

Below slide: Additional information that relates to slide content but doesn't fit or isn't appropriate for slide. KEEP IT BRIEF! Remember, you have the activity guide section to include additional information.

Standard project update procedures should be established, including how data is collected and how often it is updated.

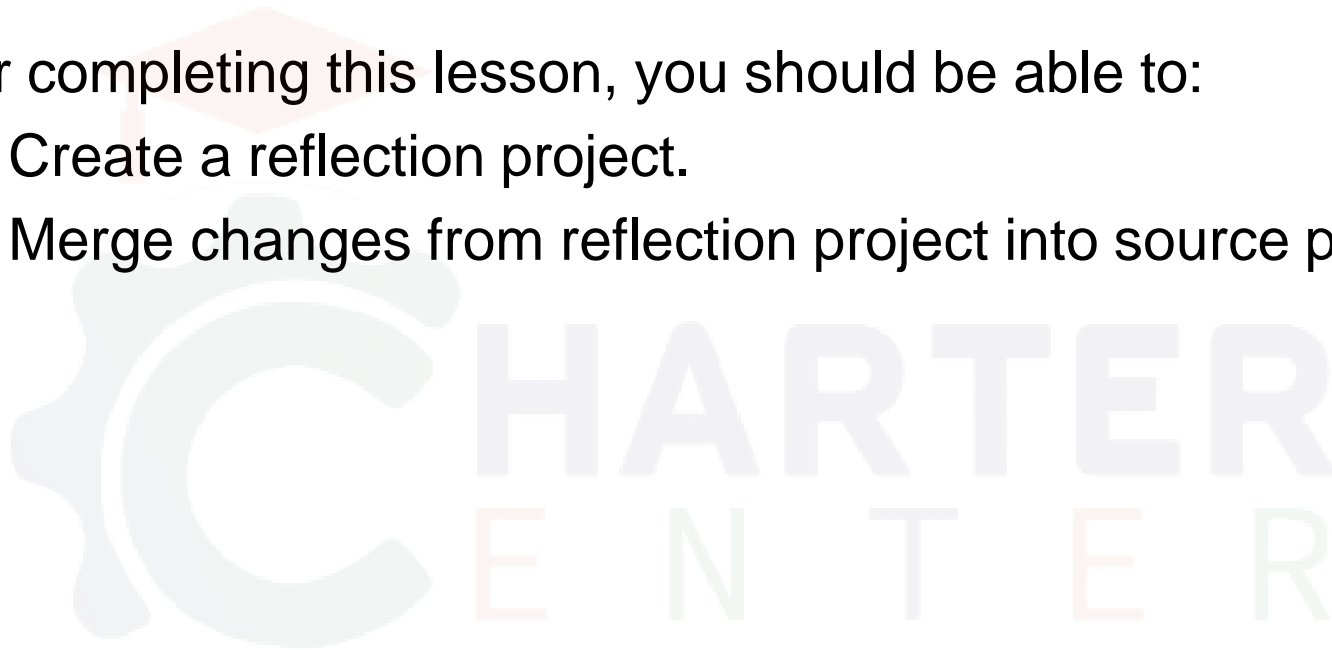
- Create a baseline plan (optional).
- Identify the new data date.
- Enter activity progress.
- Report resource use and costs to date.
- Use Suspend and Resume dates as necessary.
- Reschedule using the new data date.

# Reflection Projects

# Objectives

After completing this lesson, you should be able to:

- Create a reflection project.
- Merge changes from reflection project into source project.





# Reflection Projects

## STUDENT CONTENT:

In slide: High-level concepts only. Avoid tool descriptions – focus on concepts .

Below slide: Additional information that relates to slide content but doesn't fit or isn't appropriate for slide. KEEP IT BRIEF! Remember, you have the activity guide section to include additional information.

A copy of a project used for updating or to conduct what-if analysis.

- Team members or other P6 Professional users can update status of activities in which they are designated Activity Owner.
- Review and decide which changes to merge into the source project.
- What-If status.
- Baselines in the source project are copied to the reflection project.
  - Enables you to convert reflection project into active project with baseline data in place.

# Analyzing the Updated Project

# Objectives

## Objectives

Using Action Verbs for Objectives  
In the slide, use the introductory phrase "After completing this lesson, you should be able to"

After completing this lesson, you should be able to:

- Analyze schedule dates, resource availability/allocation, and project costs.
- Identify areas where the project is falling behind schedule or exceeding planned costs.
- Make changes necessary to address variances.
- Understand the importance of analyzing a project after every status update.

followed by a colon. Use action verbs to introduce each bulleted objective. Your choice of action verb depends on the content of the lesson: If the content is designed to cover facts and terms, use such verbs as identify, choose, select, match, label, list, and so on.

If the content is designed to teach a concept, use such verbs as identify, choose, select, indicate, match, classify, and so on.

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# Steps for Analyzing the Updated Project

## STUDENT CONTENT:

Slide: High-level concepts only. Avoid too much descriptions – focus on concepts.

Below slide: Additional information that relates to slide content but doesn't fit or isn't appropriate for slide. KEEP IT BRIEF! Remember, you have the activity guide section to include additional information.

1. Perform a baseline analysis.
  - Compare current plan to baseline plan to analyze variances.
  - Compare calculated Finish and Must Finish By dates.
2. Make changes to restore important schedule milestones.
  - Focus on critical activities.
3. Perform a resource usage analysis.
  - Identify availability or allocation issues.
  - Adjust resource assignments to resolve issues.
4. Perform cost analysis.
  - Compare Total Cost to the Original Budget.

# Questions to Determine How to Adjust a Schedule

- Can the Finish date of the project slip?
- Can the scope of the activity/project decrease?
- Were the planned hours over- or under-estimated?
- Can any relationships between activities be changed?
- Can additional resources be assigned?
- Can resources work overtime?

# Shortening the Project

- Focus on critical activities.
- Refine duration estimates.
  - Break down long activities.
  - Assign additional resources to reduce duration.
- Use relationships to overlap activities.
- Apply/modify constraints.
- Change calendar assignments.
  - Put critical activities on a longer workweek.
  - Add exceptions to non-work time.

# 21

## Reporting Performance

# Objectives

After completing this lesson, you should be able to:

- Describe reporting methods.
- Run a schedule report.
- Create a resource report with the Report wizard.
- Create a time distributed report.
- Create a report using the current layout.

## Objectives

Using Action Verbs for Objectives

In the slide, use the introductory phrase "After completing this lesson, you should be able to"

followed by a colon. Use action verbs to introduce each bulleted objective. Your choice of action verb depends on the content of the lesson: If the content is designed to cover facts and terms, use such verbs as identify, choose, select, match, label, list, and so on.

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# Methods for Reporting Performance

**STUDENT CONTENT:**

In slide: High-level concepts only. Avoid tool descriptions – focus on concepts .

Below slide: Additional information that relates to slide content but doesn't fit or isn't appropriate for slide. KEEP IT BRIEF! Remember, you have the activity guide section to include additional information.

- Reports from layouts
- Reports from Report wizard
- Reports from Report editor



## SECTION VI

# Appendices

## Creating Output Managing Documents

### Objectives

Using Action Verbs for Objectives  
In the slide, use the introductory phrase “After completing this lesson, you should be able to”

followed by a colon. Use action verbs to introduce each bulleted objective. Your choice of action verb depends on the content of the lesson: If the content is designed to cover facts and terms, use such verbs as identify, choose, select, match, label, list, and so on.

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## Creating Output

# Objectives

After completing this lesson, you should be able to:

- Customize the appearance of headers and footers.
- Insert and format the curtain and text attachment tools.
- Format the appearance of the data date.

## Objectives

Using Action Verbs for Objectives

In the slide, use the introductory phrase "After completing this lesson, you should be able to"

followed by a colon. Use action verbs to introduce each bulleted objective. Your choice of action verb depends on the content of the lesson: If the content is designed to cover facts and terms, use such verbs as identify, choose, select, match, label, list, and so on.

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# Output Controls

## STUDENT CONTENT:

In slide: High-level concepts only. Avoid tool descriptions – focus on concepts .

Below slide: Additional information that relates to slide content but doesn't fit or isn't appropriate for slide. KEEP IT BRIEF! Remember, you have the activity guide section to include additional information.

P6 Professional offers functionality to enhance onscreen display and printed material:

- Formatting layouts for print
  - Headers, footers
  - Graphics
- Gantt chart
  - Curtain tool
  - Text tool
  - Customized data date line

# Project Documents

**STUDENT CONTENT:**

In slide: High-level concepts only. Avoid tool descriptions – focus on concepts .

Below slide: Additional

information that relates to slide content but doesn't fit or isn't appropriate for slide. KEEP IT BRIEF! Remember, you have the activity guide section to include additional information.

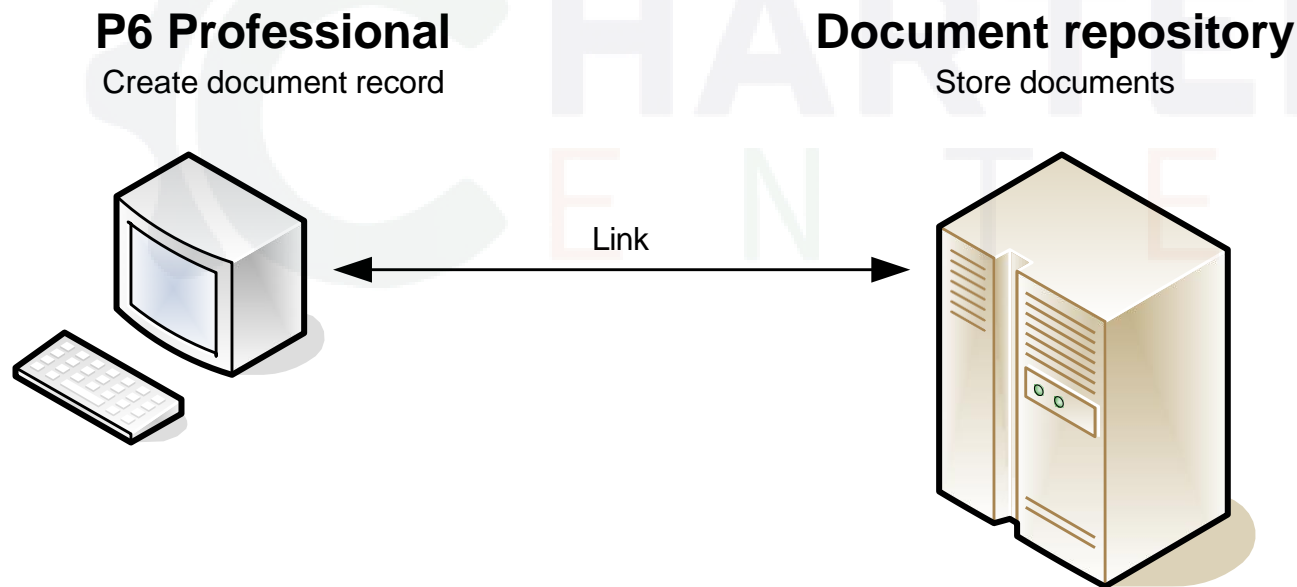
Project documents can be classified as either a work product or a reference document:

- **Work product** – A document that is a project or activity deliverable and will be turned over to the project's end user or customer.
- **Reference document** – A document that can be referenced by a project participant for the purpose of providing standards or guidelines for performing work.

# Linking Documents

**STUDENT CONTENT:**  
In slide: High-level concepts only. Avoid tool descriptions – focus on concepts .  
Below slide: Additional information that relates to slide content but doesn't fit or isn't appropriate for slide. KEEP IT BRIEF! Remember, you have the activity guide section to include additional information.

Documents are not stored in the P6 Professional database. Instead, create a document record and then link to the document source.



# Assigning Documents

**STUDENT CONTENT:**  
In slide: High-level concepts only. Avoid tool descriptions – focus on concepts .  
Below slide: Additional information that relates to slide content but doesn't fit or isn't appropriate for slide. KEEP IT BRIEF! Remember, you have the activity guide section to include additional information.

Project document can be assigned to a WBS element or activity.

