



# **CE 332 – Construction Engineering and Management**

## **MS Project - Recitation**



# MICROSOFT PROJECT

- Microsoft Project is a project management software program, developed and sold by Microsoft, which is designed to assist a project manager in;

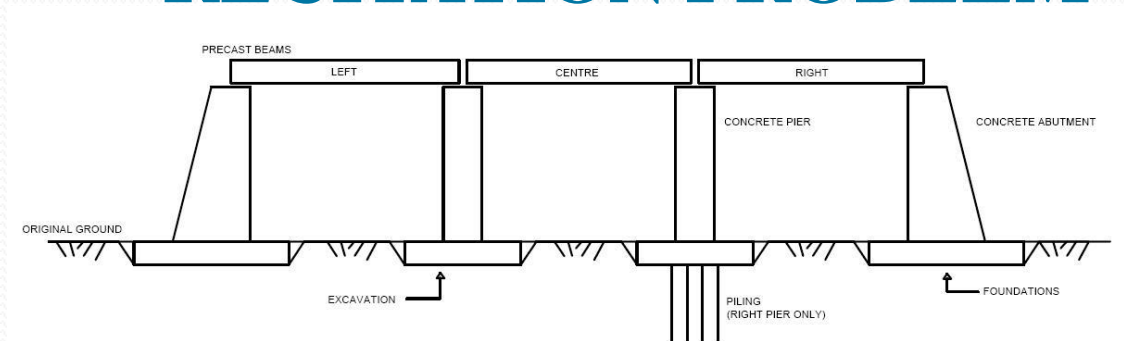
- 1) Developing a plan
- 2) Assigning resources to tasks
- 3) Tracking progress
- 4) Managing the budget
- 5) Analyzing workloads



- The first commercial version of Project was released in 1984.
- Microsoft Project 95 was the first to use common Office menus.
- Then 1998 (v9.0), 2000 (v10.0), 2003 (v11.0), 2007 (v12.0), 2010 (v14.0) versions were released.
- Last version is 2013 (v15.0).



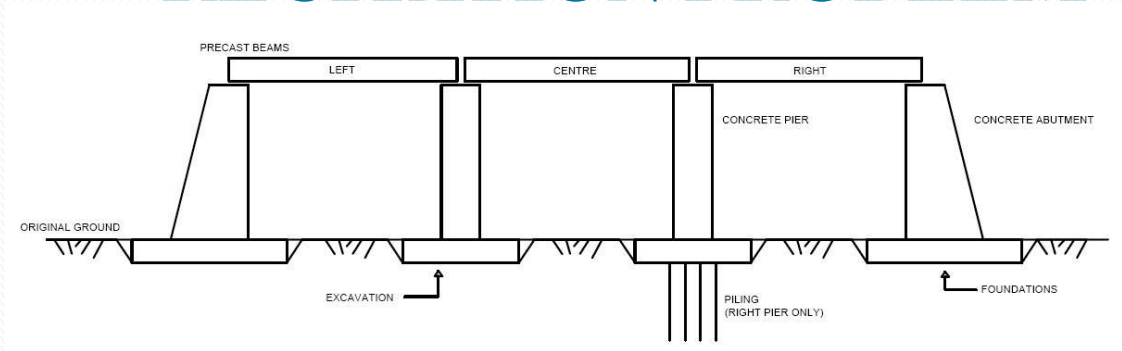
# RECITATION PROBLEM



Activity Number	Activity Description	Duration (weeks)	Dependence	Resource Demand
1	Set up site	1	-	
2	Excavate left abutment	6	1	Excavator
3	Excavate left pier	4	1	Excavator
4	Excavate right pier	4	1	Excavator
5	Excavate right abutment	6	1	Excavator
6	Piledriving to right pier	7	4	
7	Foundations left abutment	8	2	Concrete team for foundations
8	Foundations left pier	6	3	Concrete team for foundations
9	Foundations right pier	6	6	Concrete team for foundations
10	Foundations right abutment	8	5	Concrete team for foundations
11	Concrete left abutment	9	7	Concrete team for abutments and piers
12	Concrete left pier	7	8	Concrete team for abutments and piers
13	Concrete right pier	7	9	Concrete team for abutments and piers
14	Concrete right abutment	9	10	Concrete team for abutments and piers
15	Place beams left span	4	11,12	Crane
16	Place beams centre span	4	12,13	Crane
17	Place beams right span	4	13,14	Crane
18	Clear site	1	15,16,17	



## RECITATION PROBLEM



- The project is planned to start at June 1, 2015.
- There are no holidays in the work schedule (there will be no holidays on Saturdays, or Sundays, or on official holiday dates).
- Develop two schedules for a bridge construction project by assuming;
  - a) There are no resource-constraints (unlimited number of resources).
  - b) The availability of each resource is one.



# SOLUTION STEPS

## Step 1: Download MS Project 2013 & Install it to the computer

Office

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Project Top features Try or buy Compare Partners

**Project Online with Project Pro for Office 365**

Get started quickly with a flexible online solution for project portfolio management (PPM) and everyday work delivered through Office 365. Includes full desktop management capabilities as a subscription.

**Buy now**

[Learn more](#) | [Compare the plans](#)

**Project Online**

Get started quickly with a flexible online solution for project portfolio management (PPM) and everyday work delivered through Office 365.

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[Learn more](#)

**Project Professional 2013**

Easily collaborate with others to quickly start and deliver winning projects.

**Buy now** **Try**

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**Other Project products**

Project Pro for Office 365  
Project Server 2013  
Project Standard 2013

- Download Link:  
<http://office.microsoft.com/en-us/project/>
- 60-day trial version



# SOLUTION STEPS

## Step 2: Create project calendar

The screenshot displays the Microsoft Project Professional interface. The 'PROJECT' tab is active in the ribbon, and the 'Change Working Time' button is highlighted. A 'Change Working Time' dialog box is open, showing the 'CE 332-Recitation (Project Calendar)' selected. The 'Create New Calendar...' button is highlighted. The background shows a Gantt chart with tasks like 'Set up site', 'Excavate left abutment', etc.

Task ID	Task Name	Duration	Task Calendar	Start	Finish
1	Set up site	1 wk	CE 332-Recitation	Sat 6/1/13	Fri 6/7/13
2	Excavate left abutment	6 wks	CE 332-Recitation	Sat 6/8/13	Fri 7/19/13
3	Excavate left pier	4 wks	CE 332-Recitation	Sat 6/8/13	Fri 7/5
4	Excavate right pier	4 wks	CE 332-Recitation	Sat 6/8/13	Fri 7/5
5	Excavate right abutment	6 wks	CE 332-Recitation	Sat 6/8/13	Fri 7/19
6	Piledriving to right pier	7 wks	CE 332-Recitation	Sat 7/6/13	Fri 8/2
7	Foundations left abutment	8 wks	CE 332-Recitation	Sat 7/20/13	Fri 9/1
8	Foundations left pier	6 wks	CE 332-Recitation	Sat 7/6/13	Fri 8/1
9	Foundations right pier	6 wks	CE 332-Recitation	Sat 8/24/13	Fri 10/1
10	Foundations right abutment	8 wks	CE 332-Recitation	Sat 7/20/13	Fri 9/1
11	Concrete left abutment	9 wks	CE 332-Recitation	Sat 9/14/13	Fri 11/1
12	Concrete left pier	7 wks	CE 332-Recitation	Sat 8/17/13	Fri 10/1
13	Concrete right pier	7 wks	CE 332-Recitation	Sat 10/5/13	Fri 11/1
14	Concrete right abutment	9 wks	CE 332-Recitation	Sat 9/14/13	Fri 11/1
15	Place beams left span	4 wks	CE 332-Recitation	Sat 11/16/13	Fri 12/1
16	Place beams centre span	4 wks	CE 332-Recitation	Sat 11/23/13	Fri 12/1
17	Place beams right span	4 wks	CE 332-Recitation	Sat 11/23/13	Fri 12/1
18	Clear site	1 wk	CE 332-Recitation	Sat 12/21/13	Fri 12/1

Project → Change Working Time → Create New Calendar



# SOLUTION STEPS

## Step 3: Edit project information

The screenshot displays the Microsoft Project Professional interface. The 'PROJECT' tab is active in the ribbon, and the 'Project Information' task pane is open. A dialog box titled 'Project Information for CE 332-Recitation Problem a' is overlaid on the Gantt chart. The dialog box contains the following fields:

- Start date: Sat 6/1/13
- Current date: Fri 4/12/13
- Finish date: Fri 12/27/13
- Status date: NA
- Schedule from: Project Start Date
- Calendar: CE 332-Recitation
- Priority: 500
- Enterprise Custom Fields: Department (dropdown)
- Custom Field Name and Value table (empty)

The Gantt chart in the background shows a project schedule with tasks such as 'Set up site', 'Excavate left abutment', 'Excavate left pier', 'Excavate right pier', 'Excavate right abutment', 'Piledriving to right pier', 'Foundations left abutment', 'Foundations left pier', 'Foundations right pier', 'Foundations right abutment', 'Concrete left abutment', 'Concrete left pier', 'Concrete right pier', 'Concrete right abutment', 'Place beams left span', 'Place beams centre span', 'Place beams right span', and 'Clear site'.

Project → Project Information





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**CE 332 - Construction Engineering and Management**

**Spring 2014-2015**

# SOLUTION STEPS

## Step 4: Enter activities

CE 332-Recitation Problem a - Project Professional									
GANTT CHART TOOLS									
FILE TASK RESOURCE REPORT PROJECT VIEW FORMAT									
Subproject	Apps for Office	Project Information	Custom Fields	Links Between Projects	WBS Properties	Change Working Time	Calculate Project Schedule	Set Baseline	Move Project
Insert	Task Mode	Task Name	Duration	Task Calendar	Start	Finish	Predecessor	Resource Names	Add
1		Set up site	1 wk	CE 332-Recitation	Sat 6/1/13	Fri 6/7/13			
2		Excavate left abutment	6 wks	CE 332-Recitation	Sat 6/8/13	Fri 7/19/13	1	Excavator	
3		Excavate left pier	4 wks	CE 332-Recitation	Sat 6/8/13	Fri 7/5/13	1	Excavator	
4		Excavate right pier	4 wks	CE 332-Recitation	Sat 6/8/13	Fri 7/5/13	1	Excavator	
5		Excavate right abutment	6 wks	CE 332-Recitation	Sat 6/8/13	Fri 7/19/13	1	Excavator	
6		Piledriving to right pier	7 wks	CE 332-Recitation	Sat 7/6/13	Fri 8/23/13	4		
7		Foundations left abutment	8 wks	CE 332-Recitation	Sat 7/20/13	Fri 9/13/13	2	Concrete team for foundations	
8		Foundations left pier	6 wks	CE 332-Recitation	Sat 7/6/13	Fri 8/16/13	3	Concrete team for foundations	
9		Foundations right pier	6 wks	CE 332-Recitation	Sat 8/24/13	Fri 10/4/13	6	Concrete team for foundations	
10		Foundations right abutment	8 wks	CE 332-Recitation	Sat 7/20/13	Fri 9/13/13	5	Concrete team for foundations	
11		Concrete left abutment	9 wks	CE 332-Recitation	Sat 9/14/13	Fri 11/15/13	7	Concrete team for abutments and piers	
12		Concrete left pier	7 wks	CE 332-Recitation	Sat 8/17/13	Fri 10/4/13	8	Concrete team for abutments and piers	
13		Concrete right pier	7 wks	CE 332-Recitation	Sat 10/5/13	Fri 11/22/13	9	Concrete team for abutments and piers	
14		Concrete right abutment	9 wks	CE 332-Recitation	Sat 9/14/13	Fri 11/15/13	10	Concrete team for abutments and piers	
15		Place beams left span	4 wks	CE 332-Recitation	Sat 11/16/13	Fri 12/13/13	11,12	Crane	
16		Place beams centre span	4 wks	CE 332-Recitation	Sat 11/23/13	Fri 12/20/13	12,13	Crane	
17		Place beams right span	4 wks	CE 332-Recitation	Sat 11/23/13	Fri 12/20/13	13,14	Crane	
18		Clear site	1 wk	CE 332-Recitation	Sat 12/21/13	Fri 12/27/13	15,16,17		





# SOLUTION STEPS

## Step 5: Enter duration of the activities

Task ID	Task Name	Duration	Task Calendar	Start	Finish	Predecessor	Resource Names
1	Set up site	1 wk	CE 332-Recitation	Sat 6/1/13	Fri 6/7/13		
2	Excavate left abutment	6 wks	CE 332-Recitation	Sat 6/8/13	Fri 7/19/13	1	Excavator
3	Excavate left pier	4 wks	CE 332-Recitation	Sat 6/8/13	Fri 7/5/13	1	Excavator
4	Excavate right pier	4 wks	CE 332-Recitation	Sat 6/8/13	Fri 7/5/13	1	Excavator
5	Excavate right abutment	6 wks	CE 332-Recitation	Sat 6/8/13	Fri 7/19/13	1	Excavator
6	Piledriving to right pier	7 wks	CE 332-Recitation	Sat 7/6/13	Fri 8/23/13	4	
7	Foundations left abutment	8 wks	CE 332-Recitation	Sat 7/20/13	Fri 9/13/13	2	Concrete team for foundations
8	Foundations left pier	6 wks	CE 332-Recitation	Sat 7/6/13	Fri 8/16/13	3	Concrete team for foundations
9	Foundations right pier	6 wks	CE 332-Recitation	Sat 8/24/13	Fri 10/4/13	6	Concrete team for foundations
10	Foundations right abutment	8 wks	CE 332-Recitation	Sat 7/20/13	Fri 9/13/13	5	Concrete team for foundations
11	Concrete left abutment	9 wks	CE 332-Recitation	Sat 9/14/13	Fri 11/15/13	7	Concrete team for abutments and piers
12	Concrete left pier	7 wks	CE 332-Recitation	Sat 8/17/13	Fri 10/4/13	8	Concrete team for abutments and piers
13	Concrete right pier	7 wks	CE 332-Recitation	Sat 10/5/13	Fri 11/22/13	9	Concrete team for abutments and piers
14	Concrete right abutment	9 wks	CE 332-Recitation	Sat 9/14/13	Fri 11/15/13	10	Concrete team for abutments and piers
15	Place beams left span	4 wks	CE 332-Recitation	Sat 11/16/13	Fri 12/13/13	11,12	Crane
16	Place beams centre span	4 wks	CE 332-Recitation	Sat 11/23/13	Fri 12/20/13	12,13	Crane
17	Place beams right span	4 wks	CE 332-Recitation	Sat 11/23/13	Fri 12/20/13	13,14	Crane
18	Clear site	1 wk	CE 332-Recitation	Sat 12/21/13	Fri 12/27/13	15,16,17	

Project → Change Working Time → Options (To indicate that 1 week is 7 days)



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## CE 332 - Construction Engineering and Management

**Spring 2014-2015**

# SOLUTION STEPS

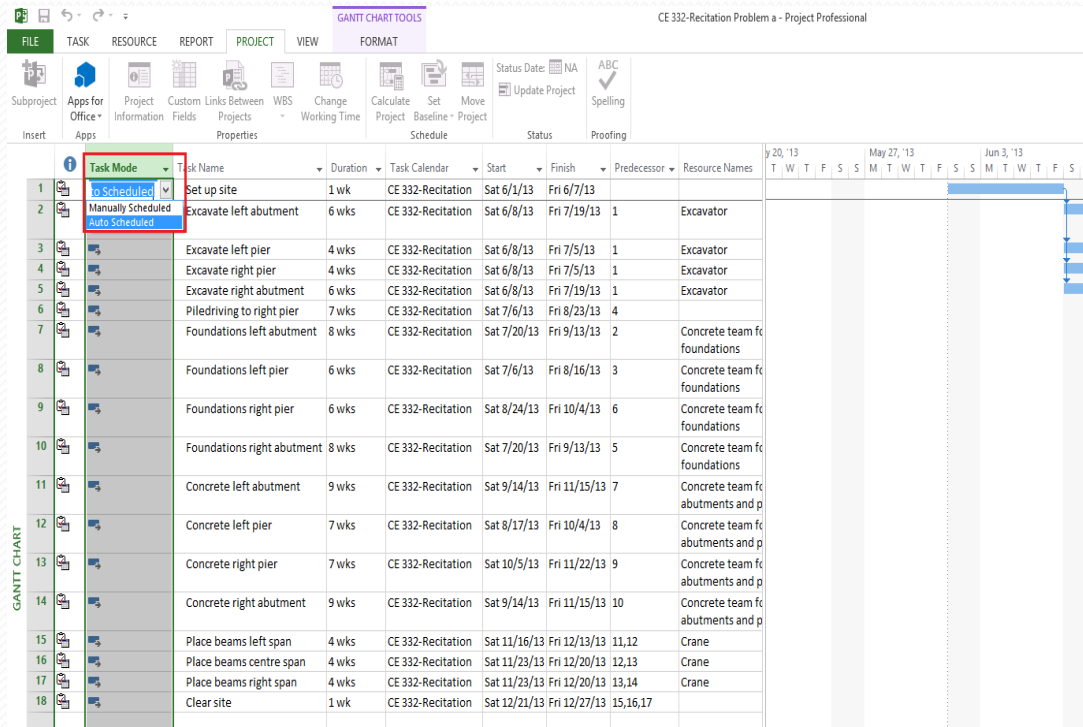
## Step 6: Choose task calendar

CE 332-Recitation Problem a - Project Professional										
GANTT CHART TOOLS										
FILE TASK RESOURCE REPORT PROJECT VIEW FORMAT										
Subproject	Apps for Office Apps	Project Information	Custom Fields	Links Between Projects	WBS	Change Working Time	Calculate Project	Set Baseline Project	Move Project	Status Date: NA Update Project
Insert	Apps	Properties					Schedule			Spelling
Task Calendar										
Task Mod	Task Name	Duration	Task Calendar	Start	Finish	Predecessor	Resource Names	Ad	y 20, '13	May 27, '13
									T W T F S S	M T W T F S S
1	Set up site	1 wk	CE 332-Recitation	Sat 6/1/13	Fri 6/7/13					
2	Excavate left abutment	6 wks	CE 332-Recitation	Sat 6/8/13	Fri 7/19/13	1	Excavator			
3	Excavate left pier	4 wks	CE 332-Recitation	Sat 6/8/13	Fri 7/5/13	1	Excavator			
4	Excavate right pier	4 wks	CE 332-Recitation	Sat 6/8/13	Fri 7/5/13	1	Excavator			
5	Excavate right abutment	6 wks	CE 332-Recitation	Sat 6/8/13	Fri 7/19/13	1	Excavator			
6	Piledriving to right pier	7 wks	CE 332-Recitation	Sat 7/6/13	Fri 8/23/13	4				
7	Foundations left abutment	8 wks	CE 332-Recitation	Sat 7/20/13	Fri 9/13/13	2	Concrete team for foundations			
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15	Place beams left span	4 wks	CE 332-Recitation	Sat 11/16/13	Fri 12/13/13	11,12	Crane			
16	Place beams centre span	4 wks	CE 332-Recitation	Sat 11/23/13	Fri 12/20/13	12,13	Crane			
17	Place beams right span	4 wks	CE 332-Recitation	Sat 11/23/13	Fri 12/20/13	13,14	Crane			
18	Clear site	1 wk	CE 332-Recitation	Sat 12/21/13	Fri 12/27/13	15,16,17				



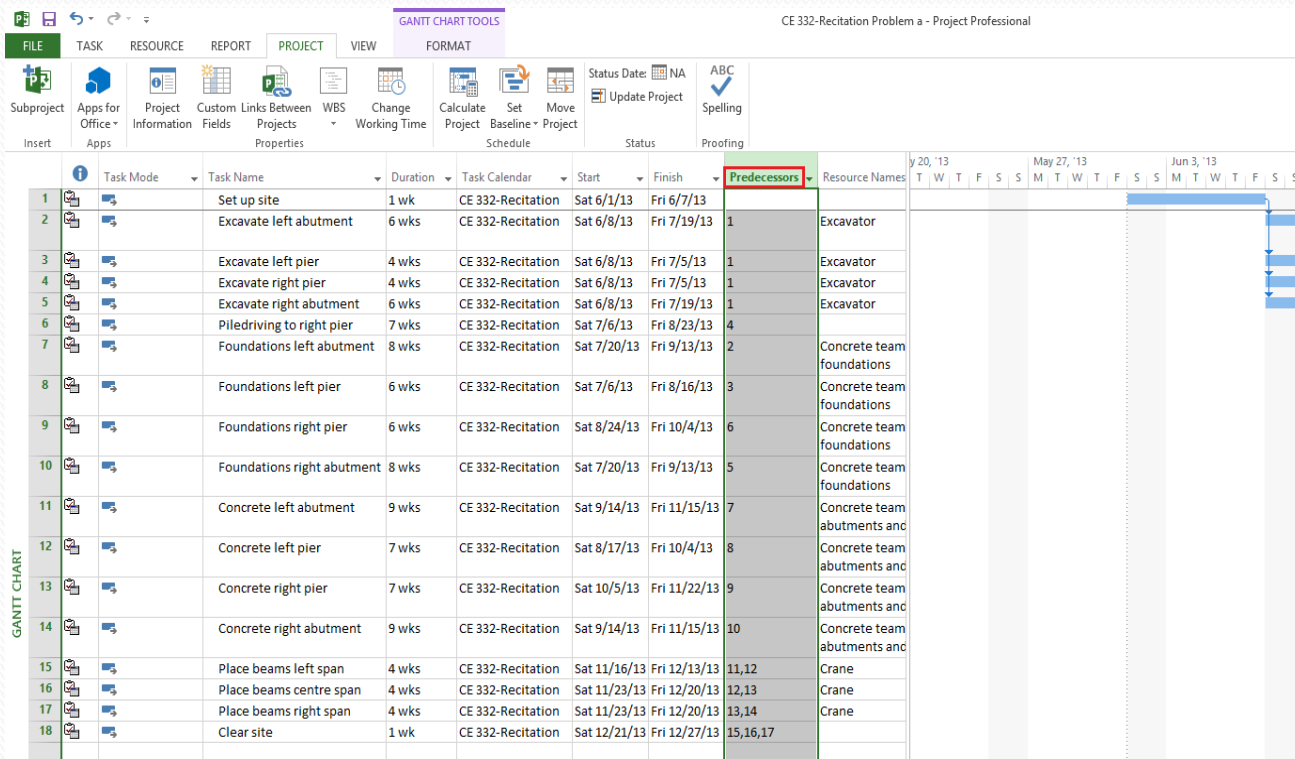
# SOLUTION STEPS

## Step 7: Choose automatically scheduled task for each activities



## SOLUTION STEPS

## Step 8: Enter predecessors





# SOLUTION STEPS

## Step 9: Define resources

CE 332-Recitation Problem a - Project Professional

**FILE** **TASK** **RESOURCE** **REPORT** **PROJECT** **VIEW** **FORMAT**

**Team Planner** **Assign Resources** **Resource Pool** **Add Resources** **Information** **Notes** **Details** **Level Selection** **Level Resource** **Level All** **Leveling Options** **Clear Leveling** **Next Overallocation**

**Built-In** **Calendar** **Gantt Chart** **Network Diagram** **Resource Sheet** **Resource Usage** **Resource Form** **Resource Graph** **Task Usage** **Task Form** **Task Sheet** **Team Planner** **Timeline** **Tracking Gantt** **Reset to Default** **Save View...** **More Views...**

Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt.	Cost/Use	Accrue	Base	Code	Add New Column
Concrete team for foundations	Work		E		400%	0.00 TL/hr	0.00 TL/hr	0.00 TL	Prorated	CE 332-Recita		
Concrete team for abutments and piers	Work		C-A&P		400%	0.00 TL/hr	0.00 TL/hr	0.00 TL	Prorated	CE 332-Recitatio		
Concrete team for foundations	Work		C		300%	0.00 TL/hr	0.00 TL/hr	0.00 TL	Prorated	CE 332-Recita		

Resource → Choose resource sheet view → Add Resources



# SOLUTION STEPS

## Step 10: Assign resources to the related activities

CE 332-Recitation Problem a - Project Professional

FILE

TASK

RESOURCE

REPORT

PROJECT

VIEW

FORMAT

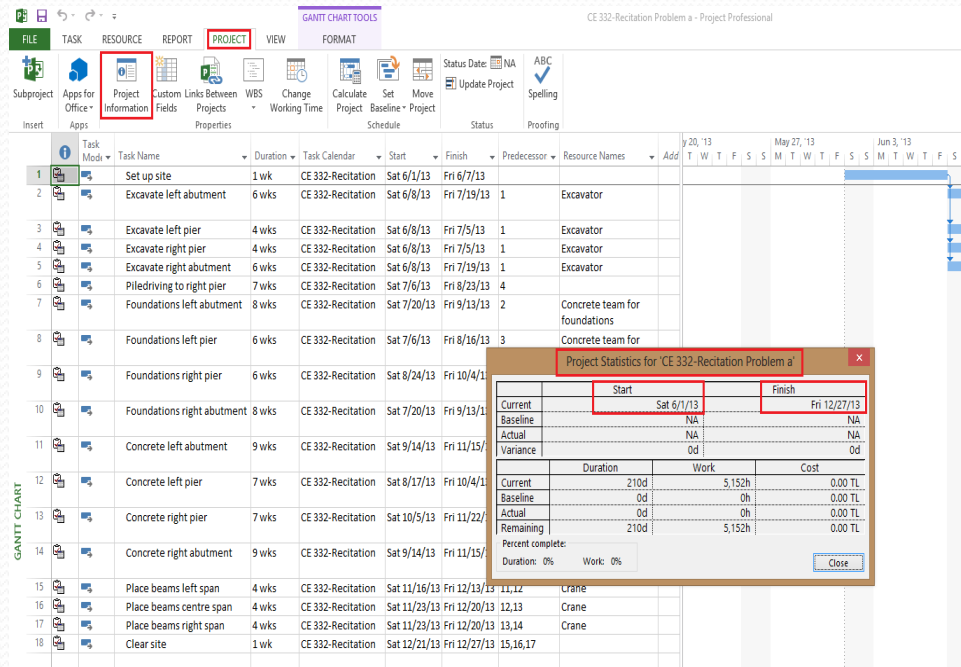
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# SOLUTION STEPS

## Step 11: Take reports

- Project Completion Date: Project → Project Information → Statistics



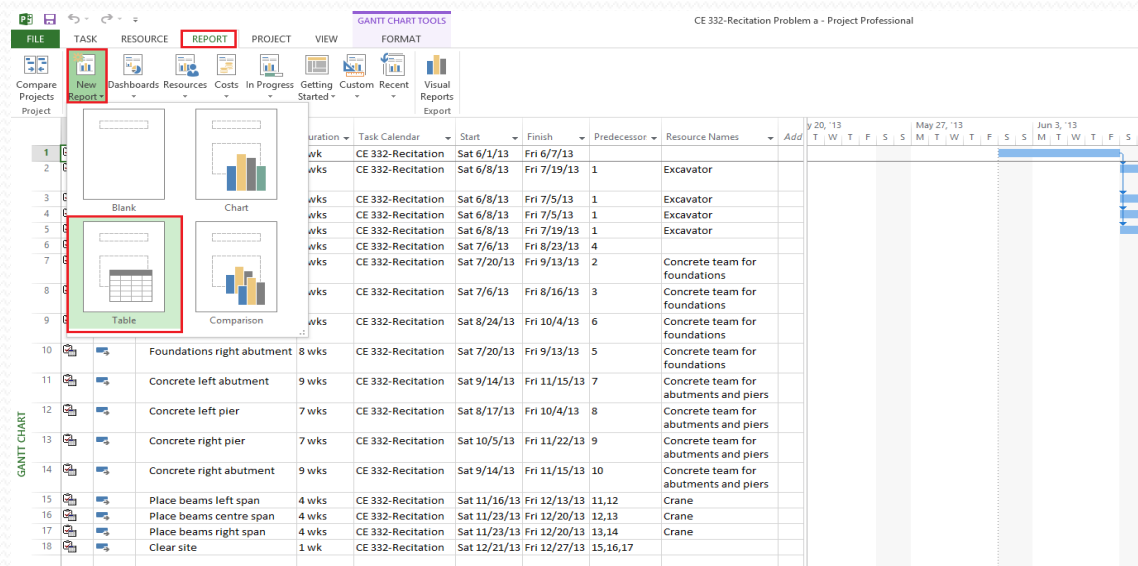




# SOLUTION STEPS

## Step 11: Take reports

- Schedule Outputs: Report → New Report → Table → Outline Level → All Subtasks  
(Choose necessary data)





# SOLUTION STEPS

## Step 11: Take reports

- Schedule Outputs: Report → New Report → Table → Outline Level → All Subtasks  
(Choose necessary data)

The screenshot displays the Microsoft Project Professional interface. The main window shows a report titled "Report 1" which contains a table of task data. The table has five columns: Name, Start, Finish, % Complete, and Early Finish. The data lists various construction tasks such as "Set up site", "Excavate left abutment", "Excavate left pier", "Excavate right pier", "Excavate right abutment", "Piledriving to right pier", "Foundations left abutment", "Foundations left pier", "Foundations right pier", and "Foundations".

Name	Start	Finish	% Complete	Early Finish
Set up site	Sat 6/1/13	Fri 6/7/13	0%	Fri 6/7/13
Excavate left abutment	Sat 6/8/13	Fri 7/19/13	0%	Fri 7/19/13
Excavate left pier	Sat 6/8/13	Fri 7/5/13	0%	Fri 7/5/13
Excavate right pier	Sat 6/8/13	Fri 7/5/13	0%	Fri 7/5/13
Excavate right abutment	Sat 6/8/13	Fri 7/19/13	0%	Fri 7/19/13
Piledriving to right pier	Sat 7/6/13	Fri 8/23/13	0%	Fri 8/23/13
Foundations left abutment	Sat 7/20/13	Fri 9/13/13	0%	Fri 9/13/13
Foundations left pier	Sat 7/6/13	Fri 8/16/13	0%	Fri 8/16/13
Foundations right pier	Sat 8/24/13	Fri 10/4/13	0%	Fri 10/4/13
Foundations	Sat 7/20/13	Fri 9/13/13	0%	Fri 9/13/13

The 'Field List' task pane on the right side of the screen shows the 'TASKS' tab selected. Under 'Select Fields', the 'Early Finish' field is highlighted with a red box. Below this, the 'Outline Level' and 'All Subtasks' options are also highlighted with a red box. The 'Filter' dropdown is set to 'All Tasks', and the 'Group By' dropdown is set to 'No Group'. The 'Sort By' dropdown is set to 'No Sort'.

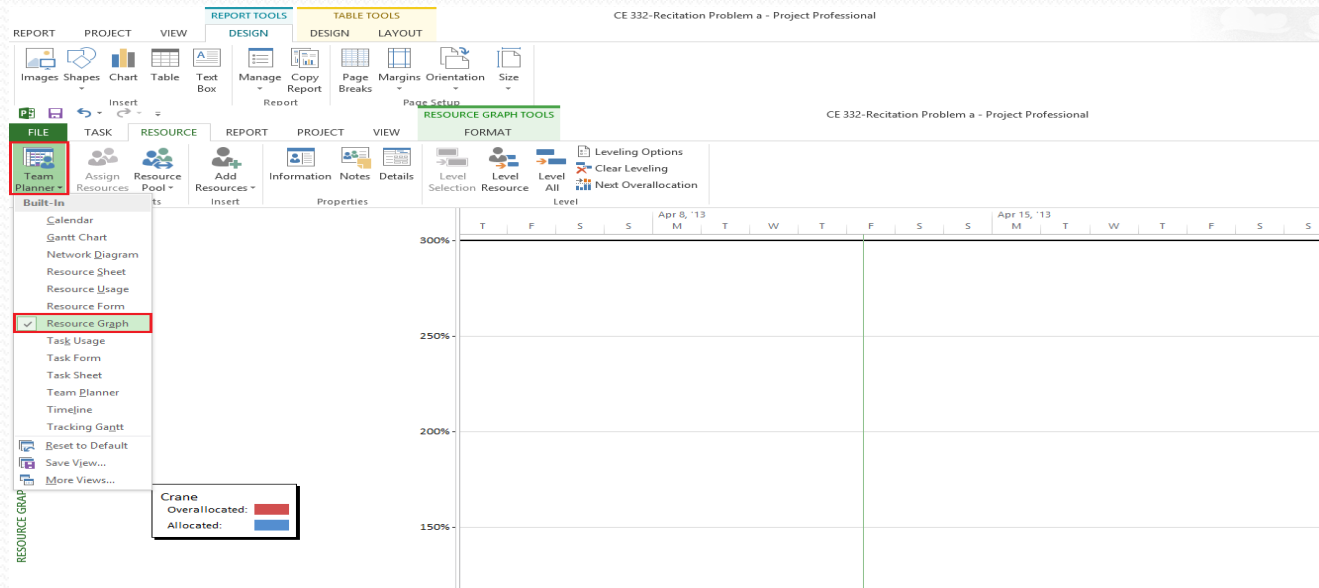


# SOLUTION STEPS

## Step 11: Take reports


➤ Resource Graph: Resource Graph View → Print (or Print Screen)

(Scroll mouse or use keyboard arrows to see resource graph of each resource)





## Step 11: Take reports

- 

FILE

TASK

RESOURCE

REPORT

PROJECT

VIEW

FORMAT

CE 332-Recitation Problem a - Project Professional

Team Planner

Assign Resources

Resource Pool

Add Resources

Information

Notes

Details

Level Selection

Level Resource

Level All

Leveling Options

Clear Leveling

Next Overallocation

Built-In		Properties		Level												
Calendar	Name	Work	Add New Column	Details	S	M	T	W	T	F	S	S	Apr 15, '13			
													M	T	W	
✓ Resource Usage	signed	0 hrs		Work												
	Set up site	0 hrs		Work												
	ile driving to	0 hrs		Work												
	lear site	0 hrs		Work												
	levator	1,120 hrs		Work												
	xcavate left	336 hrs		Work												
	xcavate left	224 hrs		Work												
	xcavate righ	224 hrs		Work												
	xcavate righ	336 hrs		Work												
	rete team fc	1,568 hrs		Work												
	foundations	448 hrs		Work												
	foundations	336 hrs		Work												
	foundations	336 hrs		Work												
	rete team fc	1,792 hrs		Work												
	Concrete left	504 hrs		Work												
	Concrete left	392 hrs		Work												
	Concrete righ	392 hrs		Work												
	Concrete righ	504 hrs		Work												
4	Crane	672 hrs		Work												
	Place beams	224 hrs		Work												
	Place beams	224 hrs		Work												
	Place beams	224 hrs		Work												