23CSCI08I
Software Project Management

Lab (6)

Topics covered:

- Adding tasks and their details including: duration, dependencies, and milestones.
- Assigning resources to tasks and determining details with respect to resources.
- Setting a calendar for the project.
- Keeping track of updates for the project.

Introduction:

MS Project is considered one of the various CASE (Computer-Aided Software Engineering) tools that help plan and develop software that meets the customer's requirements and ensure as much as possible that it is delivered on time.

MS Project has various capabilities with respect to project planning and yet we are mainly concerned with its capabilities to develop a clear and concise Gantt shows the entire plan for the project with apparent details.

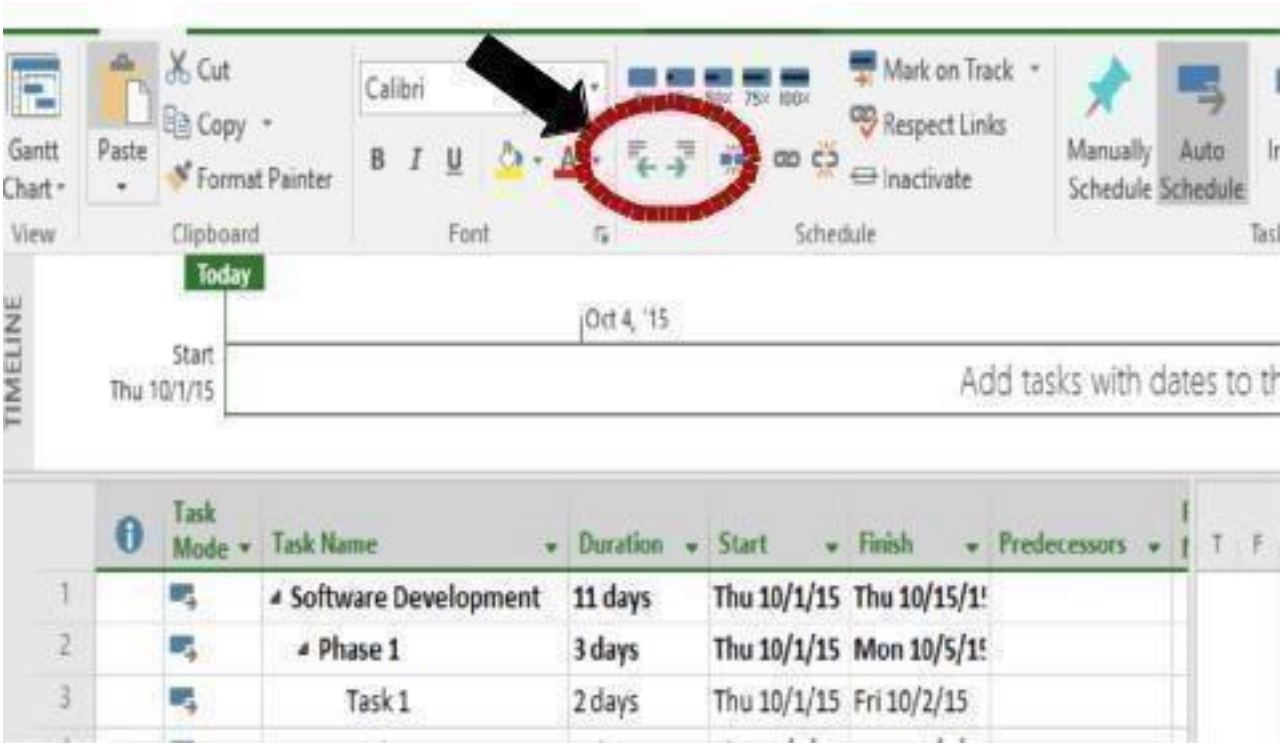
Tasks:

Task entry:

Task entry is quite trivial; simply write the task name in the table that is By double clicking on the task, you can add the start and finish dates or specify the start date and its duration. You can also specify the percentage of the task that has been completed, but be discussed in details further.

	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		**Software Development**	**11 days**	**Thu 10/1/15**	**Thu 10/15/1**	
2		**Phase 1**	**3 days**	**Thu 10/1/15**	**Mon 10/5/1**	
3		Task 1	2 days	Thu 10/1/15	Fri 10/2/15	
4		Task 2	3 days	Thu 10/1/15	Mon 10/5/1	
5		Task 3	3 days	Thu 10/1/15	Mon 10/5/1	
6		Task 4	2 days	Thu 10/1/15	Fri 10/2/15	
7		Finish Phase 1	0 days	Thu 10/1/15	Thu 10/1/15	
8		**Phase 2**	**5 days**	**Thu 10/1/15**	**Wed 10/7/1**	
9		Task 1	2 days	Thu 10/1/15	Fri 10/2/15	
10		Task 2	4 days	Thu 10/1/15	Tue 10/6/15	
11		Task 3	5 days	Thu 10/1/15	Wed 10/7/1	
12		Task 4	2 days	Thu 10/1/15	Fri 10/2/15	
13		Finish Phase 2	0 days	Thu 10/1/15	Thu 10/1/15	
14		**Phase 3**	**11 days**	**Thu 10/1/15**	**Thu 10/15/1**	
15		Task 1	3 days	Thu 10/1/15	Mon 10/5/1	
16		Task 2	10 days	Thu 10/1/15	Wed 10/14/1	
17		Task 3	11 days	Thu 10/1/15	Thu 10/15/1	
18		Task 4	4 days	Thu 10/1/15	Tue 10/6/15	
19		Finish Phase 3	0 days	Thu 10/1/15	Thu 10/1/15	

If we want to specify if certain tasks are actually subtasks, select the tasks, click on the arrow pointing right in the tool bar (→) which means that the tasks will be indented. Clicking on the left arrow (←) would move up the tasks one level.



Task dependencies - (Predecessors):

It is possible that certain tasks depend on others for the progress of the project, **for example, surveys must be written (Task 1) in order to be distributed and collected for analysis (Task 2).** There are four types of task dependencies:

1. **Start-to-start:**

   In order for Task 2 to start, Task 1 must start.

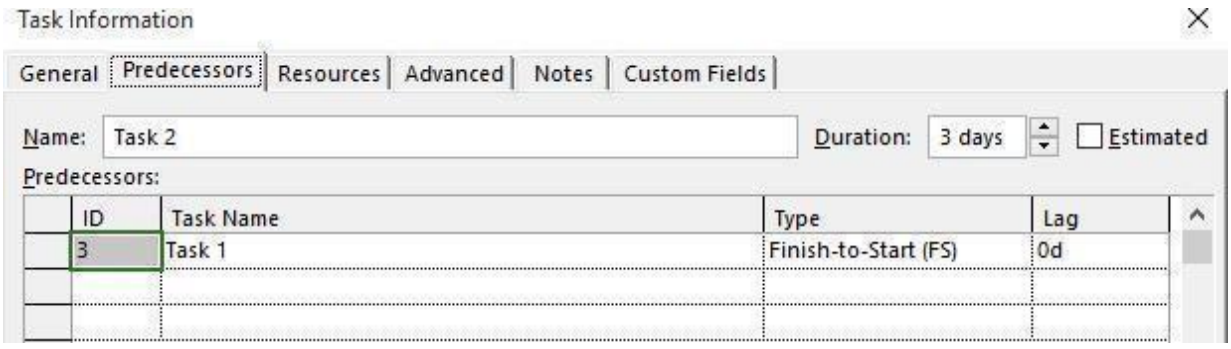
2. **Start-to-finish:**
   In order for Task 2 to finish, Task 1 must start.

3. **Finish-to-start** (This is the case for the above example):
   In order for Task 2 to start, Task 1 must finish.

4. **Finish-to-finish:**
   In order for Task 2 to finish, Task 1 must finish.

As shown in the below figure that 'Task 2' depends on 'Task 1'.

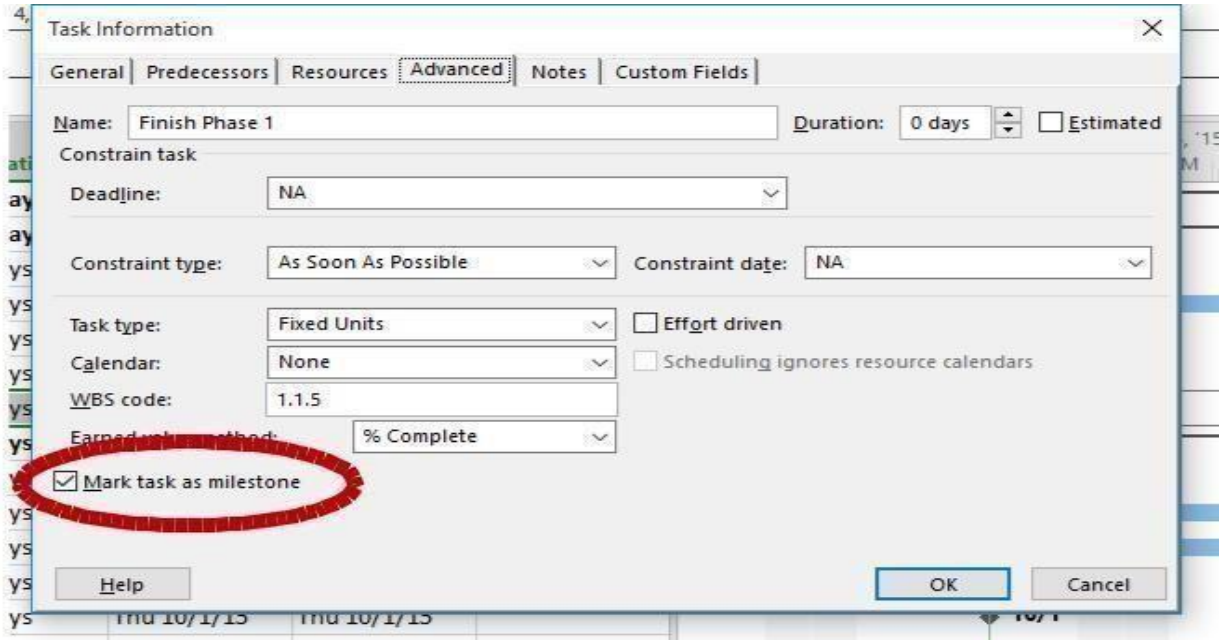
	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		**Software Development**	**11 days**	**Thu 10/1/15**	**Thu 10/15/15**	
2		**Phase 1**	**10 days**	**Thu 10/1/15**	**Wed 10/14/15**	
3		Task 1	2 days	Thu 10/1/15	Fri 10/2/15	
4		Task 2	3 days	Mon 10/5/15	Wed 10/7/15	3
5		Task 3	3 days	Thu 10/8/15	Mon 10/12/15	4
6		Task 4	2 days	Tue 10/13/15	Wed 10/14/15	5
7		Finish Phase 1	0 days	Wed 10/14/15	Wed 10/14/15	6



Note: The lag represents any gaps between the two tasks.

Milestones:

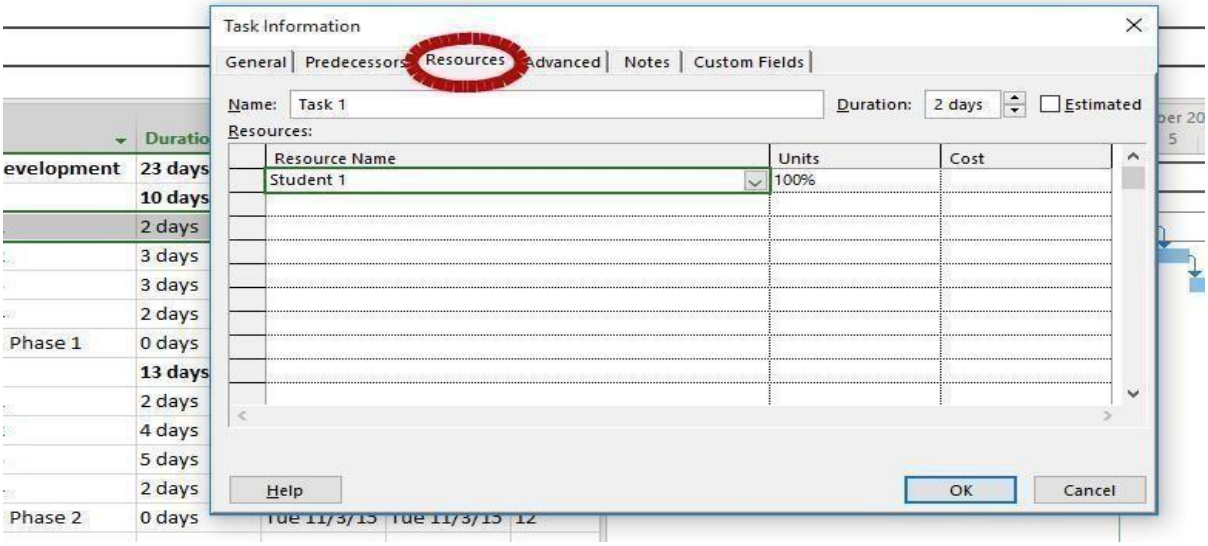
Milestones are tasks that represent the completion of a significant chunk of the project. There is usually a milestone after each phase of the project to signify its completion. In order to mark a milestone, double click on the task, click on the 'Advanced' tab, and tick the last box 'Mark task as milestone'



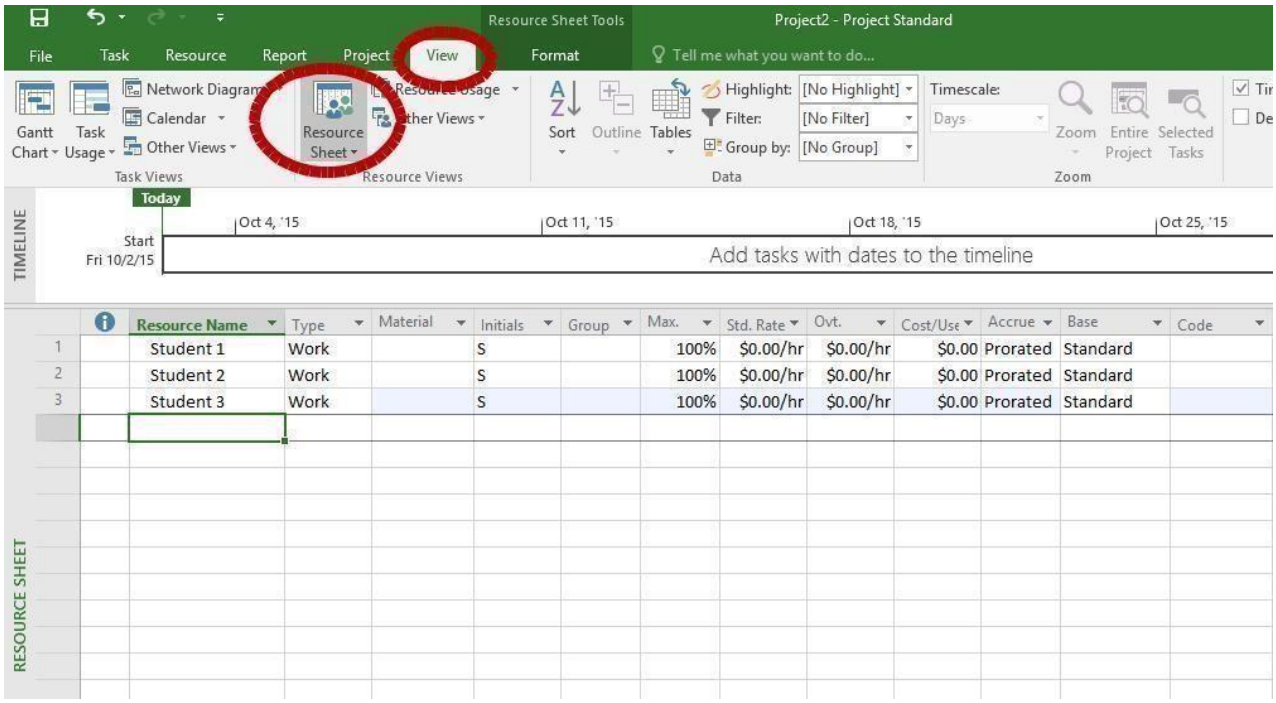
Resources:

Resources usually signify both tools and human capital, essentially everything that would be used along the course of the project. In MS Project, resources signify the human capital and the percentage of work that each person would put in.

Specify the resources for a specific task by double clicking on the task, click on the 'Resources' tab and specify the resources in the schedule. The '**Units**' section of the table is used to specify the percentage of work that each resource is assigned.



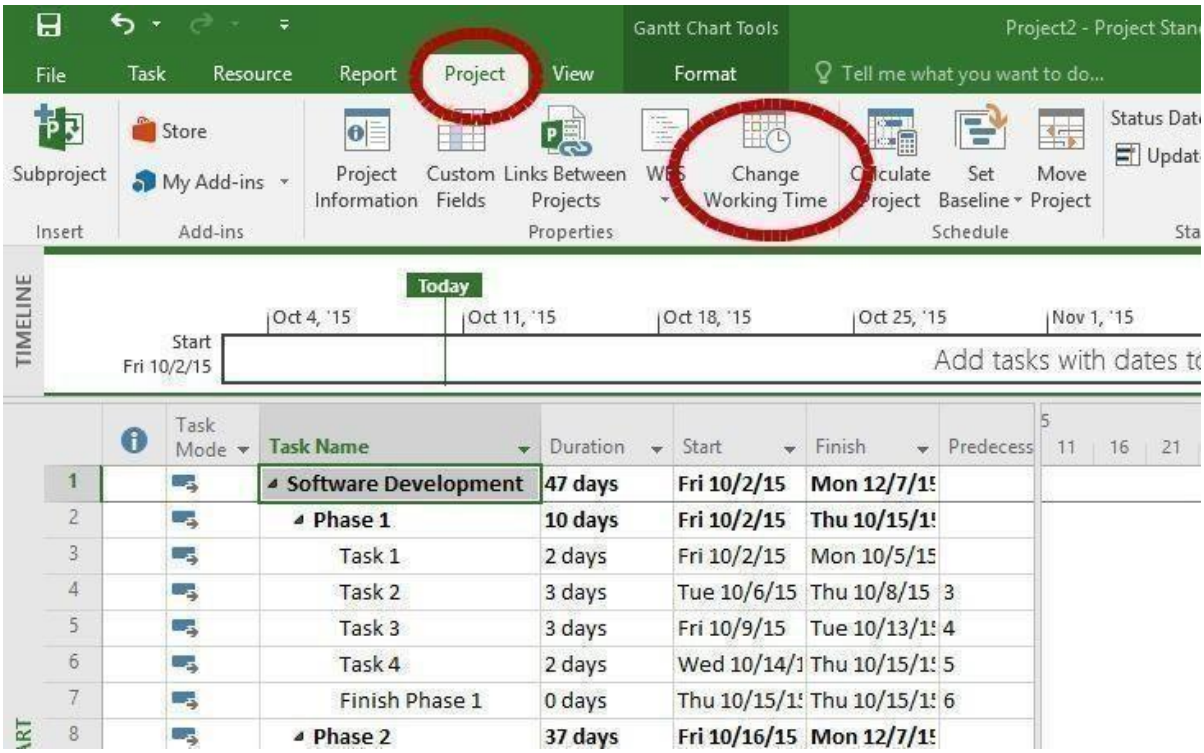
You can also specify all the details with the respect to the resources by clicking on the 'Resources Sheet', which is located in the 'View Ba

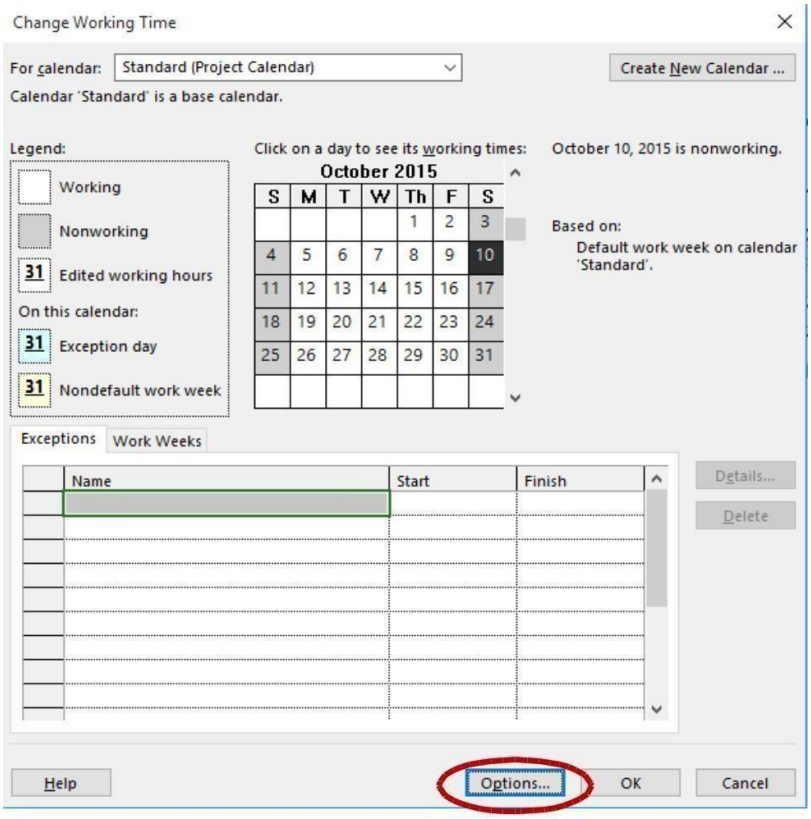


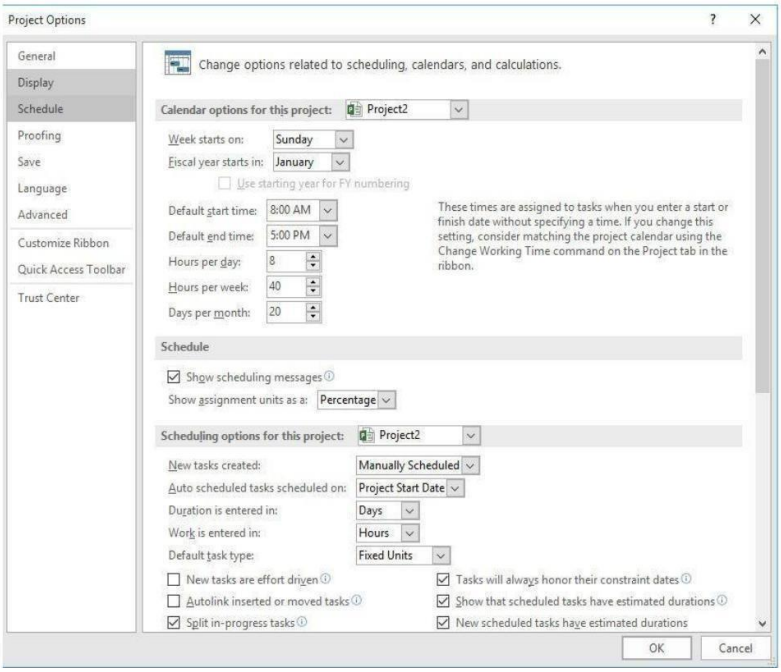
Calendar:

A significant part of creating a project plan is specifying the working days and specific number of hours per day so that the schedule is realistic and accurate. The MS Project has a standard calendar, which is from Monday to Friday from 8:00 AM to 5:00 PM with a total of 20 working days per month. You can specify your own calendar with respect to working days, number of hours per day, number of days per month, any national holidays...etc.

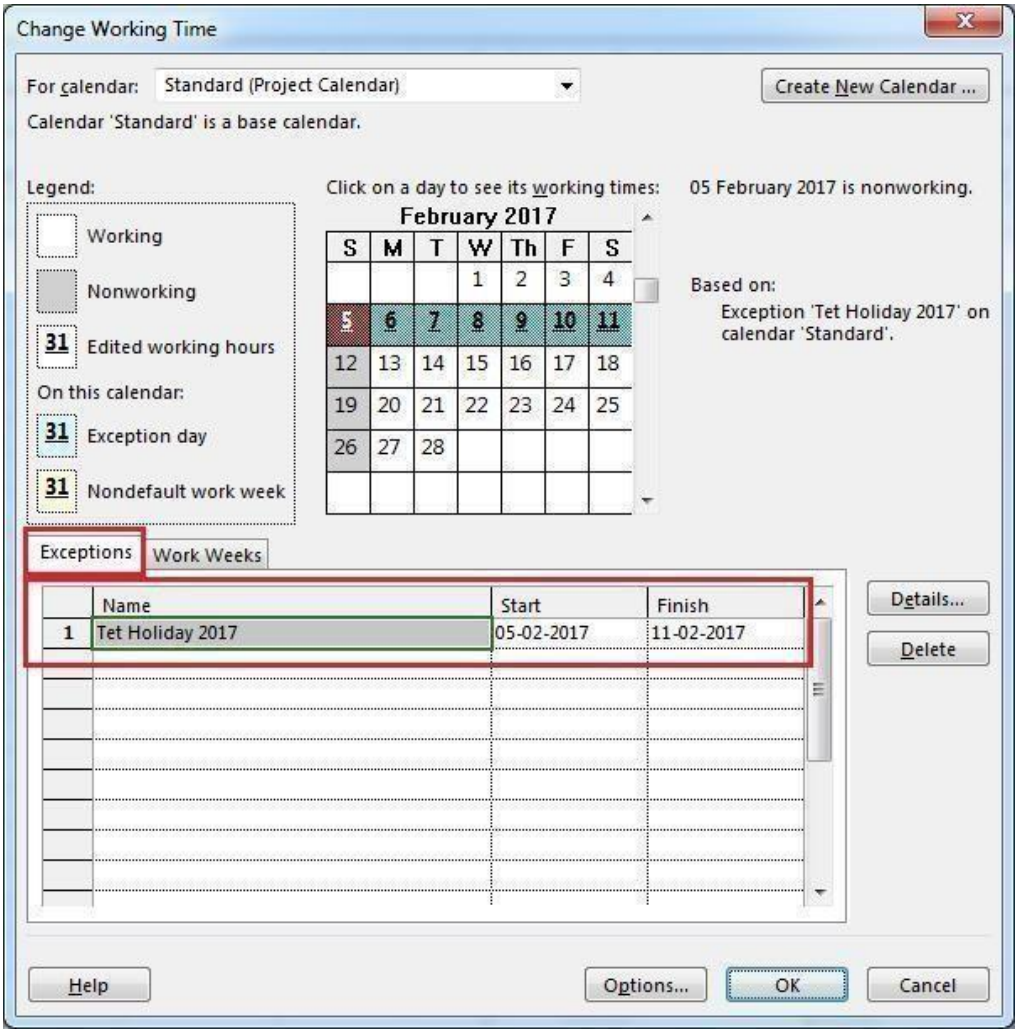
In order to do that, click on 'Project' from the Menu bar then on 'Change working time'. A dialogue box will pop up with details of the standard calendar. In order to change the working times and check the number of days per month, click on the 'Options' button at the bottom of the dialogue box. In order to create a new calendar, click on the 'Create New Calendar' button.



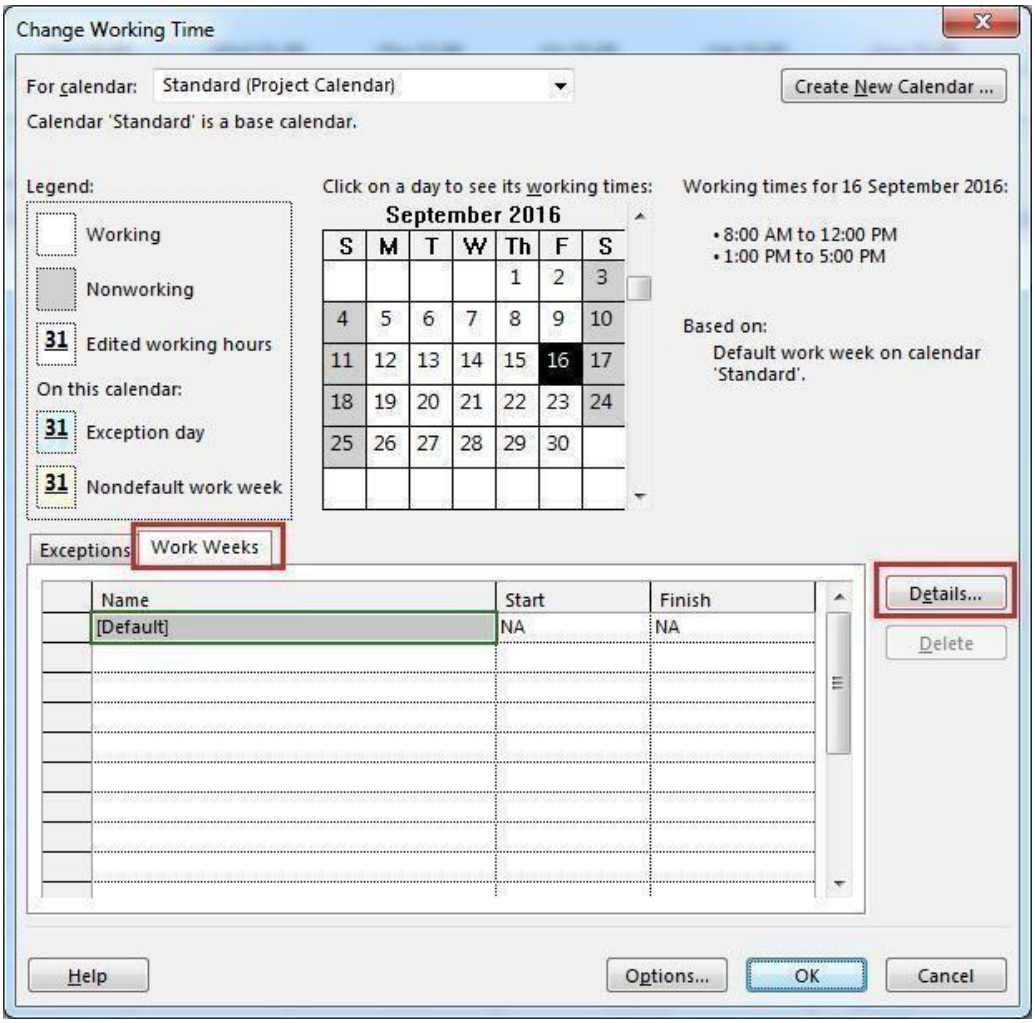

Change Working Time
For calendar: Standard (Project Calendar)
Create New Calendar ...
Calendar 'Standard' is a base calendar.
Legend:
Working
Nonworking
Edited working hours
On this calendar:
Exception day
Nondefault work week
Click on a day to see its working times:
October 2015
S M T W Th F S
1 2 3
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 31
October 10, 2015 is nonworking.
Based on:
Default work week on calendar 'Standard'.
Exceptions
Work Weeks
Name
Start
Finish
Details...
Delete
Help
Options...
OK
Cancel


Project Options
General
Display
Schedule
Proofing
Save
Language
Advanced
Customize Ribbon
Quick Access Toolbar
Trust Center
Change options related to scheduling, calendars, and calculations.
Calendar options for this project: Project2
Week starts on: Sunday
Fiscal year starts in: January
Use starting year for FY numbering
Default start time: 8:00 AM
Default end time: 5:00 PM
Hours per day: 8
Hours per week: 40
Days per month: 20
These times are assigned to tasks when you enter a start or finish date without specifying a time. If you change this setting, consider matching the project calendar using the Change Working Time command on the Project tab in the ribbon.
Schedule
Show scheduling messages
Show assignment units as a: Percentage
Scheduling options for this project: Project2
New tasks created: Manually Scheduled
Auto scheduled tasks scheduled on: Project Start Date
Duration is entered in: Days
Work is entered in: Hours
Default task type: Fixed Units
New tasks are effort driven
Autolink inserted or moved tasks
Split in-progress tasks
Tasks will always honor their constraint dates
Show that scheduled tasks have estimated durations
New scheduled tasks have estimated durations
OK
Cancel

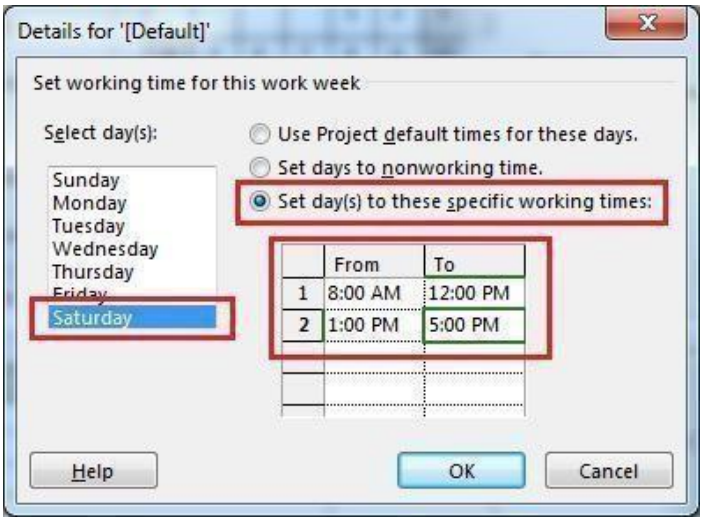
We can add National Holiday by click on Exceptions tab. Enter holiday name, Start, Finish date of holiday.

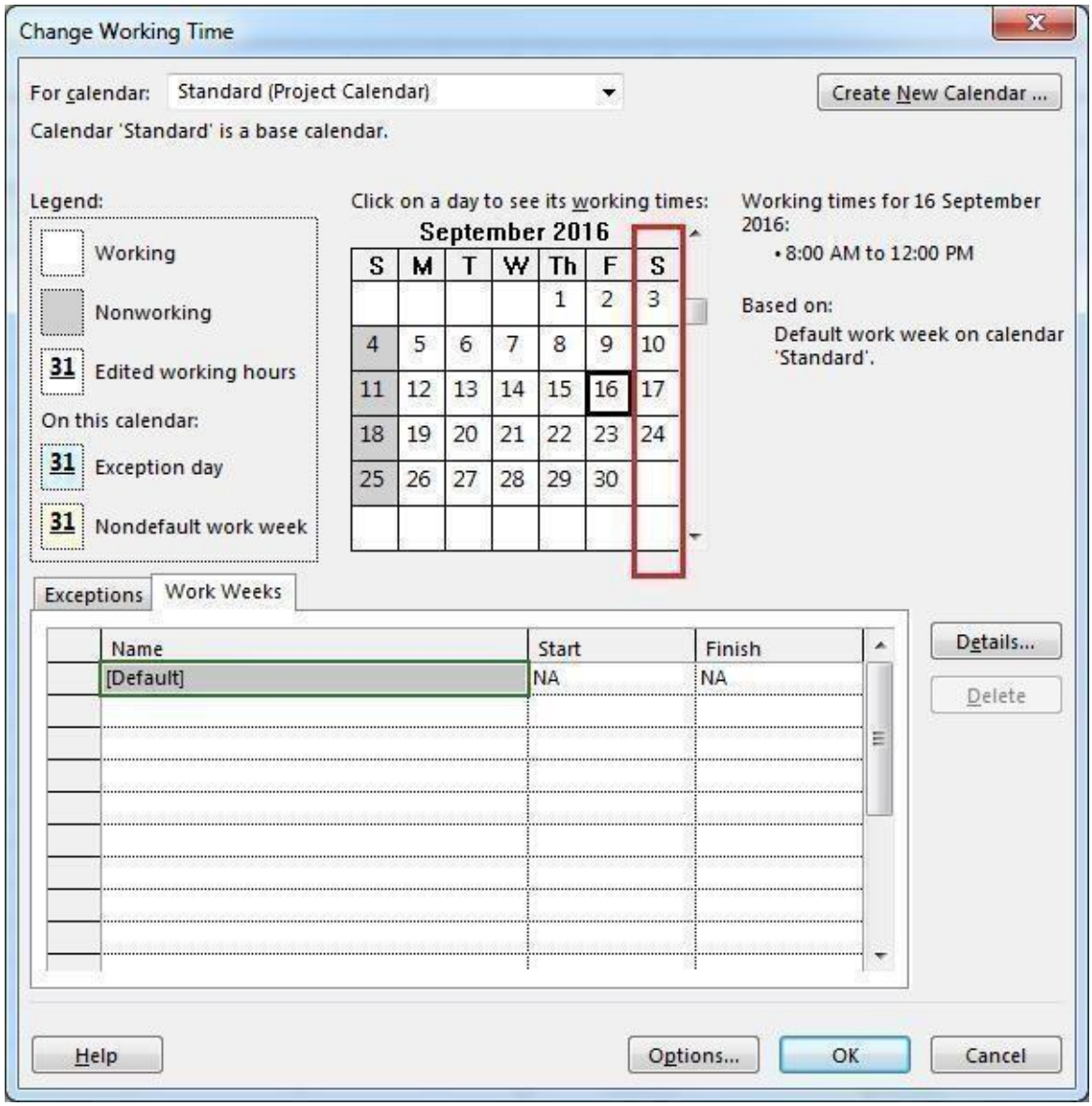


Now we will change Project calendar from 5 days work-week to 6 days work-week. Click on Work Weeks tab and Detail button.



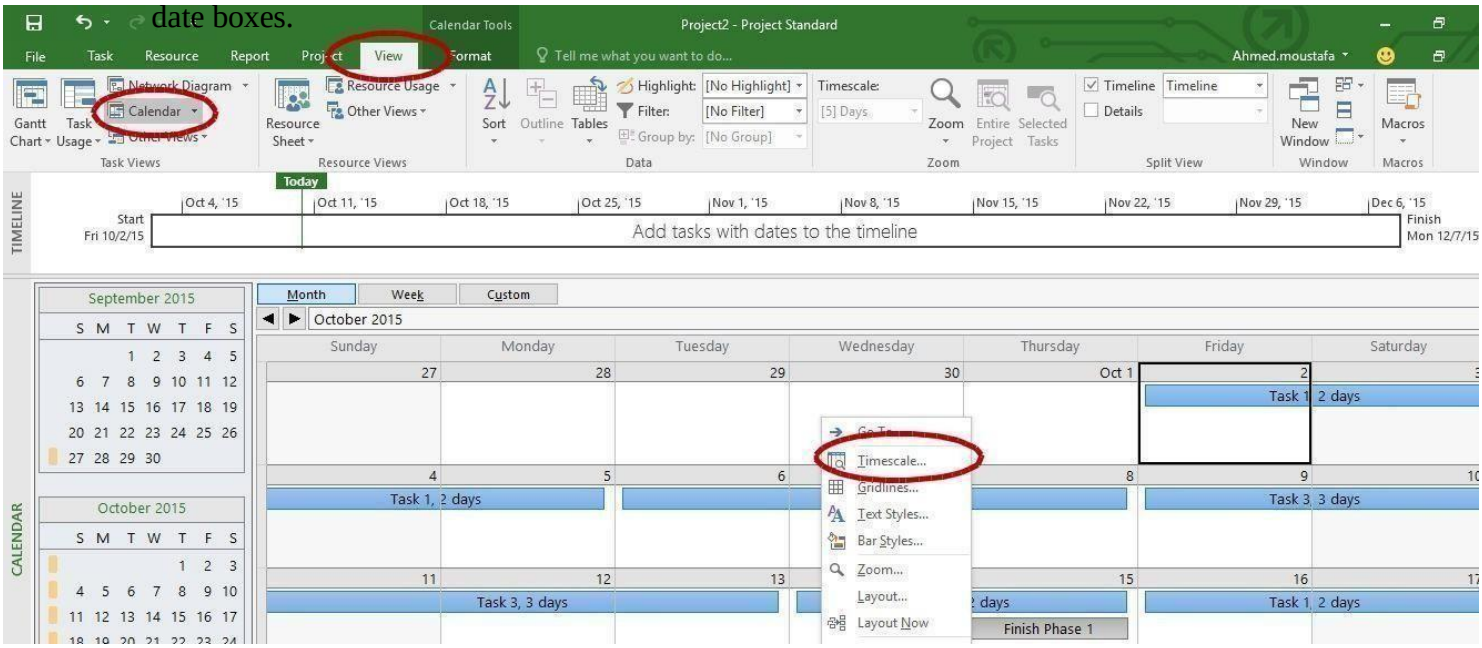
Click on Saturday, Select "Set days to these specific working times". Enter the working time, and now we can see Saturday is working day.

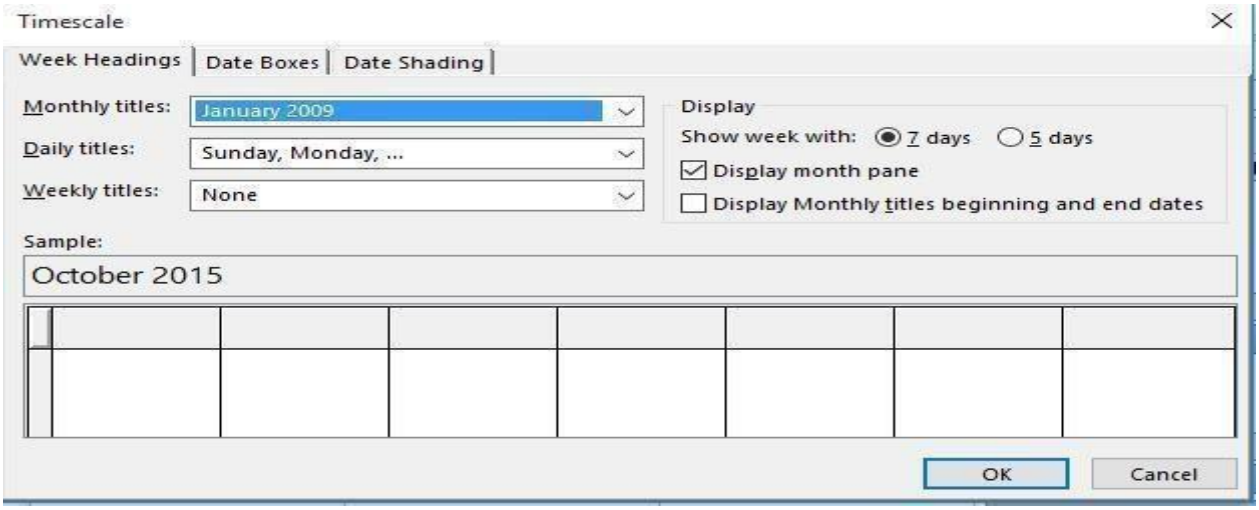



Change Working Time
For calendar: Standard (Project Calendar)
Create New Calendar ...
Calendar 'Standard' is a base calendar.
Legend:
Working
Nonworking
31 Edited working hours
On this calendar:
31 Exception day
31 Nondefault work week
Click on a day to see its working times:
September 2016
S M T W Th F S
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
Working times for 16 September 2016:
• 8:00 AM to 12:00 PM
Based on:
Default work week on calendar 'Standard'.
Exceptions
Work Weeks
Name
Start
Finish
[Default]
NA
NA
Details...
Delete
Help
Options...
OK
Cancel

Calendar view:

This is one of the options found in the 'View bar'. The calendar allows you to view all the activities involved in the project in the form of a calendar. You can edit the calendar's appearance by right clicking anywhere on the calendar and clicking on 'Timescale'. You can change week headings, shading of boxes and the appearance of the date boxes.



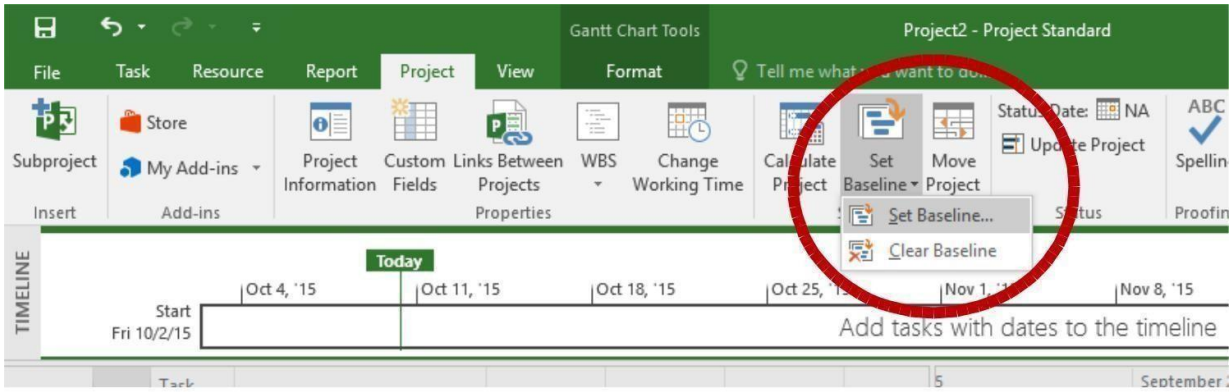


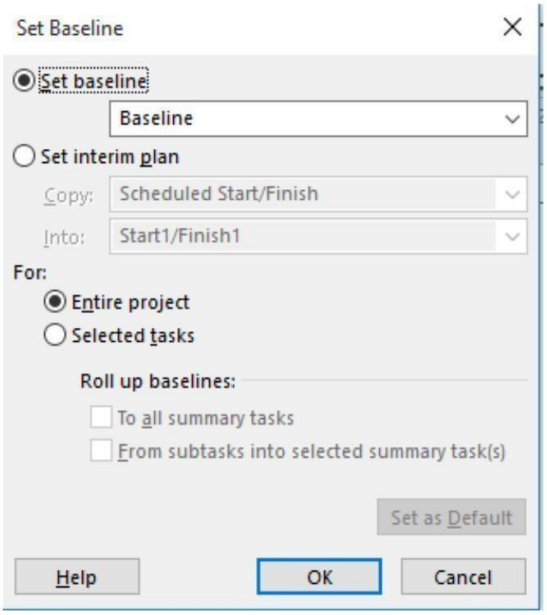
Tracking Gantt:

It is safe to say that sometimes things don't go according to plan; certain tasks may be delayed or may take place before the time that they are scheduled. It is always helpful to keep track of these changes, which might later be used for future reference. As a result, we need to keep like a 'screen shot' of the initial Gantt chart and compare that to the current one that contains the enacted changes.

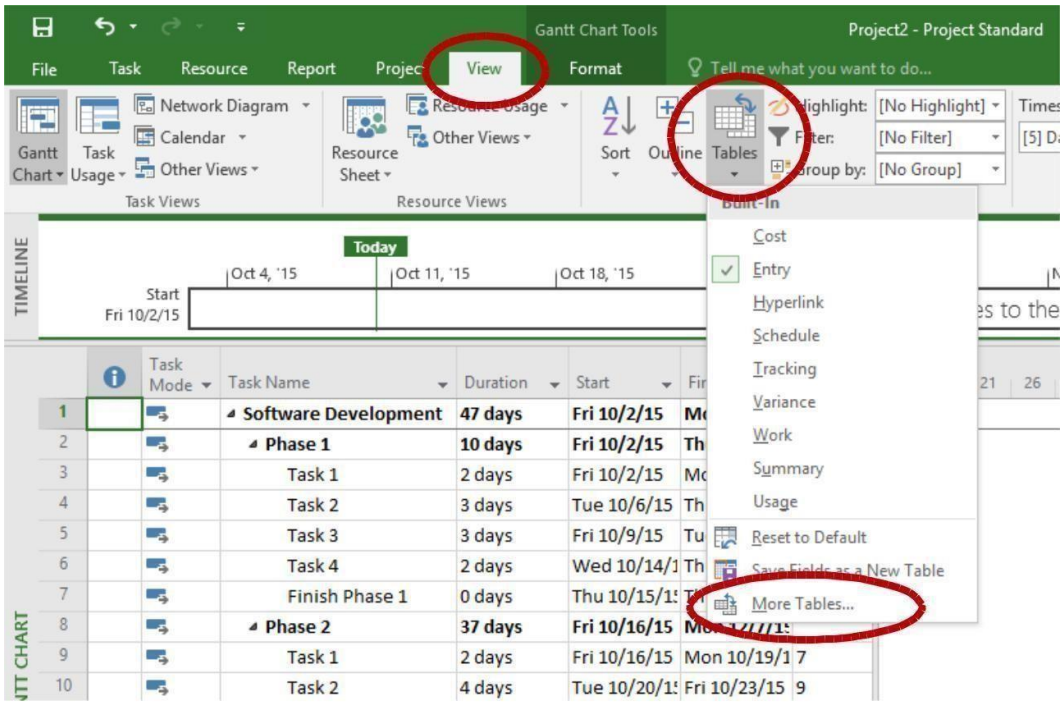
In order to do so, we create what is called a 'Baseline'. Creating a baseline is synonymous to storing the Gantt chart with all its details for which the baseline was created. You can maintain up to 11 baselines, though changes to the original plan shouldn't be numerous.

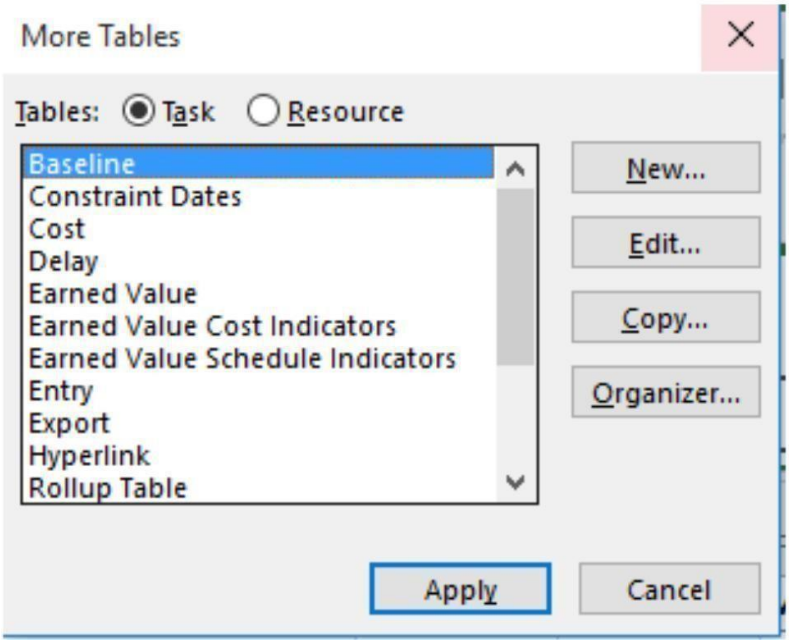
To create a baseline, click on 'Project' from the Menu bar, then click on 'Set Baseline', and then click on 'Set baseline'. A dialogue box will appear, which allows you to select which baseline is currently being created and whether it is for part of the project or the entire project. We always create a baseline for the entire project.





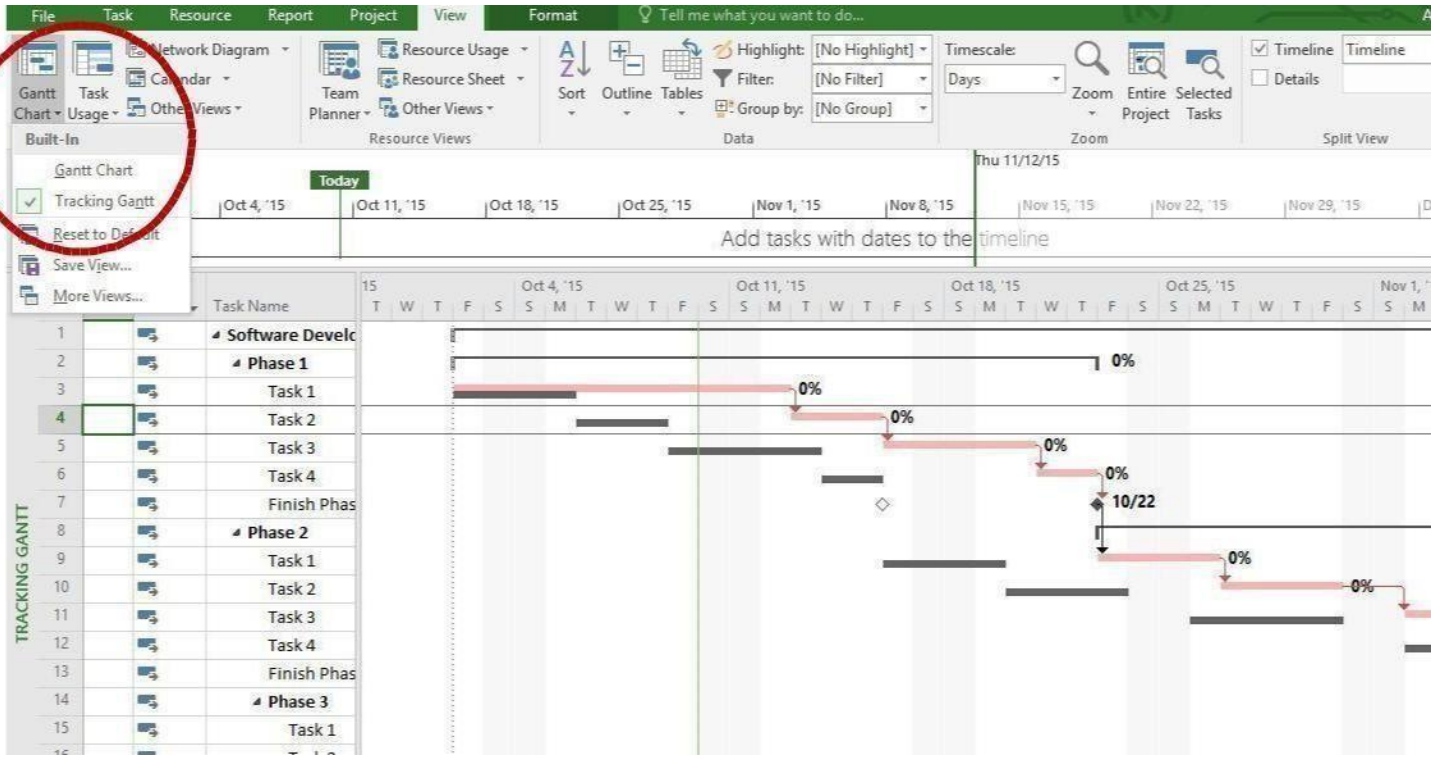
To view the details of the baseline that was created, click on ‘View’ from the Menu bar, then on ‘Table’ and then click on ‘More tables’. A dialogue box will appear, in which you will select ‘Baseline’ from the list and click on ‘Apply’. The task table will consequently be modified to include 2 columns: the ‘Baseline start date’ and the ‘Baseline end date’.



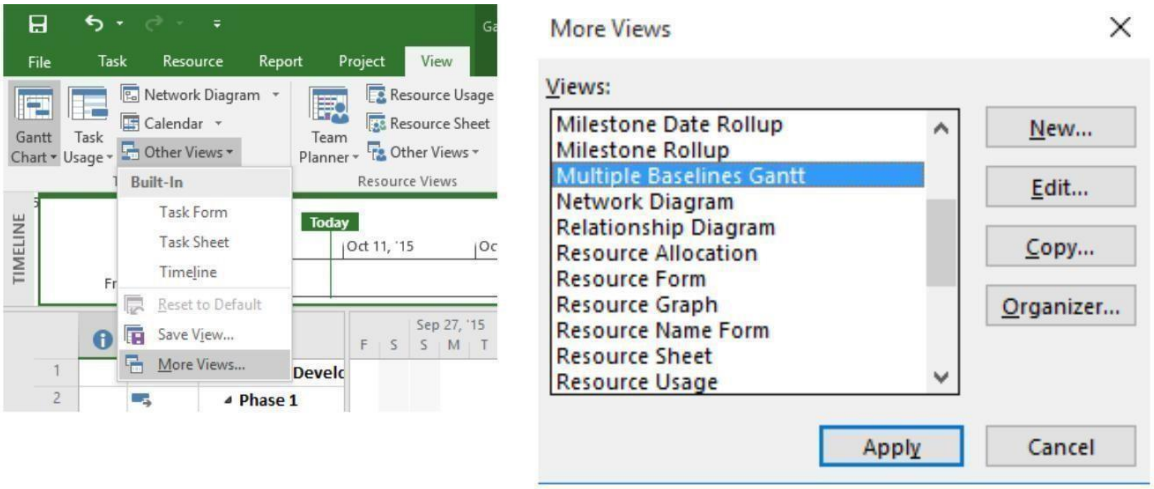


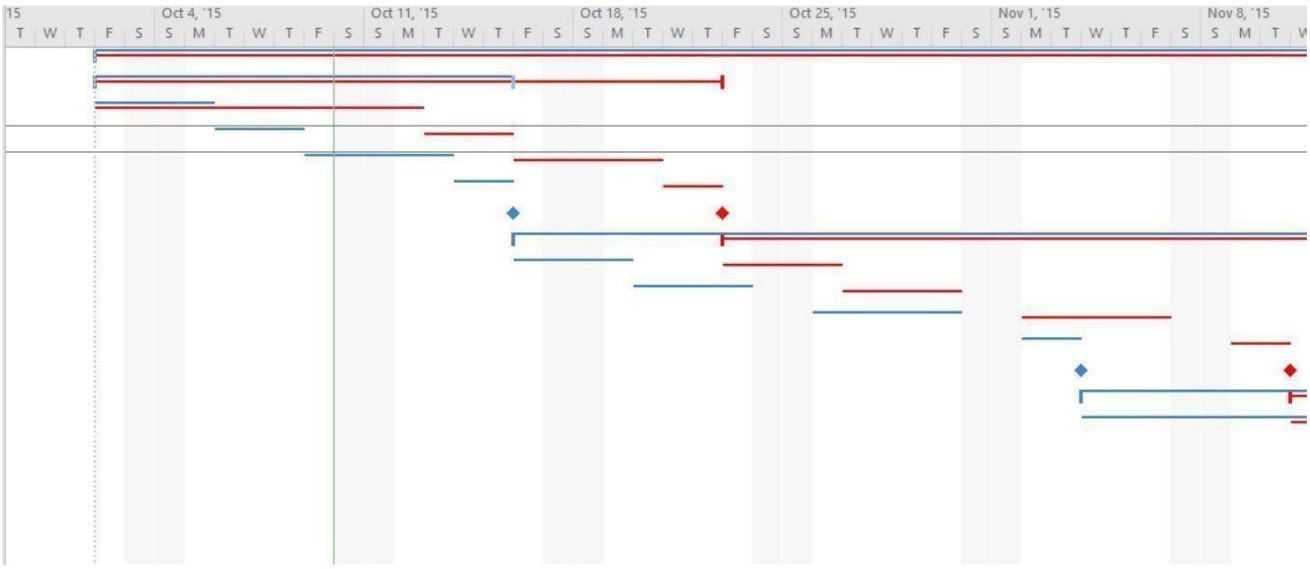
Based on the example in use, we will change the duration of the task 1 of to 7 days instead of 2 day. We first need to go back to the initial view of the table, so we click on 'View' then 'Table' then 'Entry'. We then make the specified changes to the task in question.

In order to see the changes on the Gantt chart, click on 'Tracking Gantt' from the 'View bar' which on the left side of the screen. Note that there are bars in red and others in grey. The **grey** represents the old Gantt chart, while the **red** represents the project timeline after changes have been made to the project. We will then create a new baseline in the same way that the first one was created; this would then be 'Baseline1'.

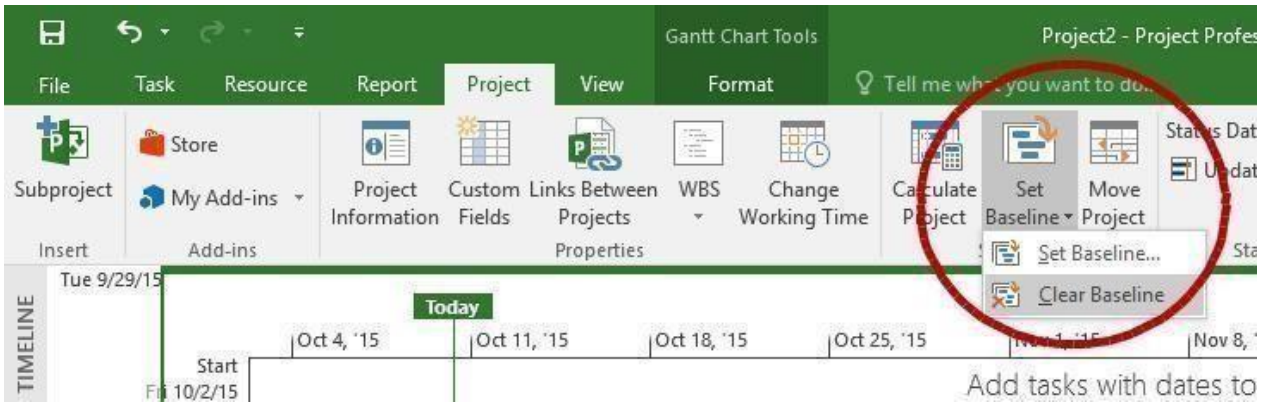


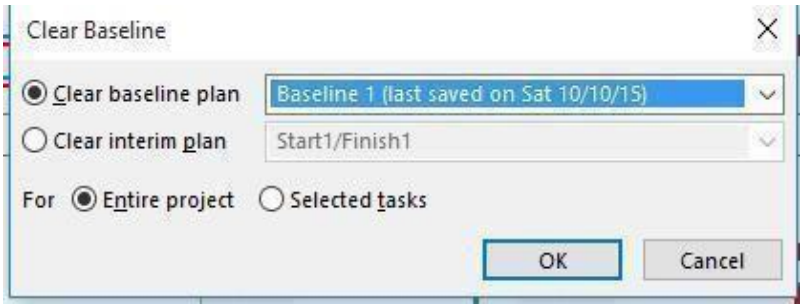
The previous screen shot shows the old and new Gantt chart, yet it doesn't show the actual baselines. In order to view the baselines, click on 'View' then 'Other Views' then 'More Views' then select 'Multiple Baseline Gantt' from the list and click on 'Apply'. The **blue** lines represent 'Baseline', while the **red** lines represent 'Baseline1'.





In the case that a certain baseline contains errors, or that you decide to add a few other changes before setting the new baseline, you can simply clear the baseline. You can do so by clicking on 'Project' then 'Set Baseline' and then 'Clear Baseline'. A dialogue box will appear in which case you need to specify which baseline you wanted to be cleared





Note:

One of the updates that can be done to the project is the 'Percentage complete' that is included in the task information for each task. The percentage can be modified and included in the baselines created