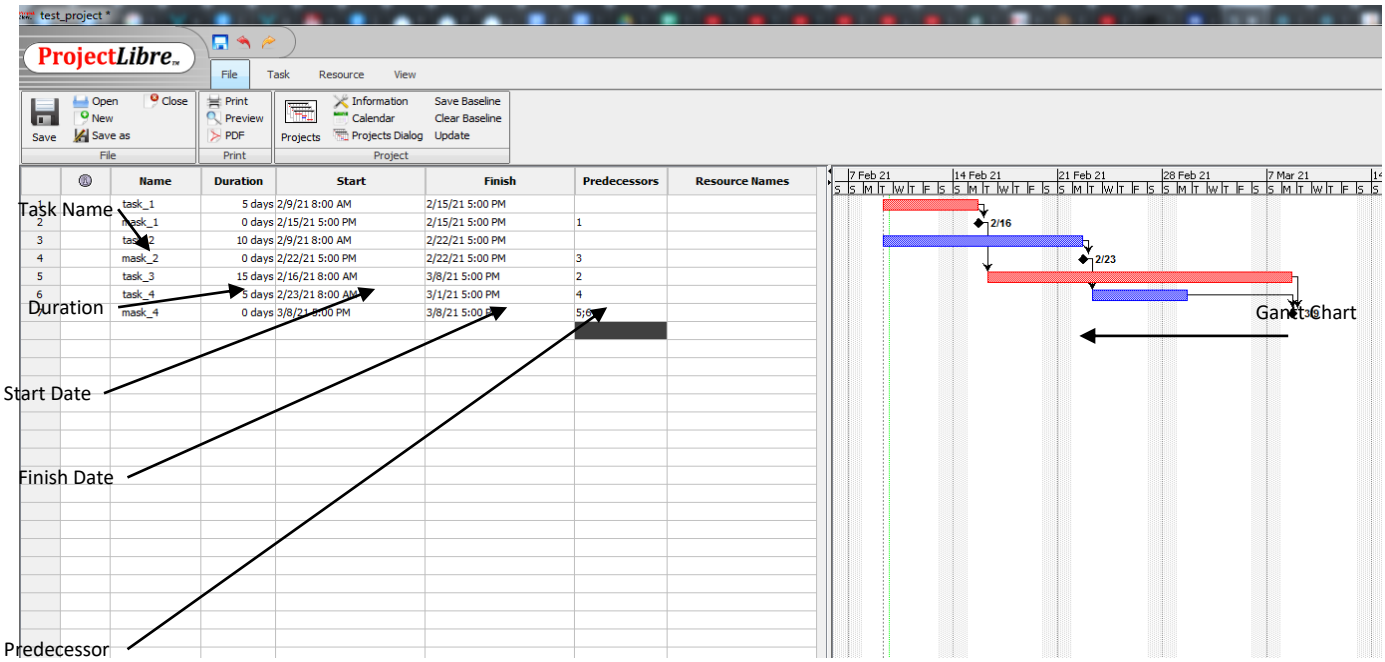
Software Engineering Lab #5
Project Scheduling Using Project Libre

10th February 2022

Project Libre is a popular project management software program. It can assist users in managing time and other resources required in a project. Project Libre is capable of visualizing the activity dependency and the project timeline in the form of ***Gantt charts*** and ***activity networks***. In planning a project, the project planner inputs the planned activities, the activities' dependencies, and the estimated time and resource required by the activities into the program. The planner then asks the program to generate a Gantt chart and an activity network, which he/she can use to obtain the estimated time of project completion, project **critical path**, and other information. During project execution, a project team member will regularly monitor and update a progress of each activity, as well as any discrepancy from the plan. This helps the project members organize the progress of their project.

Creating a new project in Project Libre

1. Start Project Libre and the main window should look like this.



Main window of Project Libre

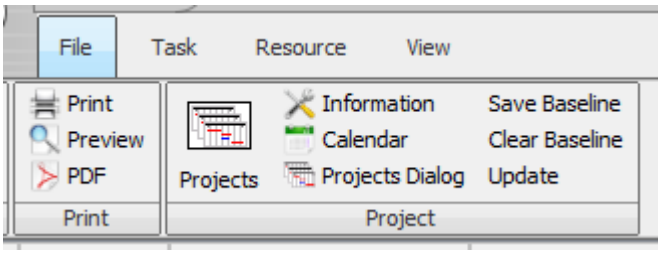
From the figure above, the left half of the main window contains a table summarizing all the tasks in the project. Each row in the table contains key information of a task:

1) **Task Name:** the name of this task
2) **Duration:** the amount of time required to complete this task
3) **Start Date:** the date that this task can start
4) **Finish Date:** the date that this task is expected to finish
5) **Predecessor:** other tasks which must be completed before this task can start

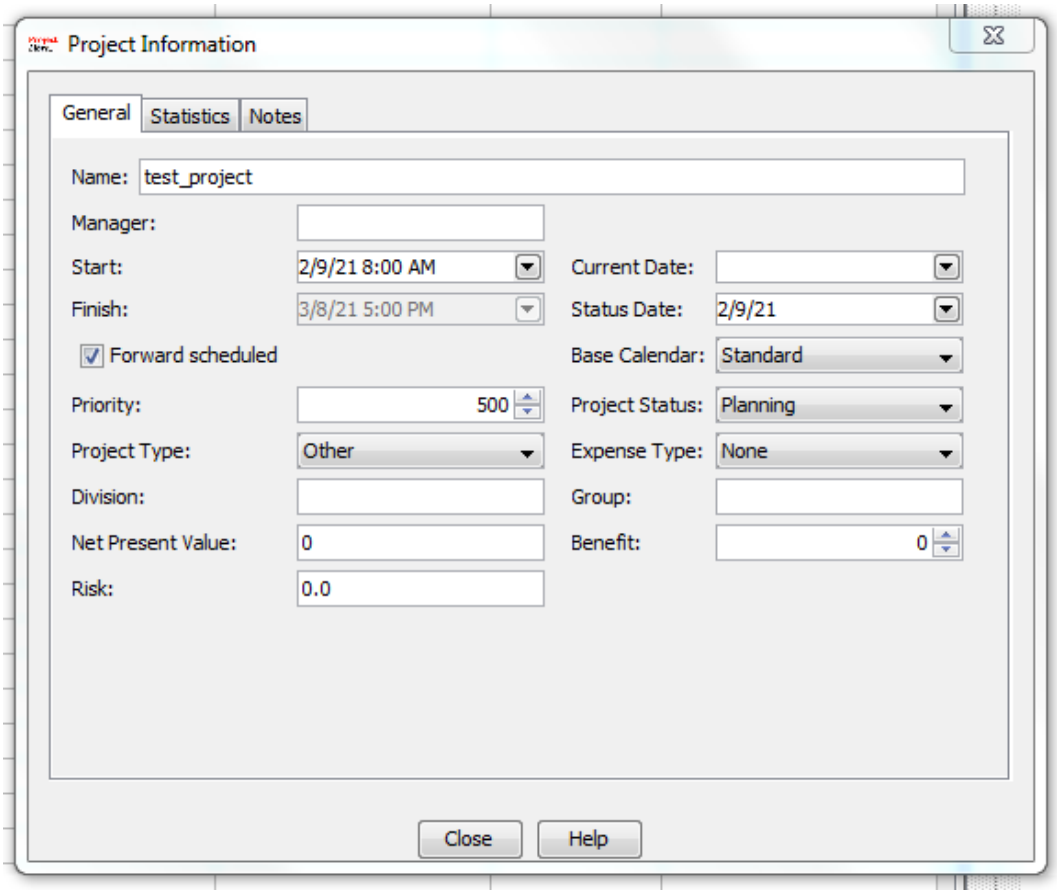
The right half of the window displays the Gantt chart of the tasks on the left.

Setting Project Information

To enter or update the information of the project, go to Menu: Project -> Project Information. The following dialog will appear.



Menu: Project



Dialog for setting project information

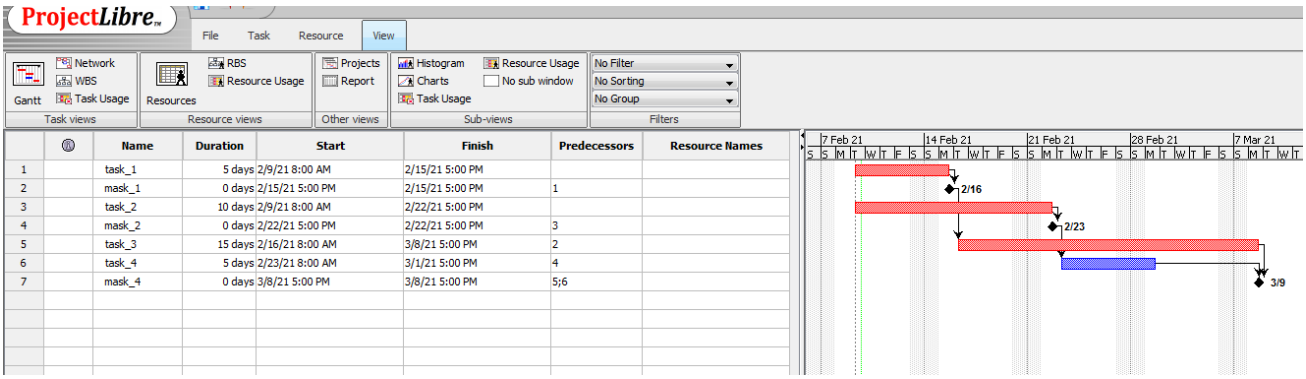
In **"Forward scheduled"**, the user can choose whether to schedule the project from the given start date or the given finish date.

- If scheduling from **Start**, the user should input the start date in the indicated field, and the expected finish date will be calculated by the program.
- If scheduling from **Finish**, the user should input the finish date (i.e. the deadline) in the indicated field, and the latest start date will be calculated by the program.

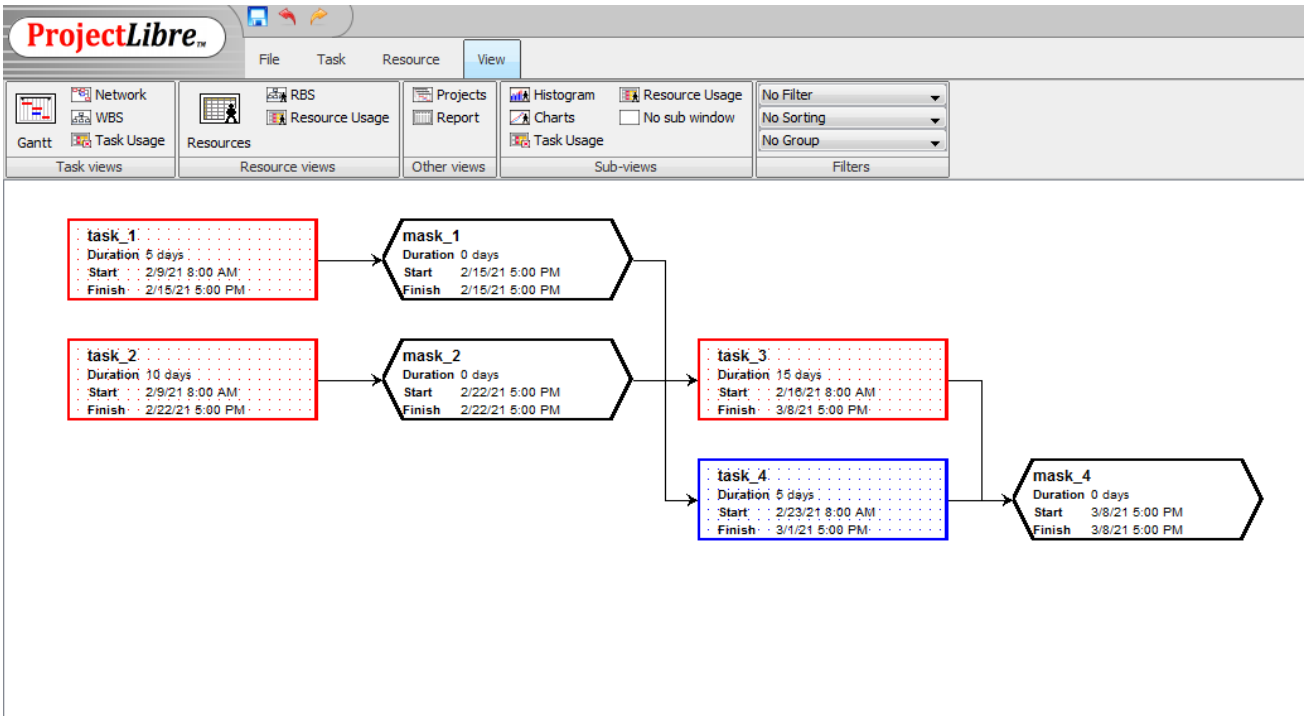
Choosing different views

The program offers several *views* of the main window. To choose different views, go to Menu: View. In this exercise, we shall use the following views:

1) **Gantt Chart View**: displays the Gantt chart from the task table
2) **Network Diagram View**: displays the Network diagram from the task table



Main window in Gantt Chart view



Main window in Network Diagram view

Editing the task table

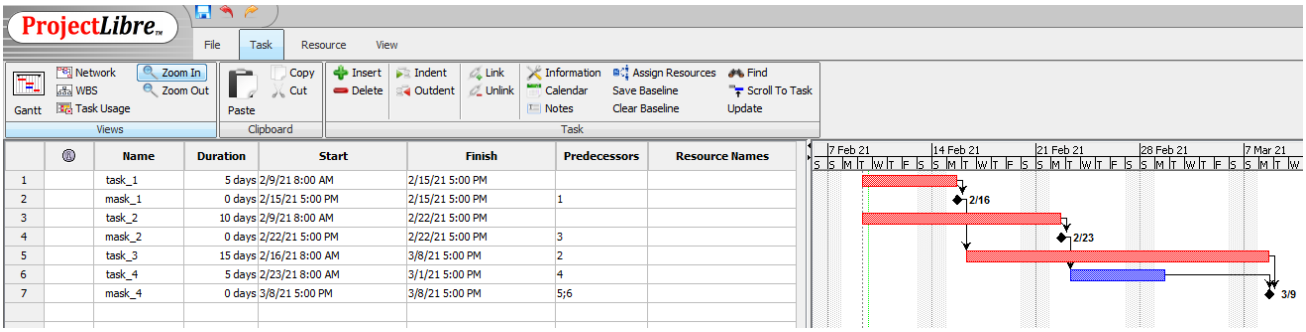
Suppose you have a list of all tasks or activities in the project, their expected durations, and their dependencies. You can input your task information directly into the task table.

1. Choose **Gantt Chart view**
2. Go to the first empty row in the task table
3. In the **Task Name** column, enter the name of the task
4. In the **Duration** column, enter the expected duration to complete the task as a number followed by letter **d** for the number of days, **w** for the number of weeks, **mo** for the number of months, **h** for the number of hours, or **m** for the number of minutes.
5. The program will calculate the start date and the finish date automatically.
6. The dependencies of tasks can be set as follows. To specify that Task A is a predecessor of Task B,
   - Select the row containing Task A
   - Press and hold Ctrl, then select the row containing Task B
   - Then, click the **Link Tasks** button ( ) in the toolbar.

   To remove the dependencies between these two tasks, repeat the above process but click the **Unlink Tasks** button ( ) instead.
7. To add a **milestone**, create a new task with duration 0. If needed, set the date of the milestone as Start Date. Then set the tasks required to be finished before the milestone as the predecessors of this task.
8. Each task can be made as a **subtask** by selecting the task and clicking on the **Indent** button ( ).

Finding the Critical Path

Project Libre can find the **project critical path** automatically. Go to Menu: Format -> Critical Tasks. The following critical path will appear as red bars in the Gantt chart.



	Name	Duration	Start	Finish	Predecessors	Resource Names
1	task_1	5 days	2/9/21 8:00 AM	2/15/21 5:00 PM		
2	mask_1	0 days	2/15/21 5:00 PM	2/15/21 5:00 PM	1	
3	task_2	10 days	2/9/21 8:00 AM	2/22/21 5:00 PM		
4	mask_2	0 days	2/22/21 5:00 PM	2/22/21 5:00 PM	3	
5	task_3	15 days	2/16/21 8:00 AM	3/8/21 5:00 PM	2	
6	task_4	5 days	2/23/21 8:00 AM	3/1/21 5:00 PM	4	
7	mask_4	0 days	3/8/21 5:00 PM	3/8/21 5:00 PM	5;6	

Critical Path (red path)