Tribhuvan University
Institute of Science and Technology
Patan Multiple Campus

LAB REPORT ON
SOFTWARE PROJECT MANAGEMENT(BIT402)

A partial fullfilment of the requirements for Bachelors in Information Technology(BIT)

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Lab Sheet-1: Explain following common methods for comparing projects on the basis of their cash flow forecasts.

- Net profit
- Payback period
- Return on investment
- Net present value
- Internal rate of return

a) Calculate the Net Profit, Payback period, Return on investment (ROI) and Internal rate of return (IRR) for each of the other projects shown in Table below and decide which, on the basis of this criterion, is the most worthwhile.

Year	**Project 1**	**Project 2**	**Project 3**	**Project 4**
0	-100,000.00	-1,000,000.00	-100,000.00	-120,000.00
1	10,000.00	200,000.00	30,000.00	30,000.00
2	10,000.00	200,000.00	30,000.00	30,000.00
3	10,000.00	200,000.00	30,000.00	30,000.00
4	20,000.00	200,000.00	30,000.00	30,000.00
5	100,000.00	300,000.00	30,000.00	75,000.00
Net profit	**50,000.00**	**100,000.00**	**50,000.00**	**75,000.00**
Payback Period				
Return on Investment (%)				
NPV	620.92	-179,750.5	13,723.6	21,665.1
Internal rate of return	10.166%	3.073%	15.238%	15.893%

b) Calculate the Net Present Value(NPV) for each of the projects A, B and C shown in Table belwo using each of the discount rates 8%, 10% and 12%.

Year	Project A (Rs)	Project BA (Rs)	Project C (Rs)
0	-8,000	-8,000	-10,000
1	4,000	1,000	2,000
2	4,000	2,000	2,000
3	2,000	4,000	6,000
4	1,000	3,000	2,000
5	500	9,000	2,000
6	500	-6,000	2,000
Net profit	4,000	5,000	6,000
Net Present Value(NPV) 8%			
Net Present Value(NPV) 10%			
Net Present Value(NPV) 12%			

Lab Sheet-2: Software Effort Estimation Techniques

a) Explain Albrecht Function Point Analysis
b) Explain Function Points Mark II
c) Explain COSMIC Full Function Points

What is Functional Point in software engineering?

a) **Albrecht Function Point Analysis –** Given the following values, calculate the Functional Point when complexity adjustment factors are significantly complex product and weighting factors are high.

User input	55
User Output	35
User Enquires	40
User Files	8
External Interfaces	5

Note : See the slides.

b) **COCOMO (COnstructive COst MOdel) –** Consider a software project using semi-detached mode with 30,000 lines of code. Calculate the Effort estimation , Duration estmation and Person estimation of the project.

Software Projects	**a_1**	**a_2**	**b_1**	**b_2**
Organic	2.4	1.05	2.5	0.38
Semi-Detached	3.0	1.12	2.5	0.35
Embedded	3.6	1.20	2.5	0.32

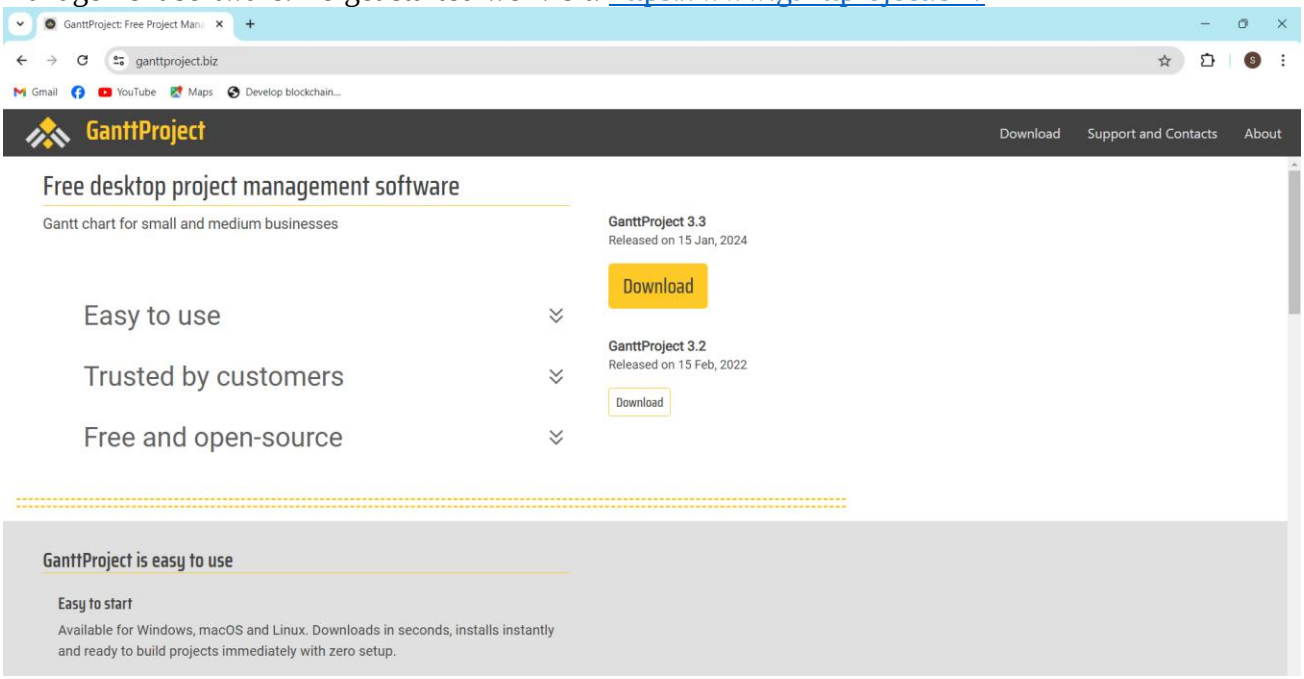
Effort = $a_1 \times (KLOC)^{a}_{2}$ PM
Duration (T_{dev}) = $b_1 \times (Effort)^{b}_{2}$ Months

Where

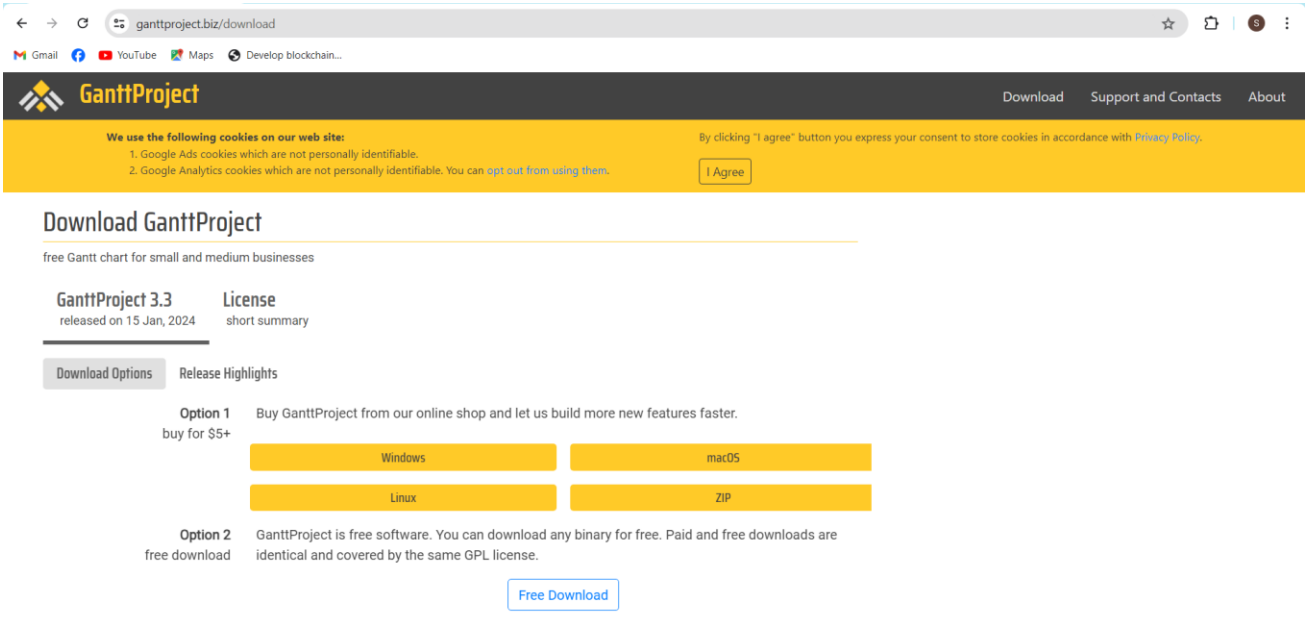
- KLOC is the estimated number of delivered lines (expressed in thousands) of code for project, estimated size of software product
- The coefficients a1, a, b1 are b2 are constants for each category of software prodicts.
- T_{dev} is the estimated time to develop the software, in months.
- Effort is the total efforts required to develop the software product, expressed in person months(PM)

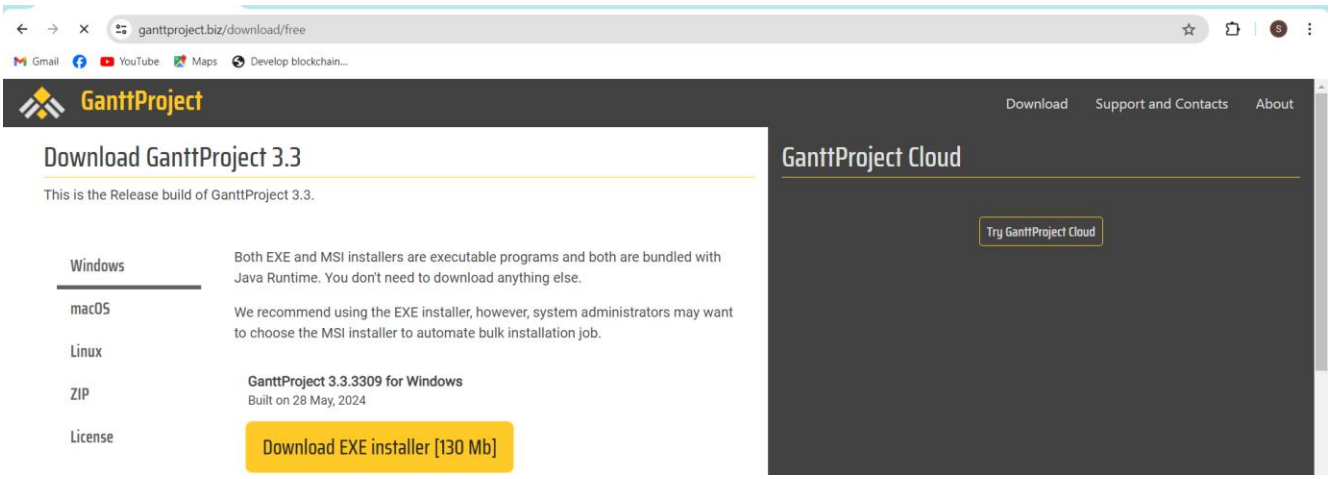
Lab Sheet-5: Introduction to MS Project (Alternate Gantt Project is used).

Since MS project isn't free we will be instead working with GanttProject as a project management software. To get started we visit: https://www.ganttproject.biz/

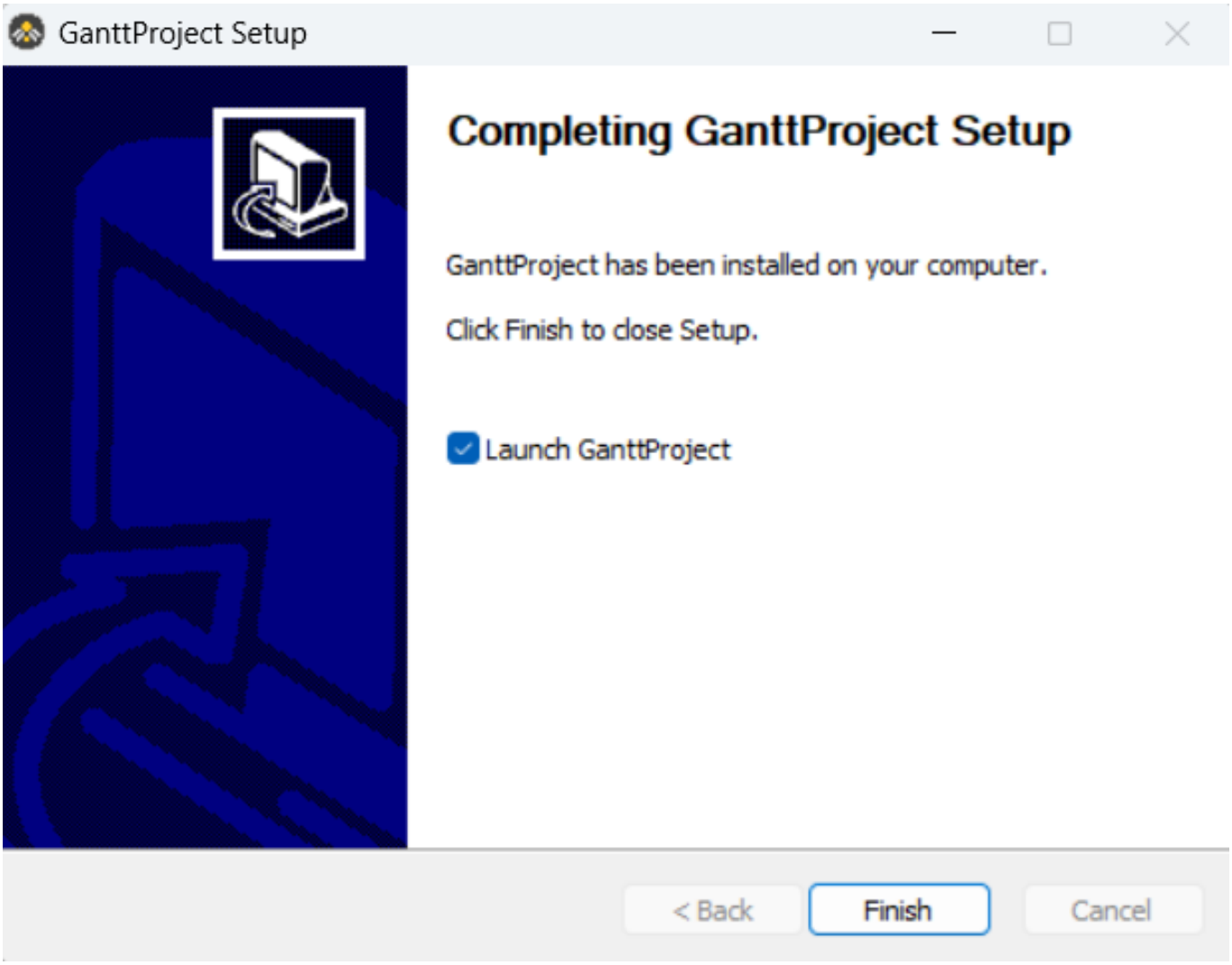


and we get the latest release which is the 3.3 version:

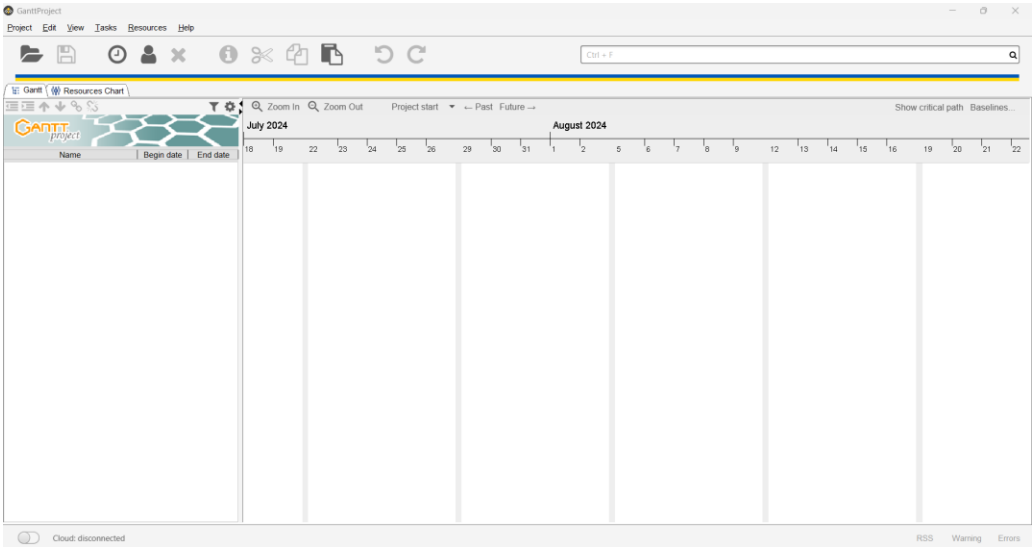




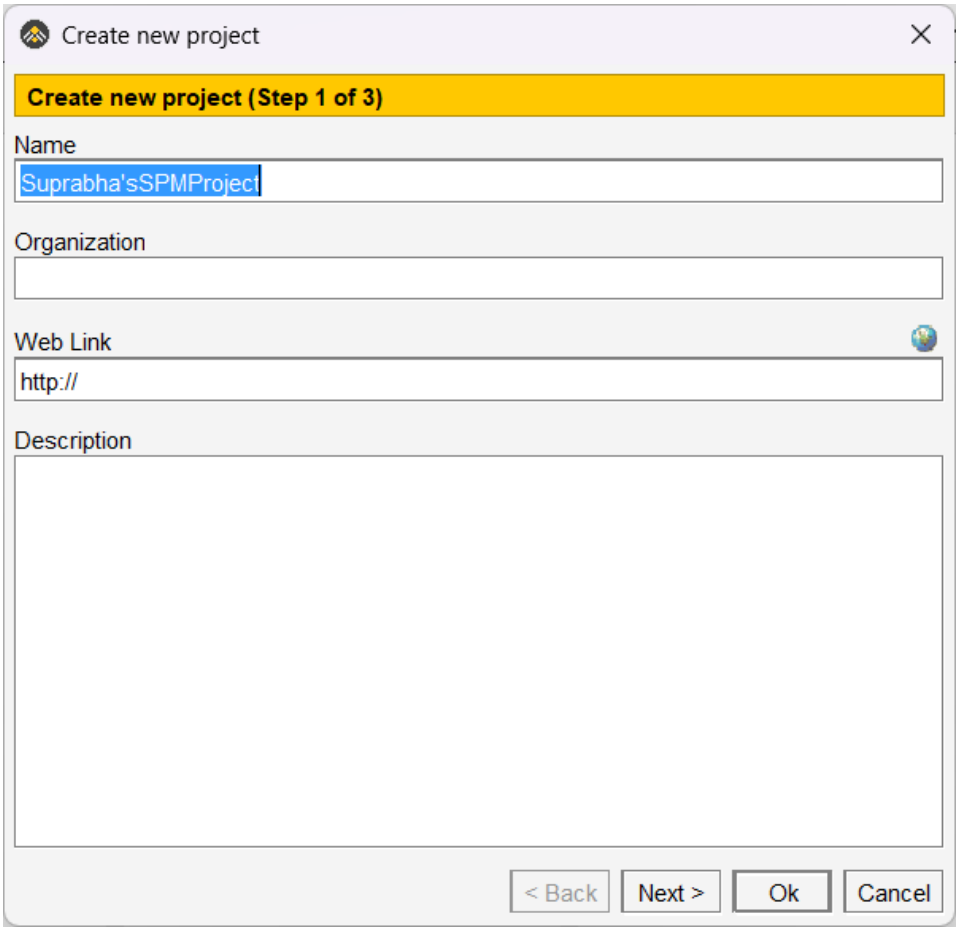
after setting it up :



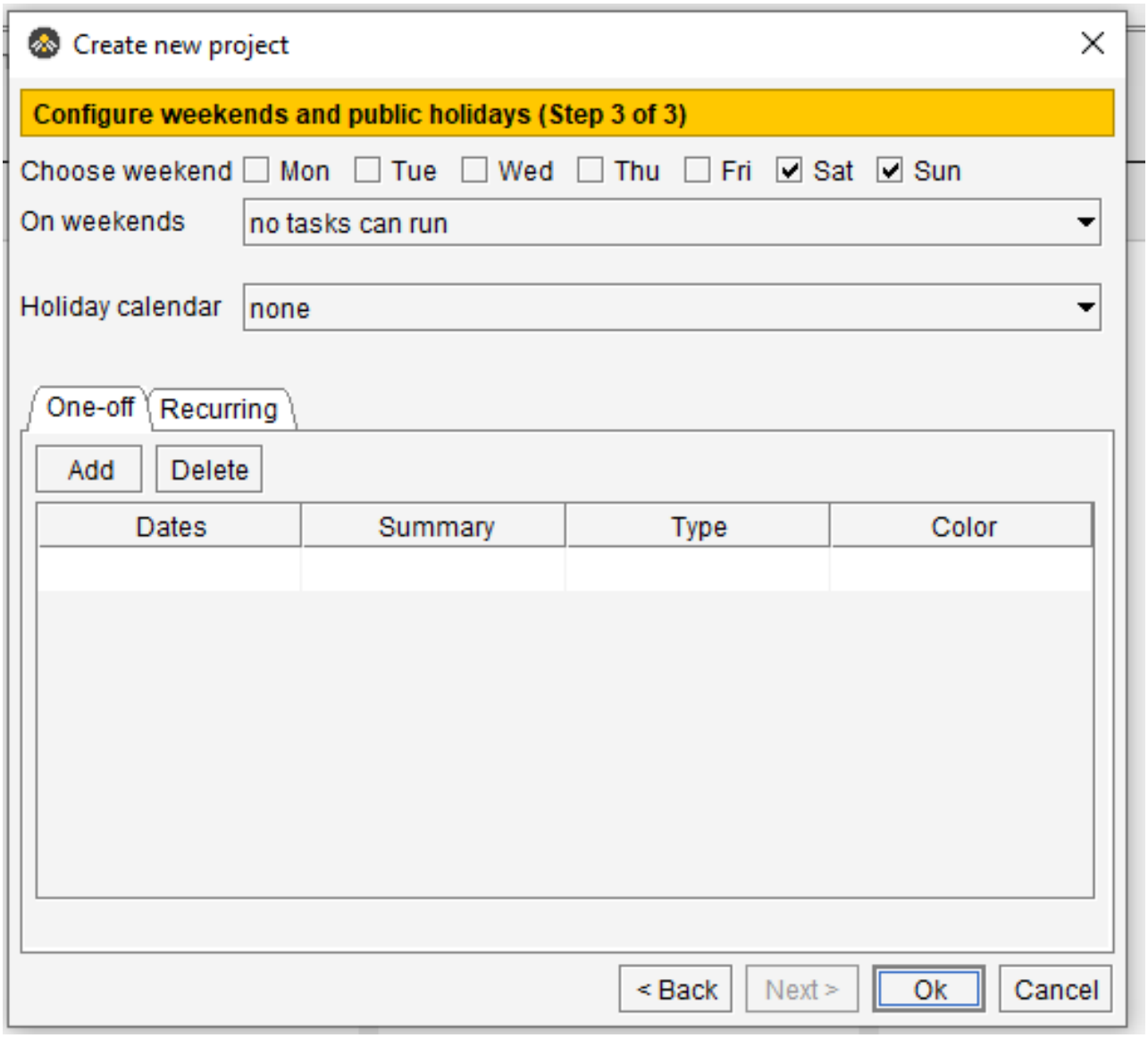
We are greeted by this window:



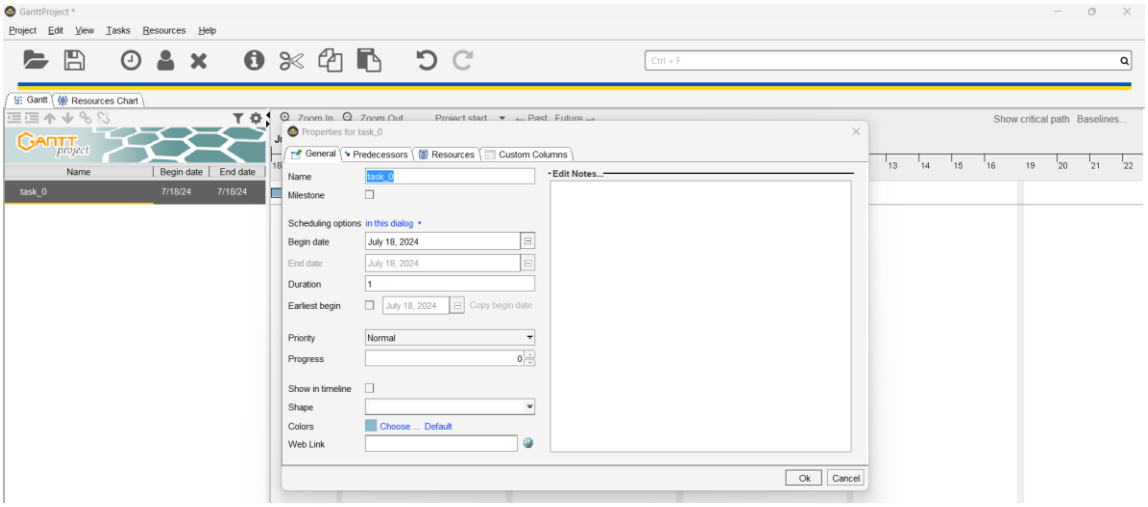
On the title navbar, we can choose the Project tab to create a new project it's a 3 step process:

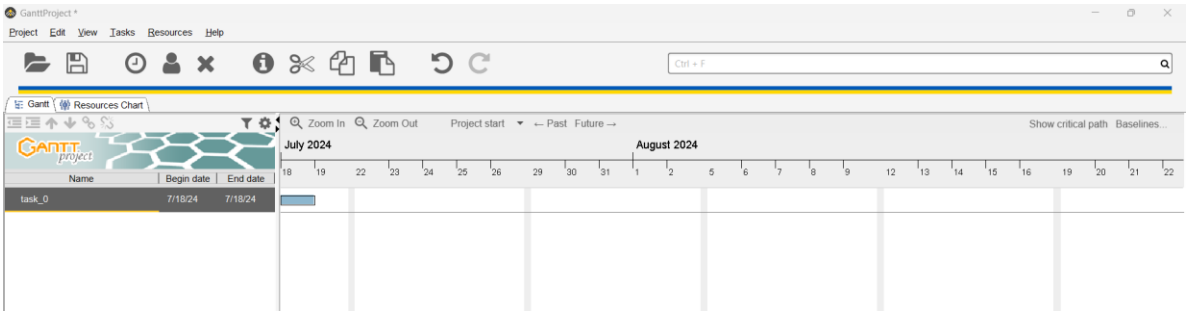



Create new project
Select your project domain (Step 2 of 3)
Choose role sets
Default
Software Development

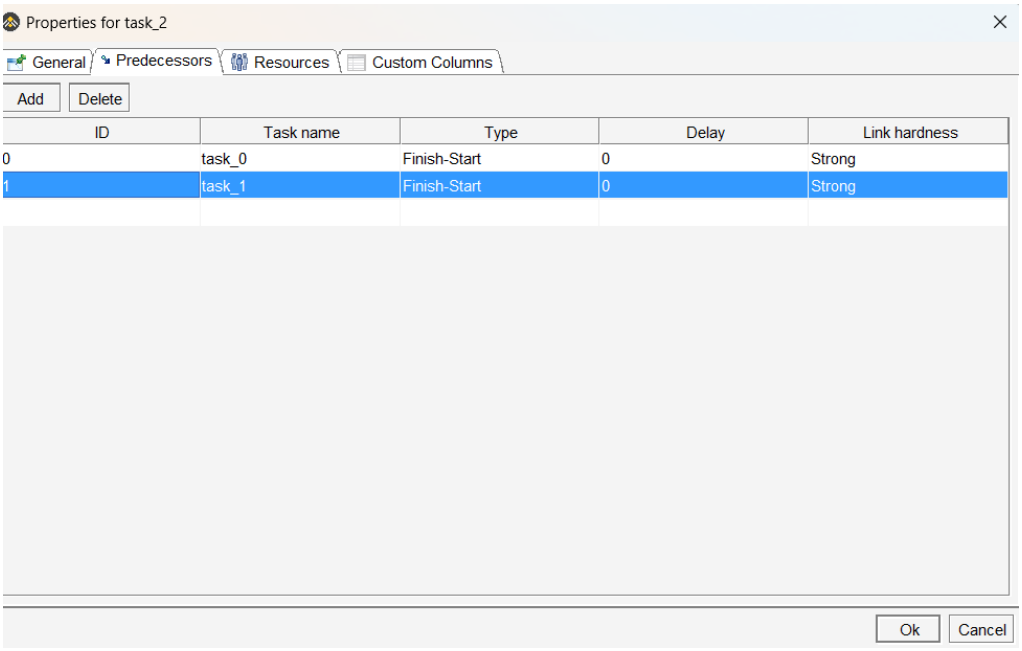

Create new project
Configure weekends and public holidays (Step 3 of 3)
Choose weekend
Mon
Tue
Wed
Thu
Fri
Sat
Sun
On weekends
no tasks can run
Holiday calendar
none
One-off
Recurring
Add
Delete
Dates
Summary
Type
Color
< Back
Next >
Ok
Cancel

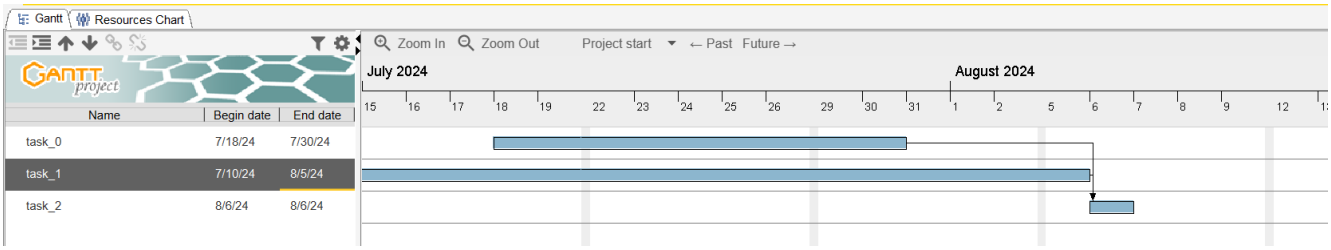
We can create new tasks by accessing the Tasks tab or keyboard shortcut Ctrl + T and configure it :



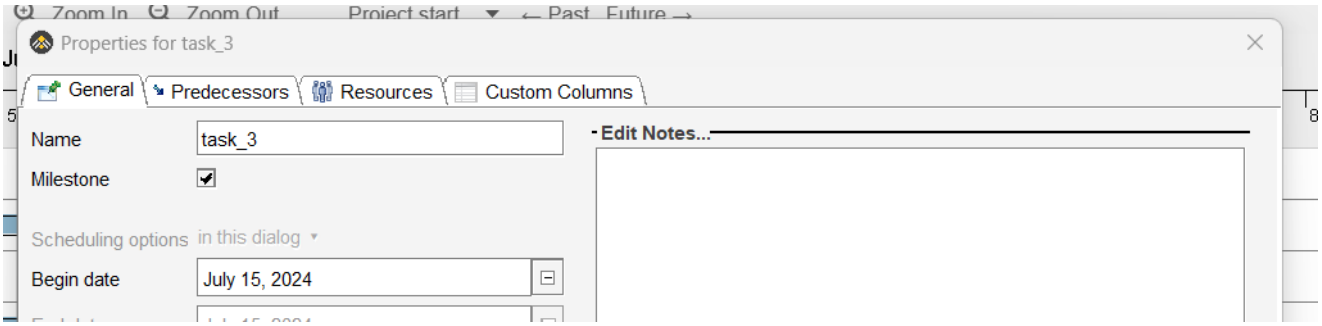


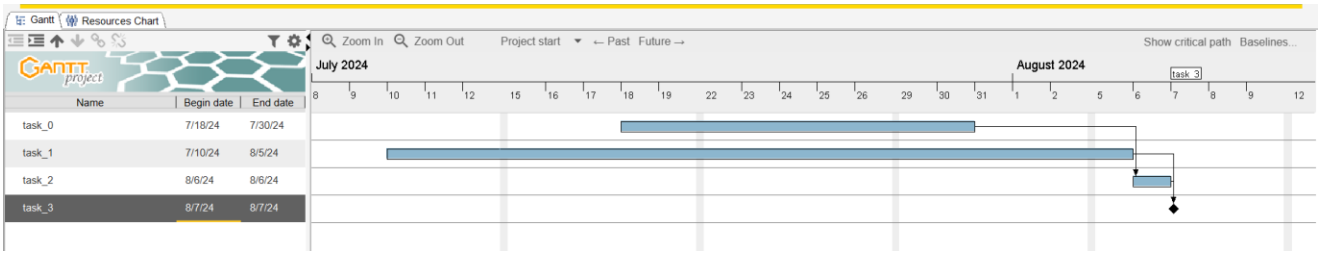
We can configure the more tasks to be predecessor task for a following task, such as here we can configure task_0 and task_1 to be predecessor to task_2 and require completion before moving to task_2:



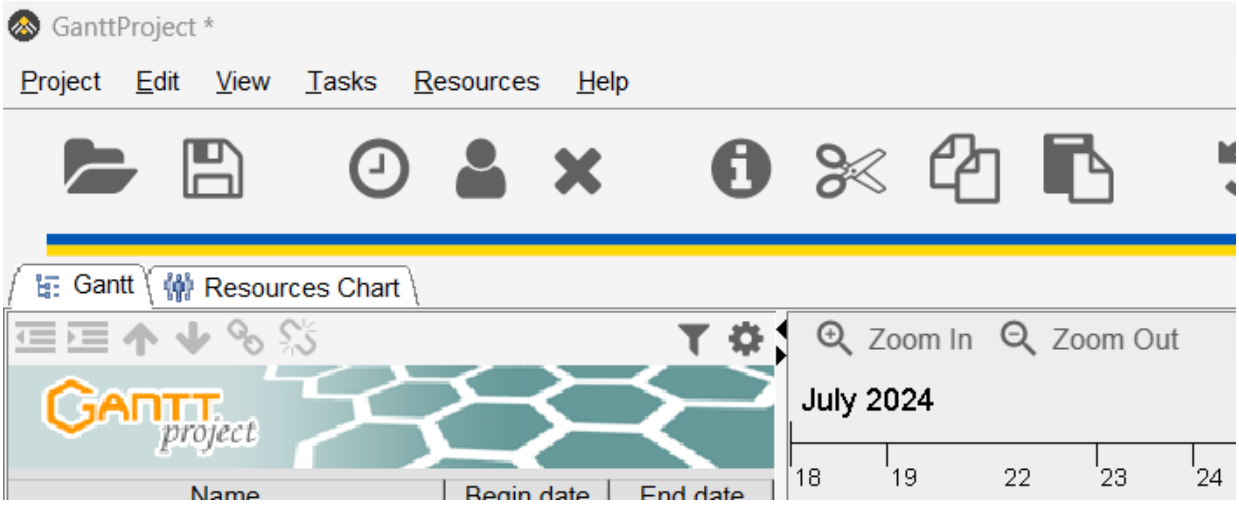


We can also create a milestone at the end of all 3 tasks to mark a major point in the system development.

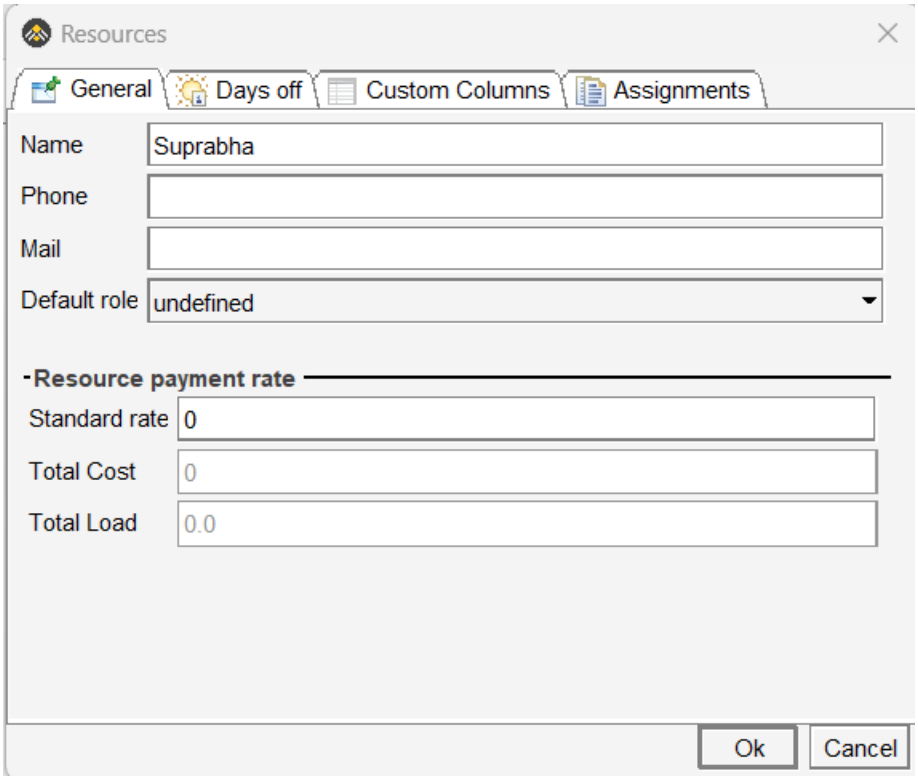




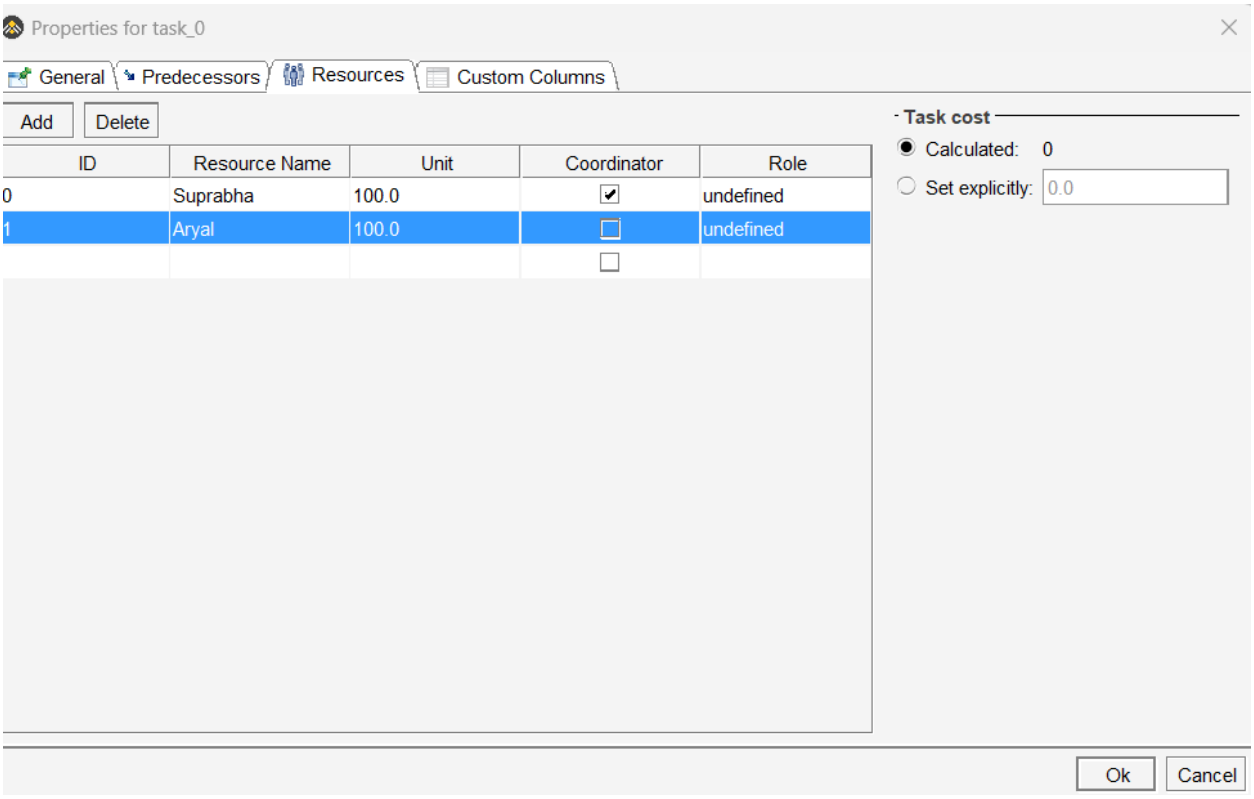
Resources can be added to the tasks to like manpower to be assigned to each task this can be accessed by clicking on the resources chart tab:



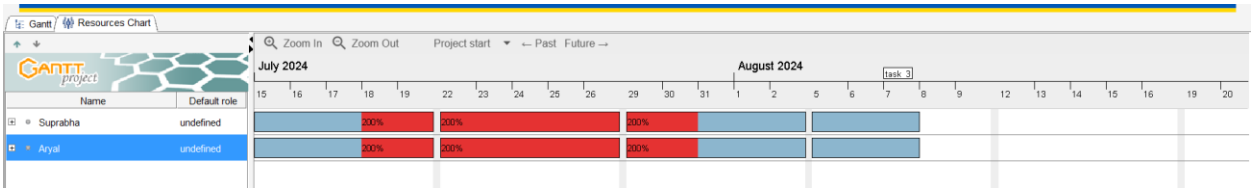
New resource is created by Ctrl + H shortcut:



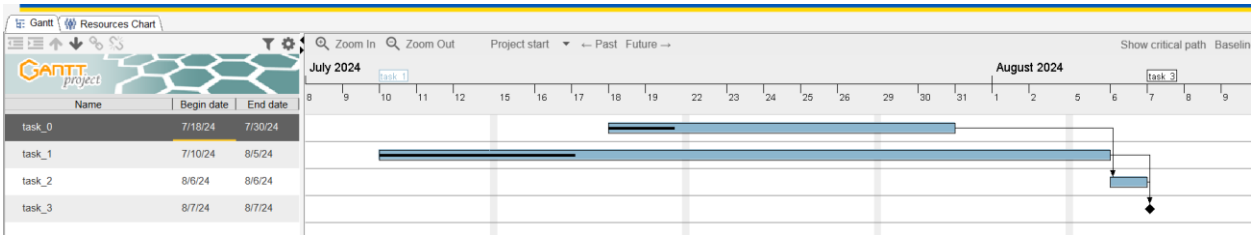
Then we can go back to the Gantt chart to assign these resources to each task:



These changes are reflected in the resources chart:



We can also show the progress of the task by entering the progress percent by going to the task bar and then task properties and enter the value in progress, it will show the progress:



The final project can be exported in array of different formats such a .mpx file for MS project or Html report and so on tailored to your needs.