CSE3001 Software Engineering
ELA
Digital Assessment 1

Name: Jogalekar Ishan Sagar
Reg. no. : 19BCE2250
Slot: L45+L46
Faculty: Dr. WI. Sureshkumar
Winter 2021

a) Title of the project, Team Member (**Names and Registration No**)

Online Complaint Registration and Management System (OCRMS)

19BCE2249 – Siddharth Chatterjee
19BCE2250 – Ishan Sagar Jogalekar
19BCE2683 – Shubham Satnalika
19BCI0013 – Anay Bhatkar

b) Objective of the project

The objective of our project is to make complaints easier to submit, monitor, track and resolve, and to provide company and institute (in our case VIT, Vellore as an example) with an effective tool to identify and target problem areas.
Also to monitor complaints handling performance and make business improvements and working in a workplace smooth, Online Complaint Registration and Management System is a technique for assessing, analyzing and responding to customer complaints. A generic Complaints management software is used to record resolve and respond to customer complaints, requests as well as facilitate any other feedback.
It's an online platform to receive and act on complaints reported by students of private or public institutions, enabling prompt actions on any issue raised by them and to avail services more effectively.

c) Process model chosen for developing the product with appropriate justification

Process modelling is a technique designed to understand and describe the process. It connects and improves the communication between the current and the future state of a process.

An effective development model can help improve competitive advantage and shorten release cycles, which is vital in the fast paced environment of mobile app development.

We are going to use **Waterfall** process model for our project. It is further divided into five phases. As this is our first project for Software engineering, waterfall model is suitable for this purpose.
Waterfall model consists of phases: **Requirements analysis and specification, Design implementation and unit testing, Integration and system testing, Operation and maintenance.**
Waterfall model is **effective in small projects** as it **simple** and **clean**. It also defines brief steps for development in each phase. In this model, each phase is well-defined and separate.

Comparison with other models:-

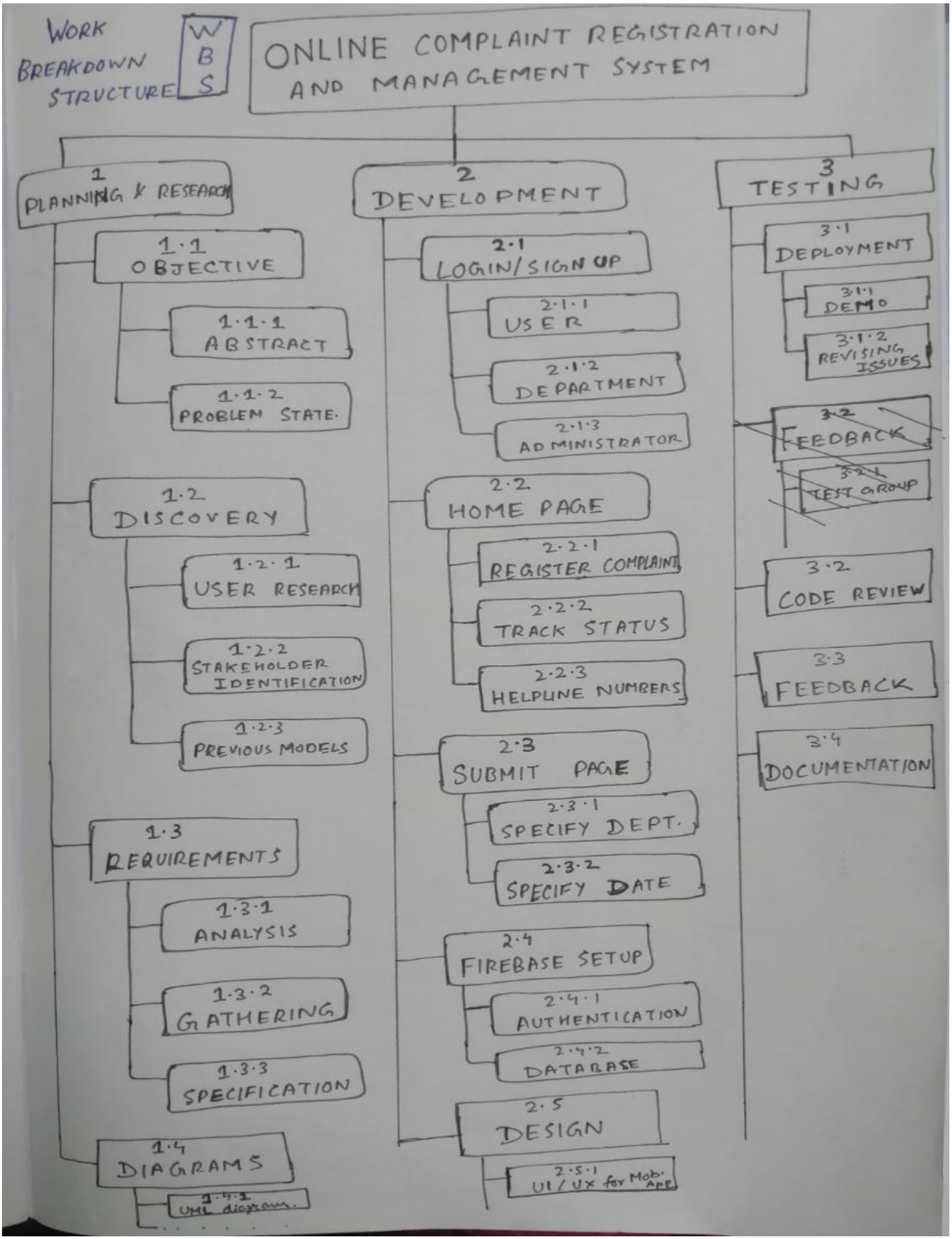
Points / Models-	Waterfall	RAD	Incremental
1.Strong project management	Excellent project management	Average to good project management	Average or satisfactory project management
2. Requirements analysis process	Clean and well defined	Complex and huge	Clean but analysis may be large.
3. System Process	Predefined in early cycle of the project	Defined in that cycle only	Predefined but very complex system process
4. Cost	Less expensive on projects	More expensive	May required some other tools also.
5. Complexity	Very simple model for small projects	More complex and usable for big projects	Complexity is more than other models
6. Standalone visibility	Excellent capacity of standalone system for small projects.	Average capacity of standalone system but very complex in structure.	Good capacity of standalone systems but useful in big projects only.

Justification for Process model (The Waterfall Model):-

1. As our requirements are constant, our databases for the project are also constant. So waterfall model is the best case.
2. This model is simple to implement as per as case for small projects and android developments. As we are making this type of project first-time waterfall model is suitable.
3. In waterfall model, start and endpoints are fixed hence it is useful for the development and testing of the project.
4. Our project mainly focused on after development process also so waterfall model also includes this phase without breaking structure
5. For a comparative study with other models
   a. Agile process model is also helpful in the project but it is mainly used for deployment during development so there may be some technical errors in software. This leads to adding extra security requirements. So Agile model is not suitable for our project.
   b. RAD model is useful in big projects having numerous requirements. As we suggested in requirement analysis, we want to keep fewer but specific requirements only (like real-time database, etc.)
   So RAD will be a more complex model for our project.

Spiral model is used where there is too much integration between different modules. As in our project, we want to keep limited integrations for security purposes. So spiral model is not required for our project. After considering all this, we found Waterfall model as the most suitable fit.

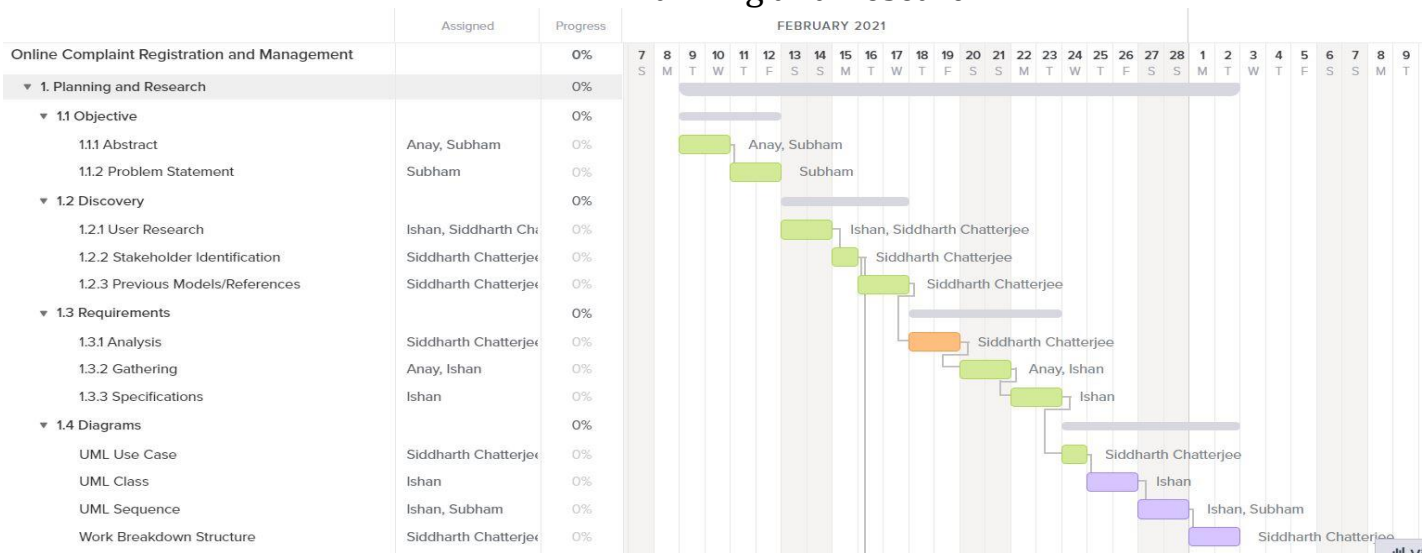
d) Work Break-down structure



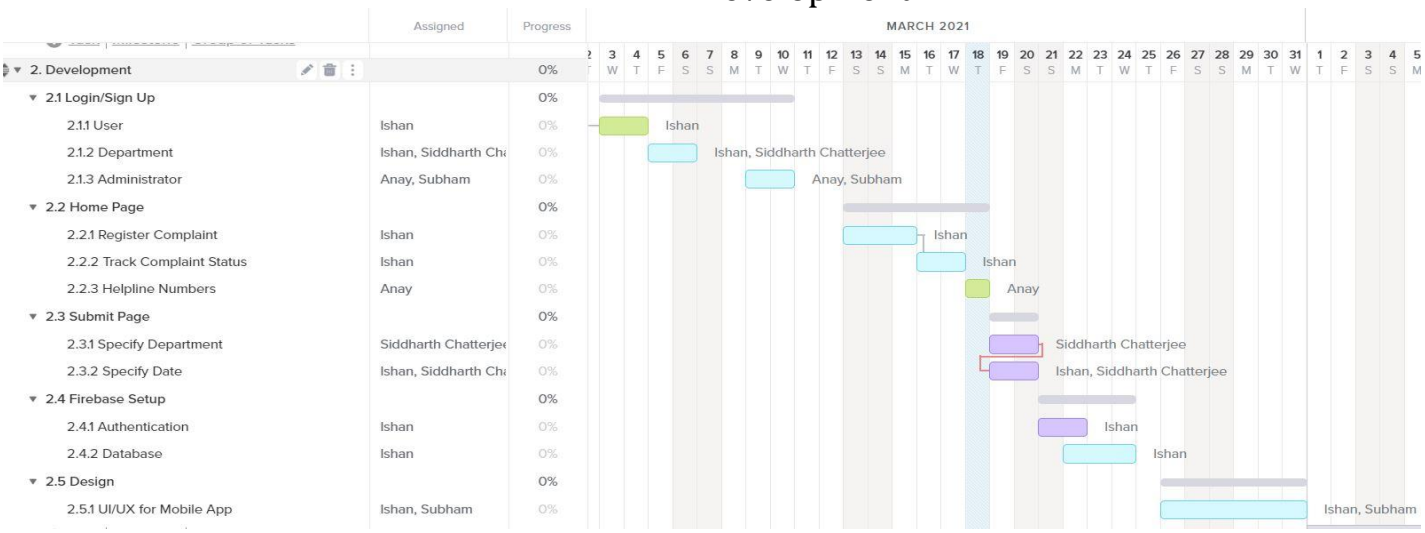
However, after constructing the WBS we fixed upon 3 major aspects of our project to make the GANTT timeline chart.

e) Gantt Chart

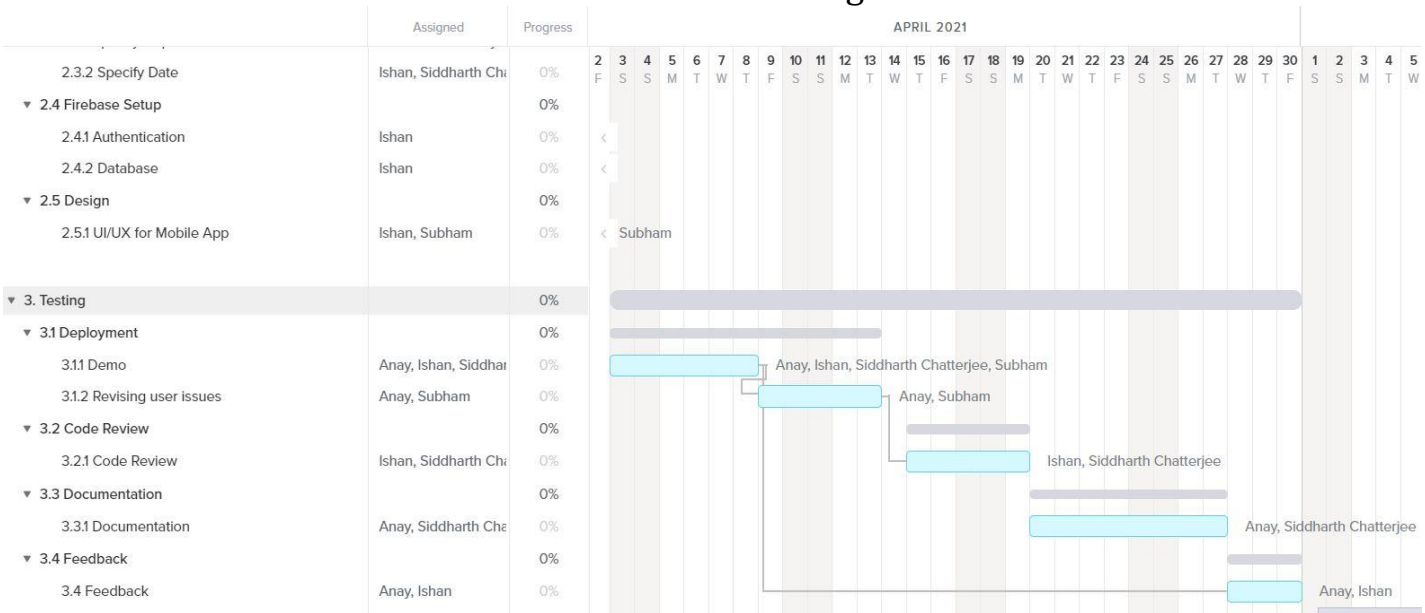
1. Planning and Research



2. Development



3. Testing

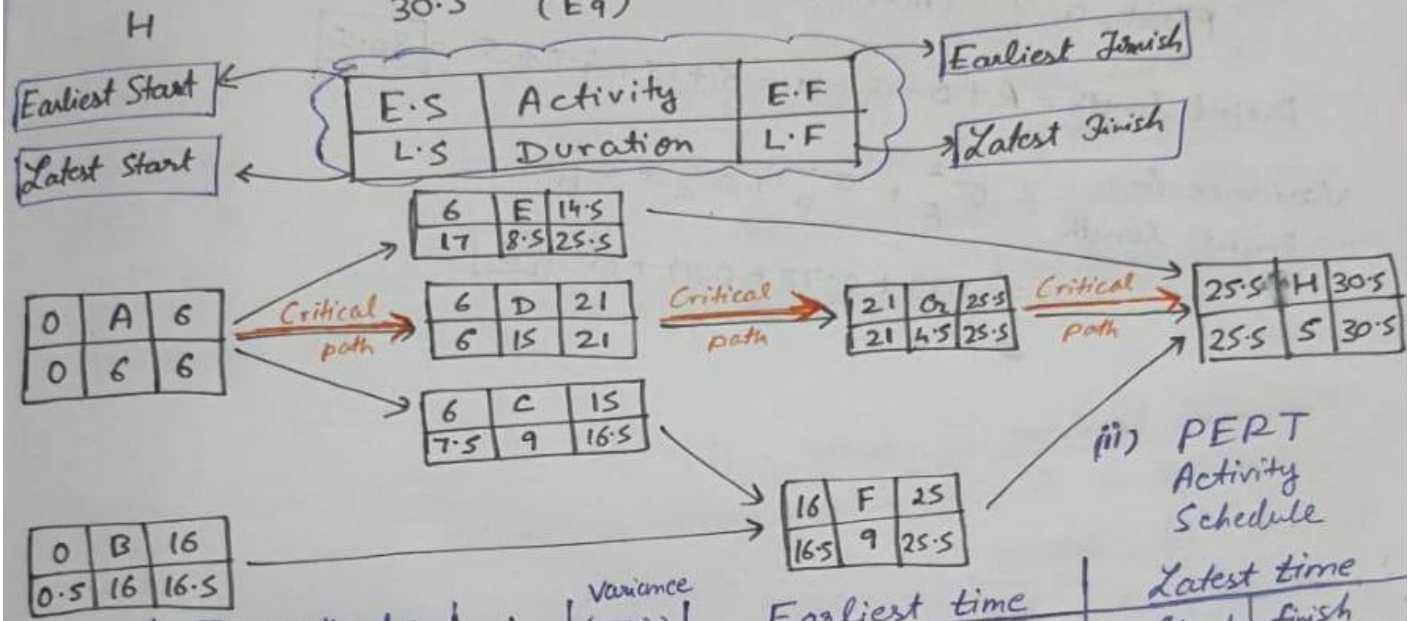


f) PERT Diagram

Activity	Duration (Days)	A
1.1	4	-
1.2	5	-
1.3	5	1.2
1.4	7	1.3
2.1	7	1.4
2.2	5	2.1
2.3	3	2.2
2.4	4	2.3
2.5	6	2.4
3.1	10	2.5
3.2	4	3.1
3.3	7	3.2
3.4	4	3.3

Milestone activities	Earliest Start (ES) [Earliest possible date]	Latest Start (LS) [Latest possible date]
A	0 6 (E_2)	(L_2)
B	16 (E_3)	(L_3)
C	15 (E_4)	(L_4)
D	21 (E_5)	(L_5)
E	14·5 (E_6)	(L_6)
F	25 (E_7)	(L_7)
G	25·5 (E_8)	25·5 (L_8)
H	30·5 (E_9)	30·5 (L_9)

Critical path marked in red arrows



(ii) PERT Activity Schedule

Activity	Time estimates a	m	b	t_e	Variance (σ_t^2)	Earliest time Start	finish	Latest time Start	finish
A	2	4	12	6	2·78	0	6	0	6
B	10	12	26	16	7·11	0	16	0·5	16·5
C	8	9	10	9	0·11	6	15	7·5	16·5
D	10	15	20	15	2·78	6	21	6	21
E	7	7·5	11	8·5	0·44	6	14·5	17	25·5
F	9	9	9	9	0	16	25	16·5	25·5
G	3	3·5	7	4·5	0·44	21	25·5	21	25·5
H	5	5	5	5	0	25·5	30·5	25·5	30·5

g) Conclusion

For process modelling, the contexts in which the identified models are intended to be used vary. This benefits practitioners as they are able to select a model that suits their contexts. However, the usefulness in industry of most of the models, based on the contexts in which the models were evaluated, is questionable. There is a need for evaluating mobile app models in contexts that resemble realistic contexts. The conclusion also calls for further research addressing special constraints of mobile apps, e.g., **testing apps on multiple-platforms, user involvement in release planning and continuous deployment**.

But for now, when we fixed upon the Waterfall Model, we divided our approach in 3 stages: **1 - Planning and Research, 2 - Development, 3 - Testing**
Then we defined sub-tasks for each of these phases, and group them in a particular **incremental fashion** just like an **actual waterfall model implementation**.

The end result was a **simplified GANTT charts** with **3 phases based on our WBS**, and our **corresponding PERT chart** to determine **which tasks have dependencies** and all kinds of info from **what would be the time taken to complete a particular task/subtask** to getting details about the **person involved with some particular work**.