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Batch: A2

Experiment No. 5

Aim: Estimate effort and cost required using FP/COCOMO for the project. Create WBS and Gantt Chart for the same. Use PM Tool to depict a project plan.

Theory:

Work Breakdown Structure:

Work Breakdown Statement

A work breakdown statement (WBS) is a categorized list of tasks with an estimate of resources required to complete the task. An example WBS appears below.

WBS #	Task Description	Est Person-Hrs	Who	Resources	M&S
5	Profile motor power				
5.1	Design test stand	20	SE, JM	Pro/E	
5.2	Build test stand	15	SE, JM	Frame & brake parts	$35
5.3	Test 3 motors	3	SE, JM	Stroboscope	$75
5.4	Plot torque vs. speed	2	JM	Excel	

(M&S = Materials & Supplies)

Gantt Chart Basics

Gantt charts are a project planning tool that can be used to represent the timing of tasks required to complete a project. Because Gantt charts are simple to understand and easy to construct, they are used by most project managers for all but the most complex projects.

In a Gantt chart, each task takes up one row. Dates run along the top in increments of days, weeks or months, depending on the total length of the project. The expected time for each task is represented by a horizontal bar whose left end marks the expected beginning of the task and

whose right end marks the expected completion date. Tasks may run sequentially, in parallel or overlapping.

As the project progresses, the chart is updated by filling in the bars to a length proportional to the fraction of work that has been accomplished on the task. This way, one can get a quick reading of project progress by drawing a vertical line through the chart at the current date. Completed tasks lie to the left of the line and are completely filled in. Current tasks cross the line and are behind schedule if their filled-in section is to the left of the line and ahead of schedule if the filled-in section stops to the right of the line. Future tasks lie completely to the right of the line.
In constructing a Gantt chart, keep the tasks to a manageable number (no more than 15 or 20) so that the chart fits on a single page. More complex projects may require subordinate charts which detail the timing of all the subtasks which make up one of the main tasks. For team projects, it often helps to have an additional column containing numbers or initials which identify who on the team is responsible for the task.

Often the project has important events which you would like to appear on the project timeline, but which are not tasks. For example, you may wish to highlight when a prototype is complete or the date of a design review. You enter these on a Gantt chart as "milestone" events and mark them with a special symbol, often an upside-down triangle.

Practical:

1). For Estimation:

FP ESTIMATION :

External inputs: Login credentials , upload assignment, upload resources

External Inquiry: Registration details, Resources assigned, Lecture history

Internal Logical Files: Team details, Channel details, Assignments Details

External Outputs: Assignment Grades ,

External interface files: NONE

Information Domain Value	Count	Simple	Average	Complex	Total
External inputs	3	3	4	6	3*6=18
External enquiry	3	4	5	7	3*7=21
Internal Logical Files	3	3	4	6	3*6=18

External Outputs	1	7	10	15	1*15=15
External interface files	0	5	7	10	0*10=0
Total					72

Total-Count = 72

Value Adjustment Factors:

Does the system require reliable backup and recovery?

5 → Student records (grades, assignments) are present which are required by the institutions and cannot be lost.

Are specialized data communications required to transfer information to or from the application?

3 - The application requires a medium level of security for transfer of information as it will mostly be student assignments and class attendance.

Are there distributed processing functions?

1 - The application has a single central datastore and all processing functions are closely related.

Is performance critical?

4 - The application deals with daily live video lectures and constant assignment updates. If the performance needs to be optimal in order to ensure smooth flow of lectures and assignment submission.

Will the system run in an existing, heavily utilized operational environment?

0 - The application is a new product with no existing operational environments.

Does the system require online data entry?

3 - Practically all functionalities require some form of data entry but most of them are simple and straightforward.

Does the online data entry require the input transaction to be built over multiple screens or operations?

3 - A few functionalities in the application requires data entry over multiple screens.

Are the ILFs updated online?

4 - The application has a single datastore that is updated each time one of the functionalities is accessed.

Are the inputs, outputs, files, or inquiries complex?

2 - All the inputs, outputs, files and inquiries are simple.

Is the internal processing complex?

3 - Most of the internal processing is simple except for the live videos which require uninterrupted streaming.

Is the code designed to be reusable?

3 - The code can be reused over multiple functionalities with minor modifications.

Are conversion and installation included in the design?

5 - The application will already have all third party and additional components installed.

Is the system designed for multiple installations in different organizations?

4 - The application can have multiple installations in different organizations with minor modifications that may be necessary.

Is the application designed to facilitate change and ease of use by the user?

4 - The application has been designed while keeping ease of use for the customer in mind.

Σ (Fi) = 44

The estimated number of FP is derived:

FP estimated = count-total x [0.65 + 0.01 x Σ (Fi)]

= 72* [0.65 + 0.01 x 44]

= 78.48

Therefore, FP estimated is **78.48** pm

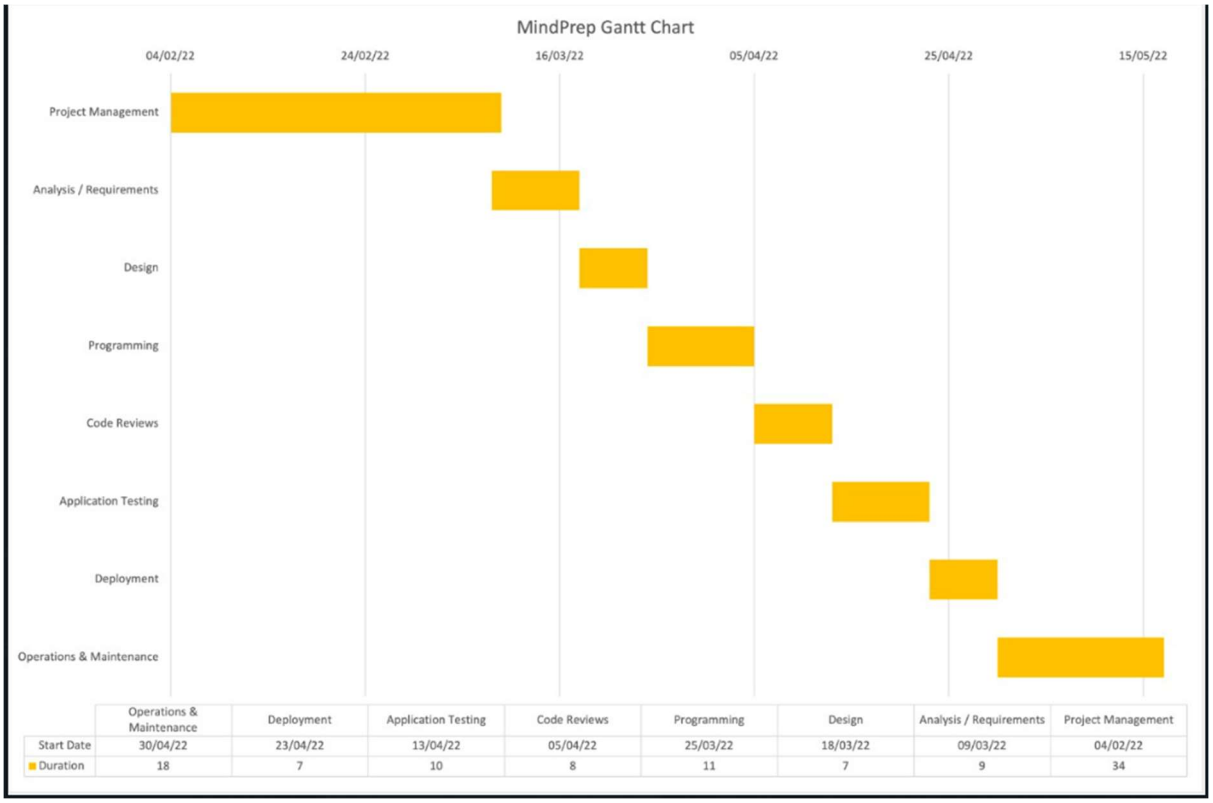
For WBS and Gantt Chart

WBS:

1. Project Management
   1.1. Project Setup / Initiation
   1.2. Project Plan Documentation
   1.3. Project Schedule Development & Management
   1.4. Risk Management
2. Analysis / Requirements
   2.1. Use Case Meetings & Documentation
   2.2. Requirements Meetings & Documentation
3. Design
   3.1. Database Design Meetings & Documentation
   3.2. Application Design Meetings & Documentation
   3.3. System Architecture Design Meetings & Documentation
   3.4. System Integration Design Meetings & Documentation
4. Application Development
   4.1. Programming
      4.1.1. Programming for Teams Module
      4.1.2. Programming for Channels Module
      4.1.3. Programming for Integrating Calls,Videos,Chats
      4.1.4. Programming for Resource Management Module
      4.1.5. Programming for Assignment tracking and Management Module

4.1.6. Programming for Various resource plugins Management Module
4.1.7. Database Development
4.1.8. Programming for Application Integration
4.2. Code Reviews
4.3. Application Testing
4.3.1. Test Documentation
4.3.2. Unit Testing
4.3.3. Integration Testing
4.3.4. Acceptance Testing
4.3.5. System Testing
5. Deployment
5.1. Release Planning & Management
5.2. Issue / Bug Management
5.3. Server Management
5.4. Source Code Management
5.5. Database Management
5.6. All forms of Documentation
6. Operations & Maintenance
6.1. System Administration
6.2. System Tuning
6.3. User Support & Help Desk

GANTT TIMELINE CHART :



	Operations & Maintenance	Deployment	Application Testing	Code Reviews	Programming	Design	Analysis / Requirements	Project Management
Start Date	30/04/22	23/04/22	13/04/22	05/04/22	25/03/22	18/03/22	09/03/22	04/02/22
Duration	18	7	10	8	11	7	9	34

Conclusion:

Thus, we are able to estimate effort required for our project and also create WBS and Gantt Chart.