SHRI VILEPARLE KELAVANI MANDAL'S
DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING
(Autonomous College Affiliated to the University of Mumbai)
NAAC ACCREDITED with "A" GRADE (CGPA : 3.18)

Academic Year:
2021_22

Software Engineering

Experiment-6

Div: B **Batch:** C22

Team Members:
Deep gohil- 60004220122
Shashwat shah - 60004220126
Aagam shah - 60004210175

Aim: Estimate effort and cost required using FP/COCOMO for the project. Create WBS and Gantt Chart for the same. Use the 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 (in hrs)	Who	Resources	Materials & Supplies
1	Extract Data from NewsApi	100	Researcher	Extrication Tools	$150
2	Analyze the extracted data and validate	80	Analyst	Excel, Tableau	$100
3	Update the data for any inaccuracies	50	Local Authorities	Excel, Tableau	$100
4	Testing the functionalities	150	Marketing Manager and Analyst	Testing Tools	$200
5	Project Deployment	72	Marketing Manager and Analyst	Servers	$500
6	Maintain data pipelines	4000	Backend Engineer	Servers	$1000

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.

Gantt Chart Example from http://www.criticaltools.com/projwbs.htm

Practical:

For Estimation

1. Use the FP / COCOMO model to estimate Effort and subsequently Cost required to develop the project.
2. Show all the tables and steps of the estimation model.

Cost estimation

- E.I.: User credentials, User news posts, User comments, Admin credentials
- E.O.: Searched news, Location based news, Recommended news
- E.Q.: News search

- I.L.F.: User data, News data, Location data, Recommender system
- E.I.F: -

Information Domain Value	Count	Simple	Average	Complex	Total
External inputs	4	3	**4**	8	4*4=16
External Outputs	3	4	**6**	9	6*3=18
External enquiry	1	2	**3**	6	3*1=3
Internal Logical Files	4	3	**5**	9	7*4=20
External interface files	0	4	**7**	10	7*0=0
					Count-total = 57

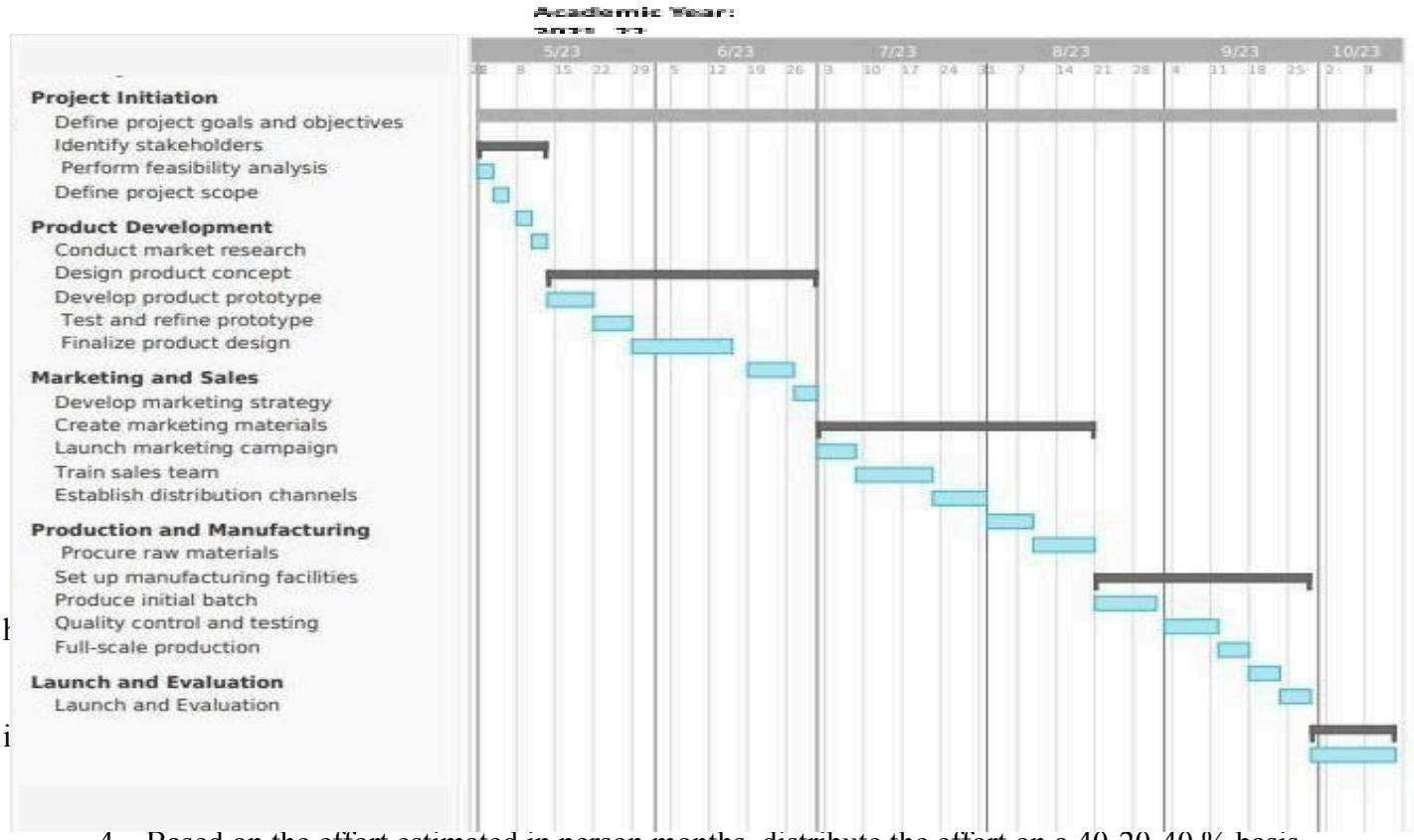
The Fi (i = 1 to 14) are value adjustment factors (VAF) based on responses to the following questions:

1. **Does the system require reliable backup and recovery?**
   - 4 - It is essential to have reliable backup and recovery for important modules.
2. **Are specialized data communications required to transfer information to or from the application?**
   - 5 – Application needs to be “realtime” .
3. **Are there distributed processing functions?**
   - 3 - Yes
4. **Is performance critical?**
   - 4 - Performance is always critical

5. **Will the system run in an existing, heavily utilized operational environment?**
    - 5 - No, the project is not based on a pre-existing system.
6. **Does the system require online data entry?**
    - 4 - Yes
7. **Does the online data entry require the input transaction to be built over multiple screens or operations?**
    - 3 - Yes, search of news by users will be built over multiple screens.
8. **Are the ILFs updated online?**
    - 5
9. **Are the inputs, outputs, files, or inquiries complex?**
    - 3 - Yes
10. **Is the internal processing complex?**
    - 4 - Yes
11. **Is the code designed to be reusable?**
    - 4 - Yes as we are following the best coding practices.
12. **Are conversion and installation included in the design?**
    - 3
13. **Is the system designed for multiple installations in different organizations?**
    - 0 - No
14. **Is the application designed to facilitate change and ease of use by the user**
    - 4 - Yes

$\Sigma(Fi) = 51$

The estimated number of FP is derived:



4. Based on the effort estimated in person months, distribute the effort on a 40-20-40 % basis.
5. Prepare a Gantt chart using any PM tool

Conclusion:

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