Faculty of Engineering and Applied Science

SOFE 3490U - Software Project Management

Software Project Management
Lab 3

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Cost Estimation

Cost Breakdown

To break down the project, bottom up estimation was used. This model was chosen since there was a previous project similar enough to compare the current one, nor were there experts to consult. Bottom up estimation allows us to breakdown our project, and make an assumption for total lines of code per activity/module, allowing us to make an estimation on the total size of the project

***the indents indicate that the module is a sub to another module/project**
Full service - 6100 LOCS
- **Create Application** - 3700 LOCS
  - **Code Frontend** - 2000 LOCS
    - **Create GUI** - 1500 LOCS
    - **Stylize frontend** - 500 LOCS
  - **Code Backend** - 1700 LOCS
    - **Code Event handling** - 1200 LOCS
    - **Implement API** - 500 LOCS
- **Create Database** - 600 LOCS
- **Create Web Server** - 1800 LOCS
  - **Make API** - 1500 LOCS
  - **Connections** - 300 LOCS

Estimation Using COCOMO

Using COCOMO, we can calculate the estimated effort of the project.
First we determine the project type. The team has reasonable amounts of experience database and api coding. The server and database are not too complex. The project requires the creation of a reasonably complex application. The application has a simple gui. The team has little to no experience in creating applications.

We can assume that the project will be a **semi-detached project**.

a = 3
b = 1.12
Kloc = 6.1
Effort = **a**(***Kloc***)^{b}
Effort = 3(6.1)$^{1.12}$
Effort = 22.73 person-months

Albrecht/IFPUG function points
Logical interface file types
View user ratings and reviews(medium complexity)
External interface file types
Users using the app; browsing the description, menu, and ratings of the restaurant(medium complexity)
External input types
Adding new restaurant subscriber(high complexity)
updating the menus(medium complexity)
External output types
none
External inquiry types
Searching for a specific restaurant or searching for a restaurant in a specific locations(medium complexity)
FP counts

1. Medium LIF 10FPs
2. Medium EIF 7FPs
3. High EI 6FPs
4. Medium EI 4FPs
5. Medium EQ 4FPs

Total = 31FPs

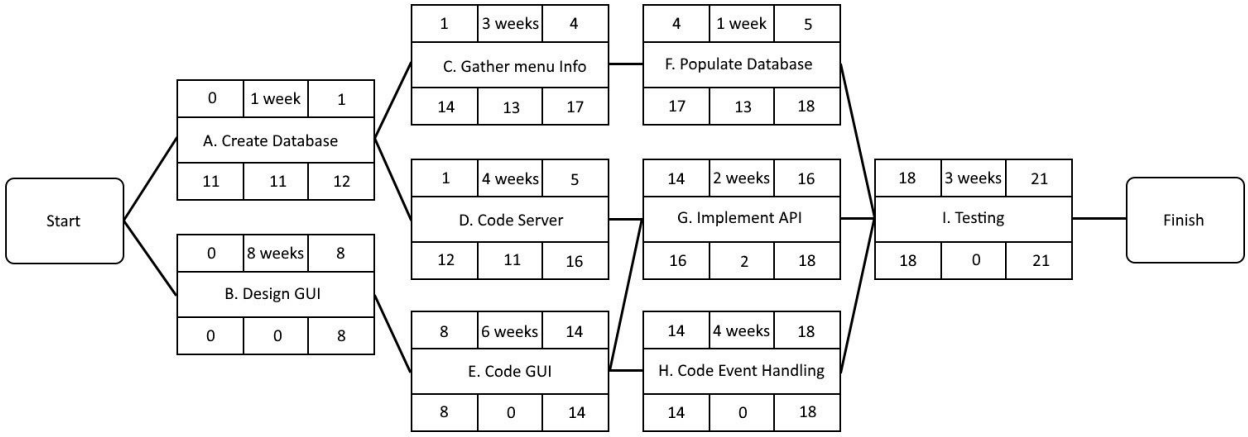
Activity Planning

Activity Table

Activity	Depends On	Duration	Earliest Start	Earliest Finish	Latest Start	Latest Finish	Float
A		1	0	1	11	12	11
B		8	0	8	0	8	0
C	**A**	3	1	4	14	17	13
D	**A**	4	1	5	12	16	11
E	**B**	6	8	14	8	14	0
F	**C**	1	4	5	17	18	13
G	**D,E**	2	14	16	16	18	2

H	**D,E**	4	14	18	14	18	0
I	**F,G,H**	3	18	21	18	21	0

Activity Network Diagram



Risk Management

Risk	Risk Reduction
Personnel shortcoming	Train employees, hire higher quality members
Unusable user interface	Create a prototype and keep the user involved
Module coding taking longer than expected	Cost benefit analysis, is it worth spending more resources into the module, or can the project move on
External Server failure	Keep local server as backup
Client unsure of requirements	Use evolutionary development
Sickness affecting critical path activities	Allow employees to work from home, pay overtime to those who are able to continue, move employees from non-critical activities
Sickness affecting non-critical path activities	Allow employees to work from home, incremental delivery, ensure to make full use of float period