SOFE 3490U LAB 3

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Requirements 1: Function Point and COCOMO Model

Function Point

End User Requirements	Type	Function Points
Users outgoing text messages are encrypted	Output	5
Users can browse for text books	Output	3
Users incoming messages are encrypted	Input	5
Secure - User friendly login system	Input	5
Files can be uploaded for sharing	Input	2
Alumni information stored in Database	Internal Files	2
Add profile information	Input	2

COCOMO Model

The Class Application project, which we are calling Student Connect, is a semi-detached project. This is because it is a fairly complex and long project. A similar application, such as Moodle, is said to have over 7000 lines of code. Since there is not many applications similar to Student Connect, team members only have limited experience in developing this application.

Basic Model

E = a (KLOC)^b
A = 3.0, b = 1.12, KLOC = 7
E = 3.0(7)^1.12
E = 26.52 Person Months

Therefore, this project will take approximately in 2 years and 3 months.

Intermediate Model

Cost Drivers	Type	Value
Product Attributes		
Required Software Reliability	High	1.15
Size of Application Database	Nominal	1.00
Complexity of The Product	High	1.15
Hardware Attributes		
Runtime Performance Constraints	Nominal	1.00
Memory Constraints	High	1.06
Volatility of the virtual machine environment	Low	0.87
Required turnabout time	Nominal	1.00
Personal Attributes		
Analyst capability	Nominal	1.00
Applications experience	Nominal	1.00
Software engineer capability	High	0.86
Virtual machine experience	Nominal	1.00
Programming language experience	High	0.95
Project Attributes		
Application of software engineering methods	Nominal	1.00
Use of software tools	Low	1.10

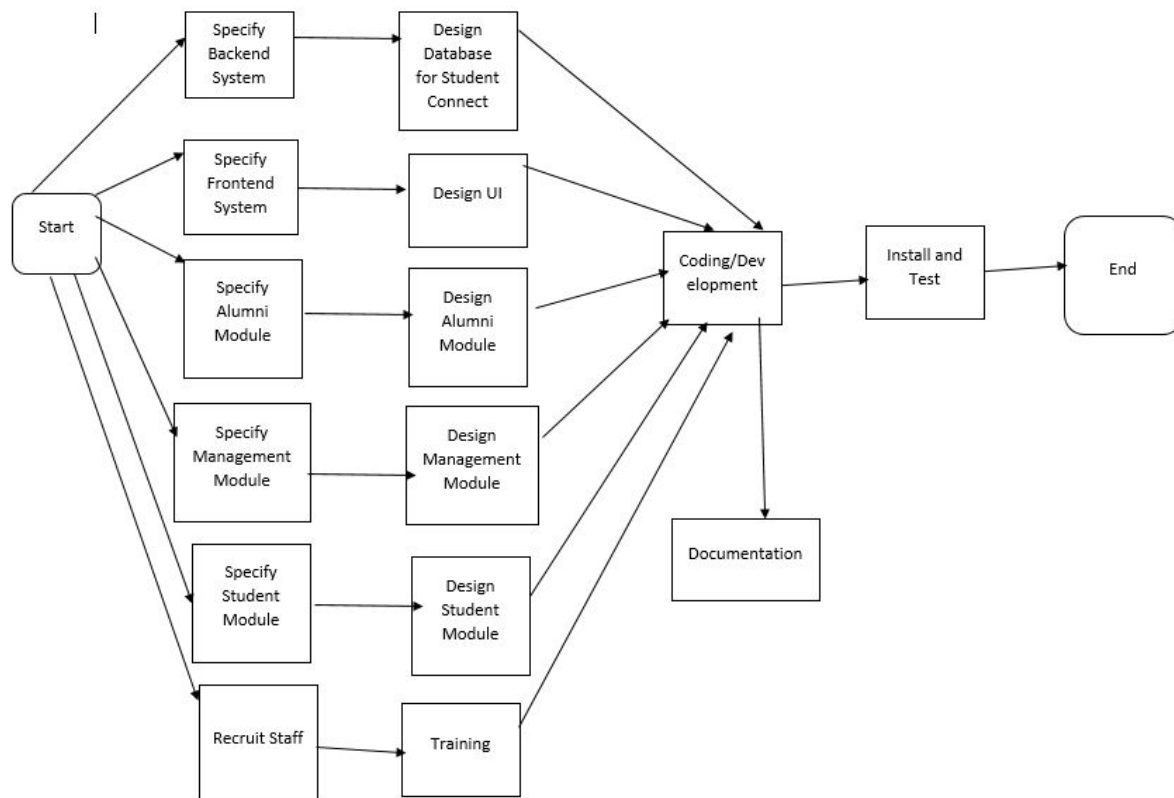| Required development schedule	High	1.04
EAF		1.139905579956

E = 3.0 (7)^1.12 * 1.1399
E = 30.234

Therefore, this project will take approximately in 2 years and 6 months.

Therefore taking into account both COCOMO models, it would take approximately 2 years and 4 and a half months to long to complete Student Connect application.

Requirements 2: Activity Network Diagram

Requirements 3: Risks

There are some risks associated with this project. Some of them are as follows:

Project Completion on Time

Since the estimate for the completion for this project is roughly 2 years and 4.5 months, it is essential to ensure all employees are on task at all times in order to finish the project before the deadline. Also in terms of our estimate, we run the risk of over or underestimating our project budget. The risks of underestimating, is that we may not receive the required funding from investors. The risks of over estimating is that we may not be efficient with our resources as work generally expands to fill the budgeted time.

Our countermeasure against inaccurate estimate is to use multiple models to base our estimate on so we can get as accurate an estimate as possible. This will include the cocomo model as well as function point

Software encryption Fail

Since the application has a chat interface and a login interface, it is crucial that all the data is encrypted before it is sent out of the device. There is a possibility that encryption could be flawed which leads to security risks.

Our countermeasure against a security breach is to use a security framework that will ensure the encryption of all data is secure

Developers training

Since this is a new project, it requires new developers to be trained in the program and we run the risk of delays if they are not properly trained.
Our countermeasure against this is that we will ensure to train all employees and developers to make sure they are competent and can perform at their assigned tasks

Unexpected Delays

All unexpected delays should be accounted for such as employee emergency vacations, weather, delays in software/hard deliveries. We risk delays if these are not included in the estimates.

Financial Budgeting

Making sure the money is used for the right resources is crucial in this project. We run the risk of inefficient allocation of resources and wasted time and money if we do not buy compatible plugins or resources that is not a necessity.

References
https://muras.eu/2018/02/28/core-moodle-lines-of-code/
https://moodle.org/mod/forum/discuss.php?d=45311