



Faculty of Engineering and Applied Science

Software Project Management

Lab 3

Group Member 1

Name: Ibrahim Noor Mohammed

Student ID: 100662343

Group Member 2

Name: Brett Hausdorf

Student ID: 100653576

Group Member 3

Name: Daniel Silva

Student ID: 100679066

COCOMO:

Semi-detached:

Our problem is likely going to be semi-detached as it will involve the following hardware requirements:

- centralized data server
- database with analytics and algorithms for users' music habits
- high speed AND high fidelity music fetching

Project Type	a	b
Organic	2.5	0.38
Semi-detached	2.5	0.35
Embedded	2.5	0.32

Therefore, a semi-detached project type is the best fit for the task that we are attempting to create, and is the appropriate classification for jiroStream.

Duration and Effort Estimations and Calculations:

For our estimate, we will be using the above values of $a = 3.0$ and $b = 1.12$ as we are creating a semi-detached system. We estimate the KLOC to be 33. We will likely have 5KLOC for the web application, 8K for the mobile application, and 20K for the dataserwer and analytics algorithms.

Thus, we will have the following amount of person-months:

$$E_i = 3.0 * (33)^{1.12} = 150.6 = 151$$

So we will need approximately 151 person-months.

Duration Calculation:

$$M = a * E^b$$

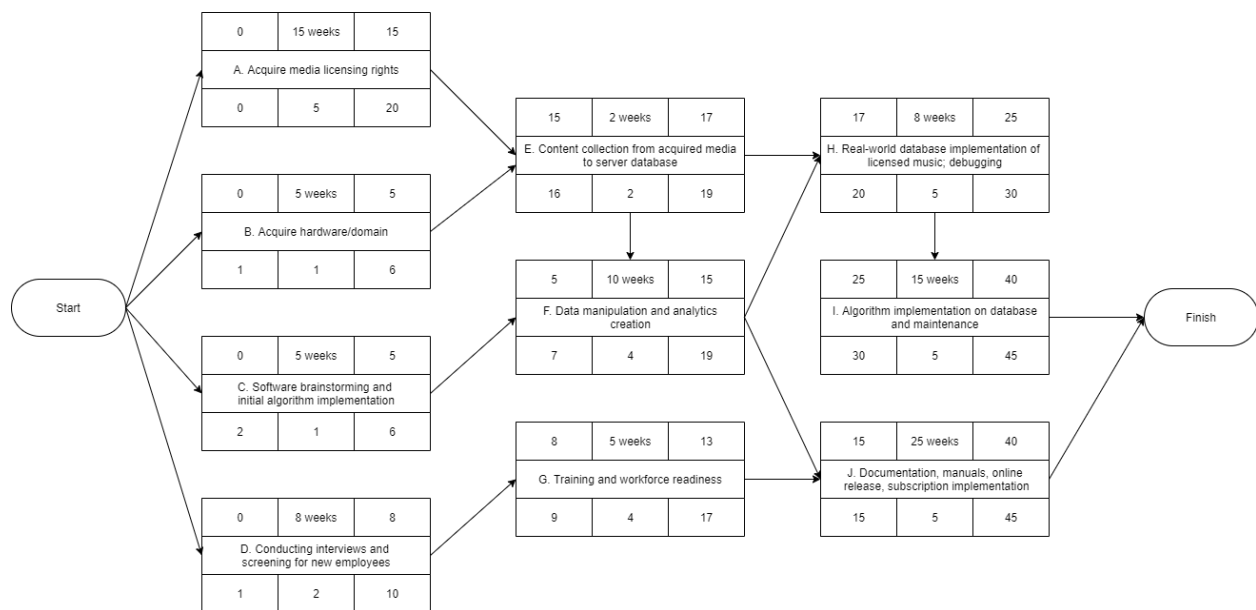
$$E_i = 2.5 * 33^{0.35}$$

$$E_i = 8.50 \text{ months}$$

Using the COCOMO model, we were able to quantify the overall effort and duration of the project. We have determined that this project will need 151 person months and an estimated duration of 8.50 months.

If we want to complete this project within 8.5 months, we will need 18 people ($151/8.5$) working on the project to satisfy the constraint of 151 person-months. We will need approximately 40 weeks altogether to complete this project.

Activity Diagram:



Associated Risks:

There are a few risks that are evident within the initial planning stages of the development of jiroStream in accordance with the estimated time and activity network diagram.

New Employee Risk:

In the activity network diagram, we detail a plan to recruit and train new employees with qualified skills to assist us on this project. This inherently is a risk because we require employees to assist us on the development. We are planning to train them during the brainstorming phase and having them up to speed before the beginning of development.

Licensing Risk:

Licensing acquisition is a major risk because the entire application model is dependent on being able to secure music licences from the respective music management companies and record labels. We can manage this by assigning a specific team to focus on acquiring media licence rights and give them a longer amount of time to collect these rights. Another thing this team could offer these companies is percentage incentives ranging from 15% and above. Then we will have them transition over to the team to assist in content collection into server databases.

Funding:

Since jiroStream is initially free to use without the pro version, it is important to use advertisements which are implemented at the application's startup and after 10 songs. This ad implementation will be an incentive for users to purchase the premium app version, as well as a method to accumulate revenue without the user having to pay a monthly fee if they do not wish to do so.

Generalization:

Generalization in project guidelines and documentation can cause confusion during development. This can lead to errors in logic and may lead to the applications functionality. An idea to counteract this is creating documentation as the development progresses, as the programmer will likely not forget the functionality of the code

Unoptimized Analytics:

The risk associated with implementing analytics within our system is that it must be optimized for the entire framework of the application to work correctly. The way we plan on minimizing this risk is to allocate enough time to be able to optimize it to a stage where it will perform smoothly.