# American International University-Bangladesh (AIUB)

**Faculty of Science and Technology (FST)**
**Department of Computer Science (CS)**

**SDPM Group Project, Summer 2022**

**Project Title: IManager-An Employee Management System**
**Section: D**
**Group: 5**

<u>**Submitted by**</u>

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## 1.0 Intrtoduction:

Now a days Entrepreneurs are creating companies and with that managing employees has become mandatory in those initiatives. So there has become necessity to build an EMS-Employee Management System.

The main objective of the project is to build an EMS-Employee Management System for a Company. This document is being created to describe the requirements, objectives, analysis and estimations related to build this EMS.

Audience of this document is Employees, Project Managers, and Technicians and so on.

## 2.0 Project Title: "IManager-An Employee Management System"

## 3.0 Objectives:

The main objective of the project is to build an EMS-Employee Management System to manage employees of a project or a Company. This has some sub-objectives or goals. They are:

- A Login system for the users

- Balance Checking facilities

- Withdraw payment options (mobile banking or in card system)

- Create project teams (department wise)

- Participation and attendance

- Profile Creation facilities

- Repair and maintenance of this system

## 4.0 JUSTIFICATIONS:

This project is all about the managing the employees. We know that, in the manual way managing the employees is so tough. Pen and paper is not so trusted way to handle huge amount of employees. It is also not so accurate. For this reason, the main purpose of this system is to manage the employee of a company or a project through software or a system.

This is very beneficial for the company to manage their employees and the managing teams and other workers. This system will help to save time and make more profits. This is directly beneficial for the company to manage employees and employees to work more efficiently and project managers to manage groups to make more profit for the company by saving times and make accuracy of the work.

**5.0 Systems Overview:**
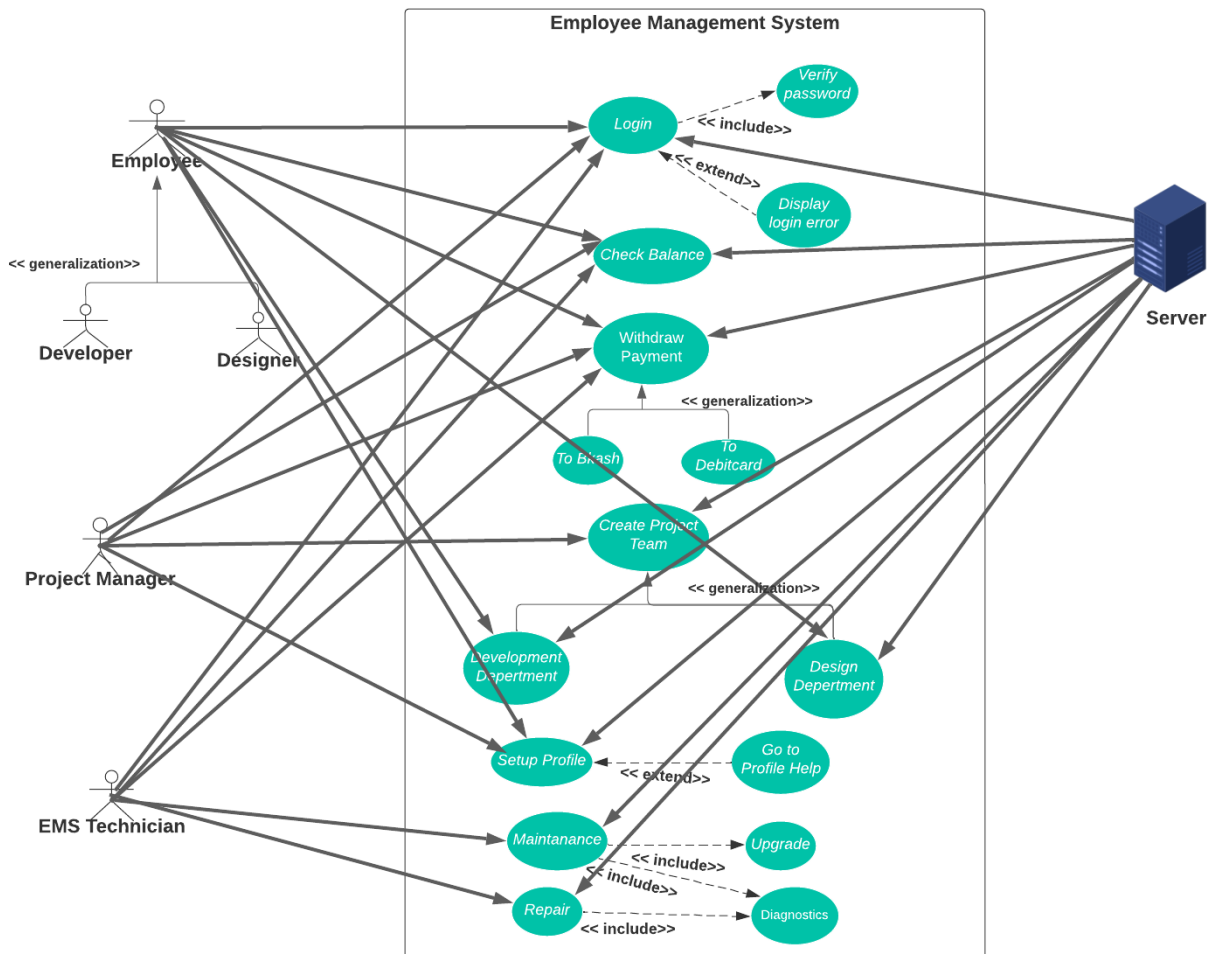


**Use Case Diagram**

## 6.0 Stakeholders analysis:

A project is successful when it achieves its objectives and meets or exceeds the expectations of the stakeholders. These stakeholders can include individual donors, corporate charitable givers, foundations, and state or federal agencies that provide funding.

In our project, primary stakeholders are: Employees, Project Managers, and Technicians. Secondary stakeholders are: Clients, Company CEO and investor. A stakeholder analysis template, also known as a power interest grid, can help you in four key ways:

**Gathering crucial input:** You don't know what you don't know. Often, key stakeholders can deliver valuable insight that can help keep your project on track and successful.

**Gaining more resources:** If your stakeholder has a full understanding of what it will take to get your project off the ground, they may be able to help you secure the people, tools, and resources you need to make you successful.

**Building trust**: By consistently engaging and involving stakeholders in your process, you're building trust that may make them quick to support upcoming projects.

**Planning ahead:** Consistent feedback from key stakeholders helps you anticipate feedback and requirements on future projects and gain buy-in more quickly.

## 7.0 Feasibility study:

### Technical Feasibility:

A technical feasibility study is an in-depth examination of tech factors related to the intended project. It touches things on our project like:

1. Hardware and software components
2. Technical risks and constraints
3. Compatibility with other IT systems
4. Capabilities of our team

We've some skillful technicians to handle our project. And they've the capability to handle it.

### Financial Feasibility:

In our project system this assessment typically involves a cost and benefits analysis of the project. It also serves as an independent project assessment and enhances project credibility helping decisionmakers determine the positive economic benefits to the organization that the proposed project will provide. And with the help of ROI we can get the best project and this project is a mandatory project for the company's

reputation, so as a software engineer of this company, we must do this project in a best way.

## 8.0 Systems component:

Here Systems component shows the components of system and Projects Components show the components of Project.

**Systems Component:**
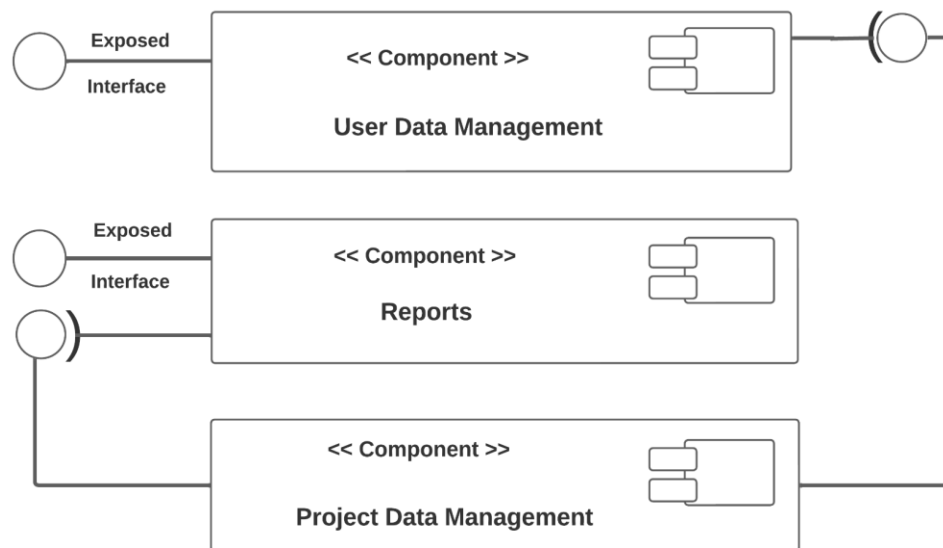


**Projects Component:** 3 major components or modules are Analysis component, design component, test component. This components or modules can be divided in

more parts to get specific activities. (7 month comes from COCOMO model).
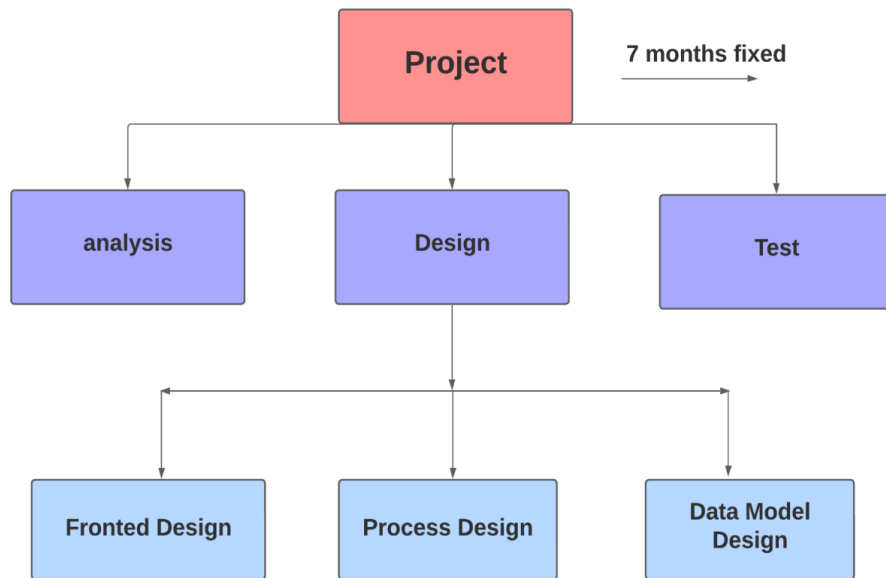


## 9.0 Process Model:

Here I will prefer Incremental development model.

Because,

1. Waterfall model Is used for heavy weight projects or more document-based projects and our project is for inhouse usage and more documentary information is not needed here.

2. Agile Model is user story based. But here we have to work with employee's personal information and user's data and previous reports are must here. So, we cannot depend on the user's story.

3. IN Iterative development model we have to deliver the complete software at first, as this software will be used in house of a company and if the company gets some modules, then they can start working as first as they can.

So, Incremental development model is the best for this project because, In this model, we can delivery some modules as first as we can and  if the company gets some modules, then they can start working as first as they can. Less paper work then

waterfall model is needed. We can bring changes in the modules if the company wants after using any module.

## 10.0 Efforts estimation:

According to WBS (Work breakdown Structure) and by using top down technique I will do all the calculations.

From the precedence diagram I have got necessary times to do complete the major components.

For coding (4 weeks necessary), for design part (3 weeks necessary), and for testing and installation (1 weeks necessary).

Table as a historical data (Previous Projects):

| Projects | External Input type | External Output type | Internal file type | SLOC |
|---|---|---|---|---|
| A | 8 | 11 | 12 | 16500 |
| B | 6 | 8 | 9 | 10400 |

**New Project Data**

**4 File or records**

1. Employee_Record

Data Types: (7 types of data) Ename, EId, PhoneNo, Gender, EmpType, JoiningDate, Email.

2. ProjectManager_Record

Data Types: (7 types of data) Pname, PId, PhoneNo, Gender, PmType, JoiningDate, Email.


3. Technician_Record

Data Types: (7 types of data) Tname, TId, PhoneNo, Gender, TnType, JoiningDate, Email.

4. Balance Record

Data Types: (3 types of data) CurrentBalance, withdraw date, withdraw amount.

Here,

**External Input Types: (3 type)(total 21 data types)**

Employee_Record, ProjectManager_Record, Technician_Record


**External Output Types: (2 type) (total 20 data types)**

Transaction Report, Attendance Report.

from Albrecht's Function Point Analysis,

File type Complexity:

| Number of Record Types | Number of data types |
|---|---|
| 4 | 24(Average) |

External Input type Complexity:

| Number of file Types | Number of data types |
|---|---|
| 3 | 21 (High) |

External Output type Complexity:

| Number of Record Types | Number of data types |
|---|---|
| 2 | 20(High) |

From Albrecht Complexity Multipliers,

| External User Type | Multiplier |
|---|---|
| External Input type | High (6) |
| External Output type | High (7) |
| Internal file type | Average (10) |

**Euclidean distance** from the source and the target project,

From Project A,

Square Root of $((10-12)^2 + (6-8)^2 + (7-11)^2)$

= 4.8

From Project B,

Square Root of $((10-9)^2 + (6-8)^2 + (7-8)^2)$

= 2.4

Project B has a Closer analogy then project A.

As we are following Top Down approach and Project A has 6010 line of code, so by taking SLOC=10400, from COCOMO MODEL, (ORGANIC TYPE SOFTWARE)

**Effort** = PM = Coefficient<EffortFactor>*(SLOC/1000) ^P

EFFORT = $2.4*(10400/1000)^{1.05}$
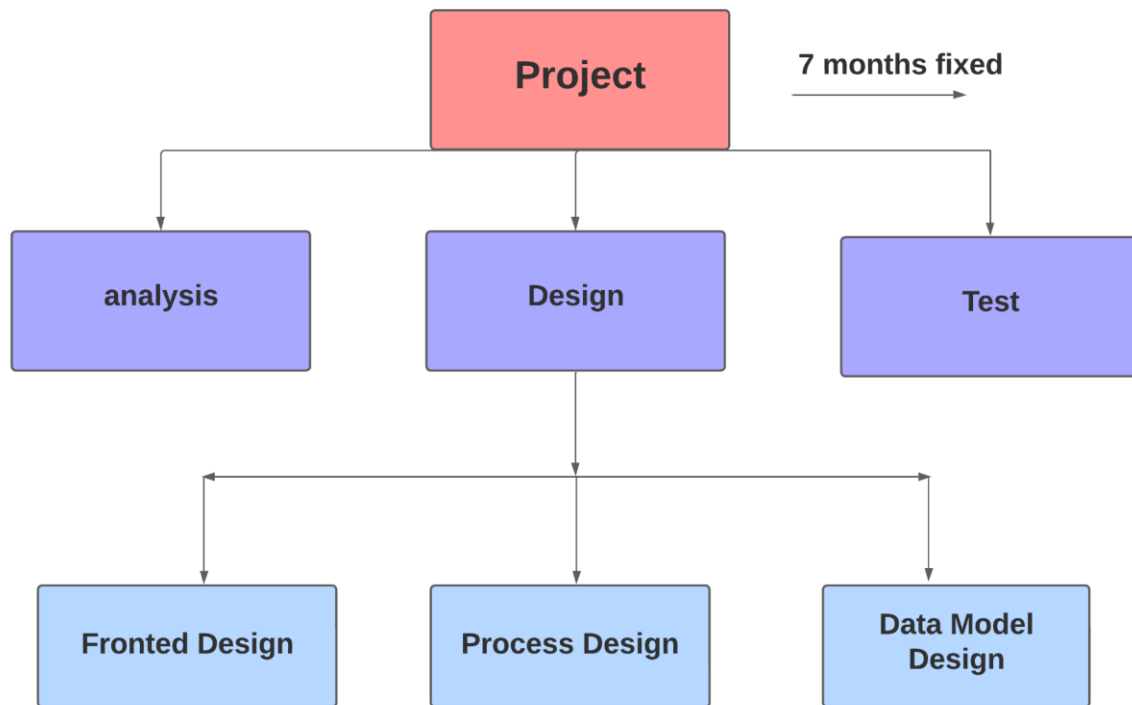
=28.06

**Development Time** $= DM = 2.50*(PM)\text{^}T$

$$=2.50*(15.77)\text{ ^}0.38$$

$$=7.1\text{MONTH (around 7month)}$$

Required Number of people $= ST = $ Effort (PM)/Development

Time (DM) $= 28.06/7$   $=3.9==4$ people

## 11. 0 <u>Activity Diagram:</u>

In total 7 month =28 weeks

| ACTIVITY | WEEKS | PRECEDENTS |
|---|---|---|
| A- Hardware design | 4 | |
| B- Software design | 3 | |
| C- Install hardware | 3 | A |
| D- Code (Frontend, Backend, Data model), TEST | 4 | B |
| E- File take-on | 3 | B |
| F- Write user manuals | 8 | |
| G- User training session | 2 | E, F |
| H- Install and test system | 1 | C, D |
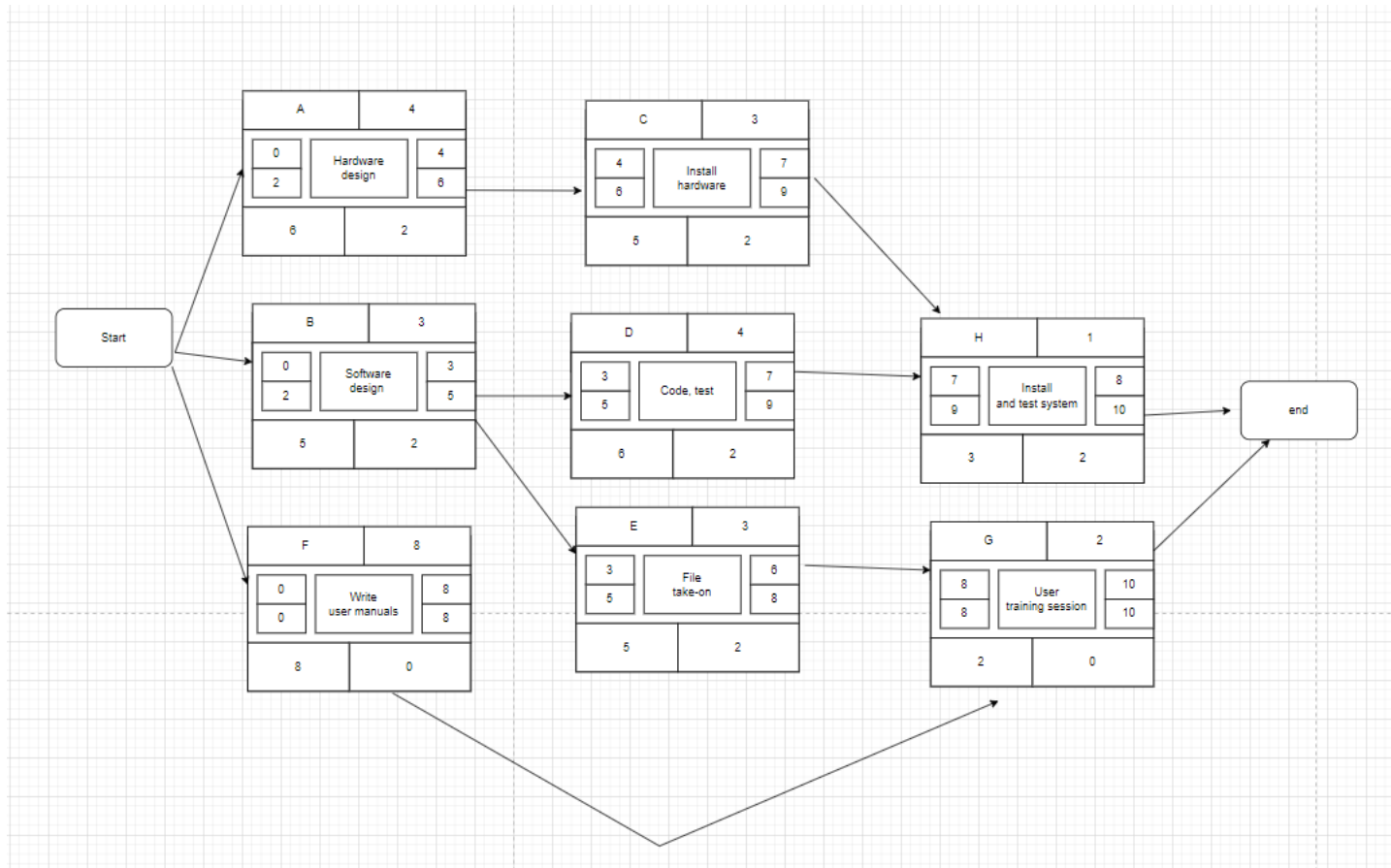
Here f + g=10. And the float is (ls-es) =0 in those case. So, this is the critical path (F, G) and the project time is 10.

## 12.0 Risk Analysis:

Though this is project of software, many risks can be come in this case. Possible risk is:

1. Employee shortage
2. Storage shortage
3. Budget shortage
4. Pandemic
5. Deadline facts
6. Quality works facts

## 13.0 Budget:

We need total 85,750 tk.

We have four persons for this project.

Programmer: 20100

Tester: 15050

Designer: 15600

Project Manager: 35000

Total: 85,750 tk.


## 14.0 Conclusion:

The project is all about employee management system. This project makes easy the case of employee management. In this case, we divide many users. Identify their work and role. After that we planned for the rest work. We did activity diagram, feasibility study, budget, network diagram, risk identify etc. So those all concept are covered by software development project management outline. By using those concepts this employee management system has been done. This will help to continue the employee management process easily.


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