American International University-Bangladesh (AIUB)

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

SDPM Group Project, spring 23

Project Title: Staff Management System
Section: F

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1.0 <u>Introduction:</u>

The staff management system provides managers with insights into their workforce and helps them to better plan and manage work hours to easily control labor costs and increase productivity. So there has become a necessity to build a Staff Management System. The main objective of the project is to build a Staff Management System. for a Company. This document is being created to describe the requirements, objectives, stakeholder analysis, and components related to building this project. Staff members, project managers, technicians, and others are the target audience for this document. The main objective of the project is to build a staff management system to manage the staff of a Company.

2.0 Project Title: Company's staff management system

3.0 Objectives:

- A login system for staff members
- Facilities for creating profiles.
- Facilities for checking balances
- Withdrawal options for payments (mobile banking or visa card).
- Create project teams
- Request for leave applications
- Attendance and participation.
- System maintenance and repair

4.0 JUSTIFICATION:

One of the main goals of this project is to manage the staff in an efficient manner.

With Staff Management System, all these tasks are performed on a single platform with professional conduct. Instead of hiring an entire team of employees devoted to managing these tasks, a company can save a lot through a staff management system.

The management of the company's staff, management teams, and other employees will definitely benefit from this. This system will facilitate time savings and increased profit. Project managers can manage groups to make more profit for the company by saving time and improving the accuracy of the work, which is directly beneficial for the company in staffing and managers to work more efficiently.
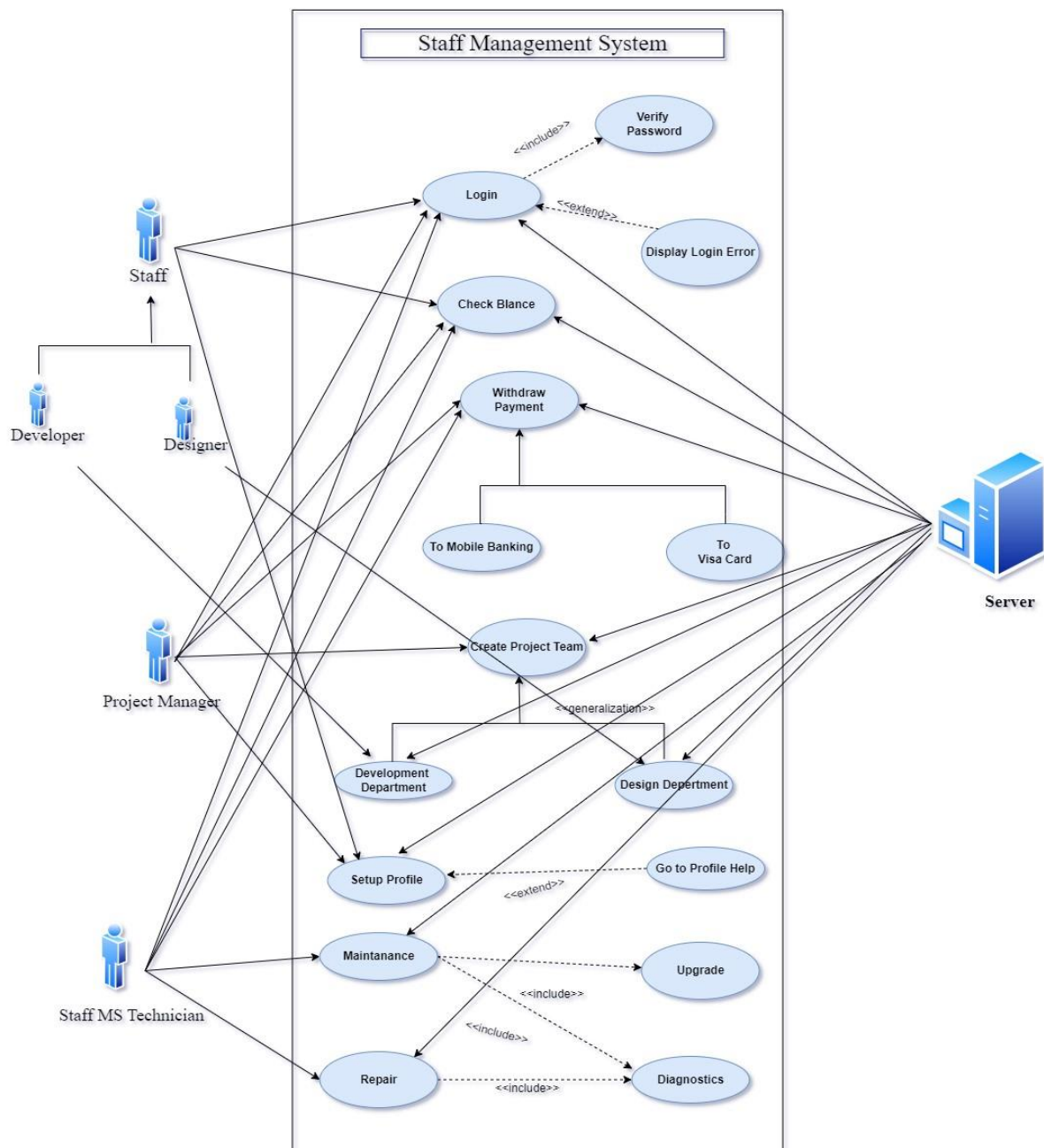
5.0 Systems Overview:

Fig: Use Case Diagram

6.0 Stakeholders analysis:

The stakeholders may include private individuals, businesses that support organizations, foundations, and state or federal funding agencies. An internal stakeholder is a person, group, or company that is directly involved in the project. An external stakeholder is one who is linked indirectly to the project but has a significant contribution to the successful completion of the project.

In our project, internal stakeholders are staff, Project Managers, developers, designers and other Technicians. External stakeholders are Clients, the Company CEO, and investor.

7.0 Feasibility study:

Technical feasibility:

Technical feasibility is a standard practice for companies to conduct feasibility studies before commencing work on a project. It is the formal process of assessing whether it is technically possible to manufacture a product or service.

It touches on things on our project like, Hardware and software components, Technical risks and constraints, Compatibility with other IT systems, Capabilities of our team.

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

Financial Feasibility:

In our project management system, this evaluation typically includes a project cost and benefit analysis. Additionally, it serves as an impartial project evaluation, improves project credibility, and aids decision-makers in determining the favorable economic benefits that the proposed project will bring to the organization. We can get the best project with the aid of ROI, and since this project is essential for the company's reputation, it is our responsibility as software engineers to complete it well.

8.0 Systems component

Projects Component: The main components are

- Analysis component
- Design component,
- Test component.

These components or modules can be divided into more parts to get specific activities. (6 months comes from the COCOMO model).

System component:
- User data management component
- Project data management component
- Reports component

9.0 Process Model to be followed:

The incremental development model is the best choice for this project because it allows us to deliver some modules as soon as possible and allows the company to begin working as soon as possible after receiving some modules. After using any module, we can make changes if the company requests them.

The Successive Version Model is another name for the Incremental Process Model. This model requirement is divided into a number of independent software development cycle modules. The core product is added in the first increment to meet the minimum requirements, and additional features are added in the second increment. Up until the desired system is released, numerous iterations and versions are implemented and given to the customer. The requirements for this project are known up front and must support the Schedule, Risk, Program Complexity, or need for early benefit realization. Early in the software life cycle, we need to get working software. Because this process model makes it easier to manage each iteration, risk because of iterations, and initial costs, it is more flexible and less expensive to change scope and requirements. The process model is so effective for this type of project where need to collect feedback from the users.

For these benefits, we choose Incremental Process Model.

10.0 Efforts estimation:
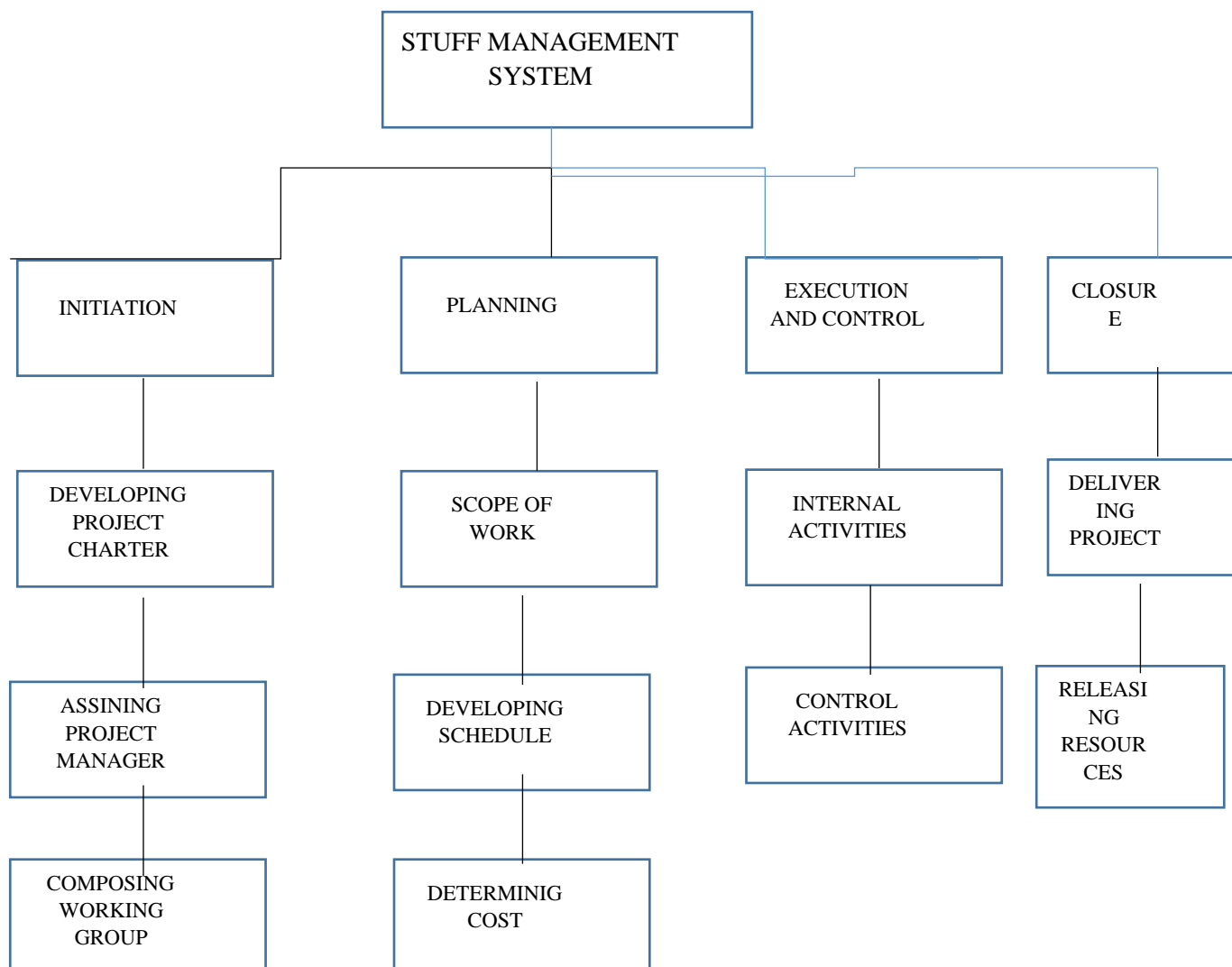
We can perform the calculation using the top-down method and the WBS (Work Breakdown Structure).

Table as a historical data (Previous Projects):

Projects	External Input type	External Output type	Internal file type	SLOC
A	8	11	12	4200
B	6	8	9	3800

New Project Data

4 File or records

1. Staff_Record

Data Types: (7 types of data) Sname, SId, SPhoneNo, SGender, STFType, SJoiningDate, SEmail.

2. Project_Manager_Record

Data Types: (7 types of data) Pmname, PmId, PmPhoneNo, PmGender, PmType, PmJoiningDate, PmEmail.

3. Technician_Record

Data Types: (7 types of data) Tname, TId, TPhoneNo, TGender, TType, TJoiningDate, TEmail.

4. Balance_Record

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

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

Employee_Record, ProjectManager_Record, Technician_Record

External Output Types: (2 types) (total 20 data types) Transaction

Report, Attendance Report.

From Albrecht's Function Point Analysis,

	Number of Record/File Types	Number of data types
File type Complexity	4	24(Average)
External Input type Complexity	3	21(High)
External Output type Complexity	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 than project A.

As we are following a Top-Down approach and Project A has 4200 lines of code, so by taking SLOC=4200, from COCOMO MODEL, (ORGANIC TYPE SOFTWARE)

The Formula of Effort estimation,

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

EFFORT $= 2.4*(4200/1000)^{1.05}$

$= 10.83$

Development Time $= DM = 2.50*(PM)^T$

$= 2.50*(10.83)^{0.38}$

$= 6.2$ Months (around 6 months)

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

(DM) $= 10.83/6 = 1.81 = 2$ people

11.0 Activity Network Diagram:

In total 6 month =24 weeks

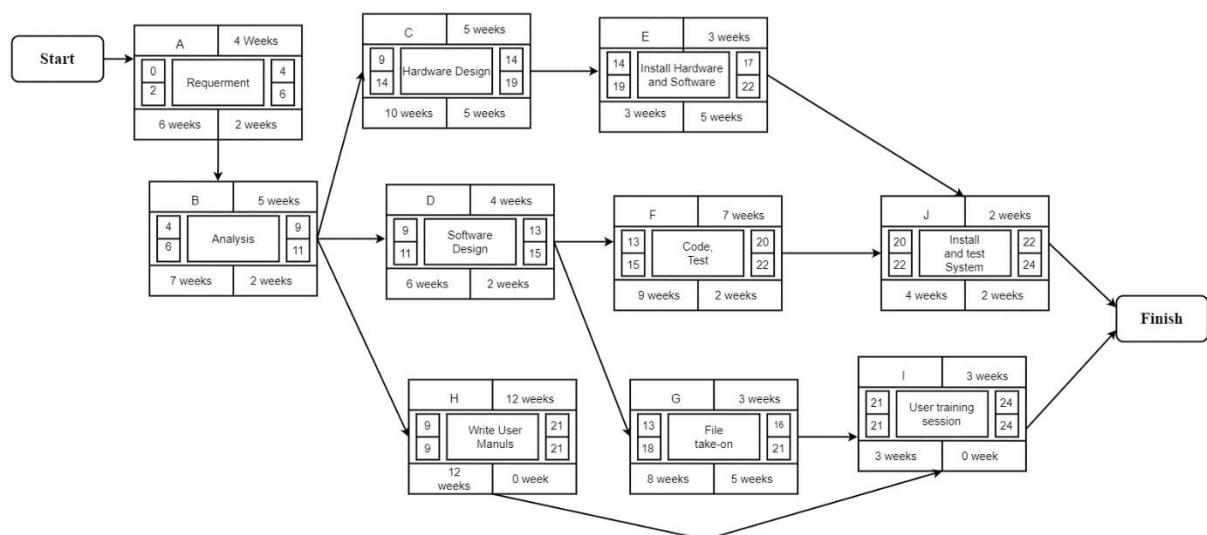| ACTIVITIES	WEEKS	PRECEDENTS
A-Requirement	4	
B-Analysis	5	A
C – Hardware design	5	B
D – Software design	4	B
E – Install Hardware	3	C
F – Code ,Test	7	D
G – File Take-On	3	D
H – Write User Manuals	12	B
I– User Training Session	3	G, H
J – Install and Test System	2	E, F

Activity Network Diagram:

Fig: Network Diagram

12.0 Risk Analysis:

Although this is a software project, there are still a lot of potential risks. The potential risk is:

1. A lack of workers

2. A lack of storage

3. A limited budget

4. Pandemic

5. Information about deadlines

6. Information about quality works

13.0 Budget for the project

We have mainly four people for this project.

Developers salary: 2*50000tk

Tester: 30000tk

Designer: 60000tk

Project Manager: 500000 tk

Total: 690000 tk.

For this project to complete we need 370000tk in total.

14.0 Conclusion:

The staff management system is at the heart of the project. The case for staff management is made simple by this project. Here, we divide a large number of users. Describe what they do and your role. We then made plans for the remaining work. We created network diagrams, budgets, feasibility studies, activity flowcharts, risk identification, and more. The software development project management outline thus covers all concepts. This staff management system was created using those ideas. This will make it simpler to carry on with the staff management process.