



Graduate Diploma in Software Engineering

Module Code ITS1066

Professional Software Project in IT

Construction System

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Proposal content here

1.0 Introduction to business

The project involves developing a comprehensive management application tailored for the construction industry. The application aims to streamline various operational aspects of construction projects, ensuring efficiency, effective management, and improved project outcomes. The system is designed to cater to different stakeholders including customers, employees, suppliers, and vendors, integrating key functionalities such as customer management, employee management, payment management, component management, and supplier management.

The main service is to deliver the required construction services and materials to meet the client's project needs efficiently and effectively.

1.2 Main business processes:

The main service is to deliver the required construction services and materials with customised project solutions to meet the specific needs and preferences of our clients.

1.3 Summary of business

1. Name : Construction System
2. Owner : Amal Fernando
3. Location : Colombo,
4. Number of workers : 65

2.0 Overview of the proposed solution

Market Analysis: Analysing current market trends and client preferences in the construction industry to identify popular project types, emerging construction technologies, and demand for specialised services.

Technology Assessment: Evaluating the latest technologies and solutions that can be integrated into our construction management system to enhance project efficiency, such as advanced project planning tools, real-time progress tracking, and digital collaboration platforms.

Platform Development: Developing a comprehensive and user-friendly management platform that provides clients, employees, and suppliers with an intuitive interface for project management, communication, and documentation.

Component and Inventory Management System: Creating an efficient component and inventory management system that tracks construction materials and components, ensures timely procurement and delivery, and manages supplier relationships to support smooth project execution.

2.1 Why request a solution ?

My aim is to significantly enhance the efficiency and effectiveness of the company's construction operations by implementing a comprehensive software solution. Currently, managing construction projects, tracking materials, coordinating with suppliers, and handling client communications is labour-intensive and prone to errors due to manual processes and outdated systems. This results in delays, miscommunication, and increased project costs, which negatively impacts client satisfaction and operational efficiency.

The proposed software will automate and streamline critical functions such as project management, material tracking, and supplier coordination. It will provide real-time updates on project progress, manage procurement and inventory of construction materials efficiently, and facilitate smooth communication between all stakeholders. This will enable more accurate and timely project execution, reduce manual errors, and improve overall operational efficiency.

By transitioning to this automated system, the company aims to optimise resource allocation and potentially reduce the need for redundant administrative roles. This reduction is feasible because the software will handle routine tasks and streamline operations, allowing the remaining team members to focus on higher-value activities such as project oversight and strategic planning. This shift will not only lower operational costs but also enhance the quality of service provided to clients, positioning the company for greater efficiency and future growth in a competitive construction market.

2.2 Identify issue:

- Inefficient Project Tracking
- Cumbersome Material Procurement
- Error-Prone Supplier Coordination
- Inadequate Financial Management
- Limited Client Communication Tracking
- Fragmented Project Documentation

2.3 Project target processes:

- Project Tracking:
 - Monitor Project Progress & Update Project Status
- Material Management
- Financial Management
- Calculate and Manage Budgets
- Document Management

2.4 Functional requirements:

- Customer Management
- Employee Management
- Payment Management
- Component Management
- Supplier Management

2.5 Non-Functional requirements:

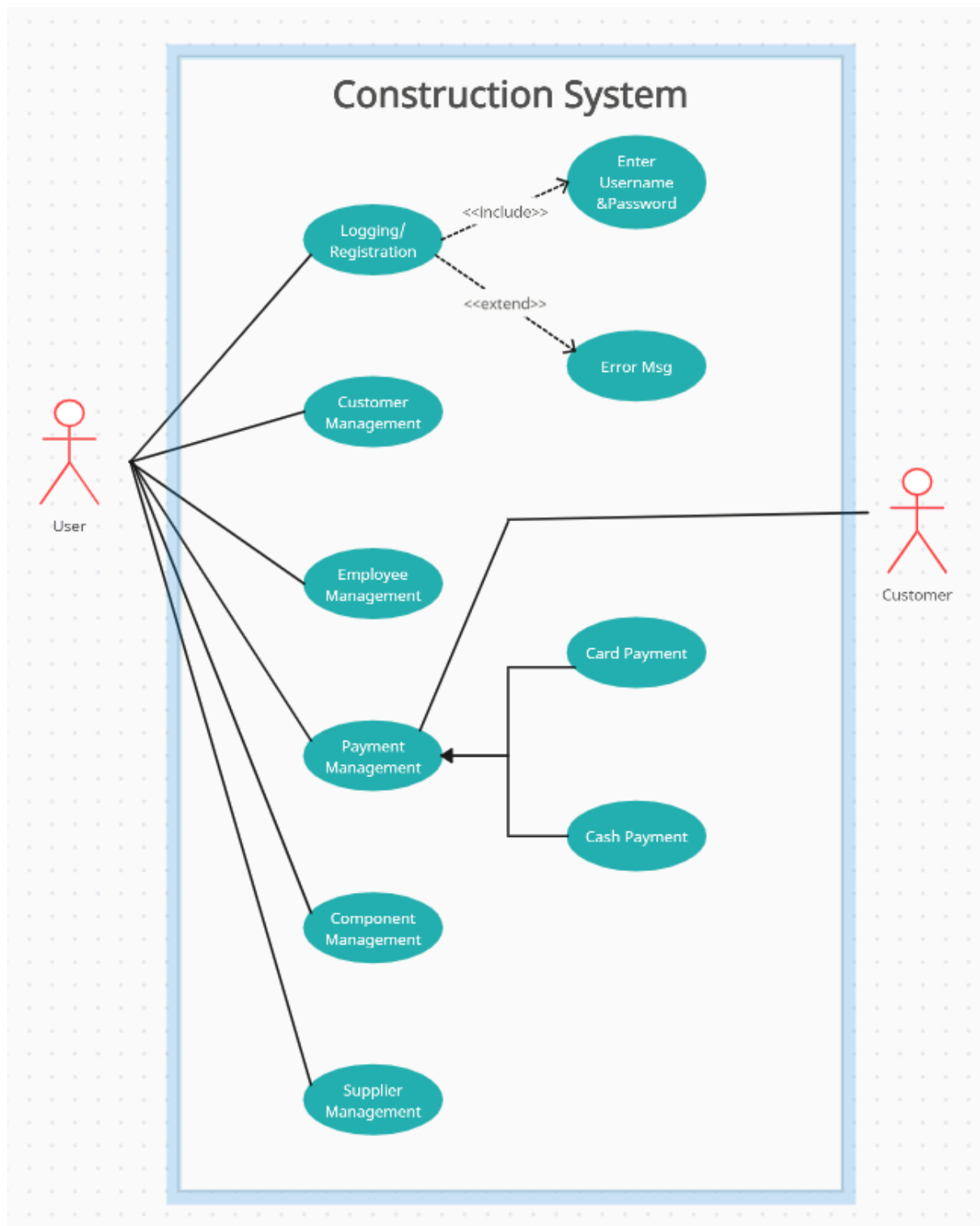
- Performance
- Reliability
- Usability
- Security
- Maintainability
- Compatibility

2.6 Hardware requirements:

- Bill Printer
- 500 GB Hard Disk
- Additional Hard Disks
- Up to Intel Core i3 processor
- Wi-Fi Router
- Desktop Computers or Laptops

3.0 Advantages of the solution :

- **Increased Efficiency:** Automates project tracking, material management, and supplier coordination, speeding up project execution and reducing manual errors.
- **Improved Project Management:** Enhances visibility into project progress, milestones, and deadlines, leading to better planning and timely completion of projects.
- **Enhanced Client Communication:** Streamlines communication with clients, providing real-time updates and managing feedback effectively, leading to improved client satisfaction.
- **Comprehensive Reporting:** Offers detailed and real-time insights into project status, financials, and resource allocation, supporting informed decision-making and strategic planning.
- **Scalability:** Easily adapts to handle growing project volumes and expanding business needs, ensuring continued effectiveness as the business evolves.
- **Cost Savings:** Optimizes resource management, reduces procurement delays, and minimises administrative overhead, resulting in lower operational costs.
- **Enhanced Security:** Provides robust security measures for data protection, including encrypted transactions and access controls, safeguarding sensitive project and financial information.



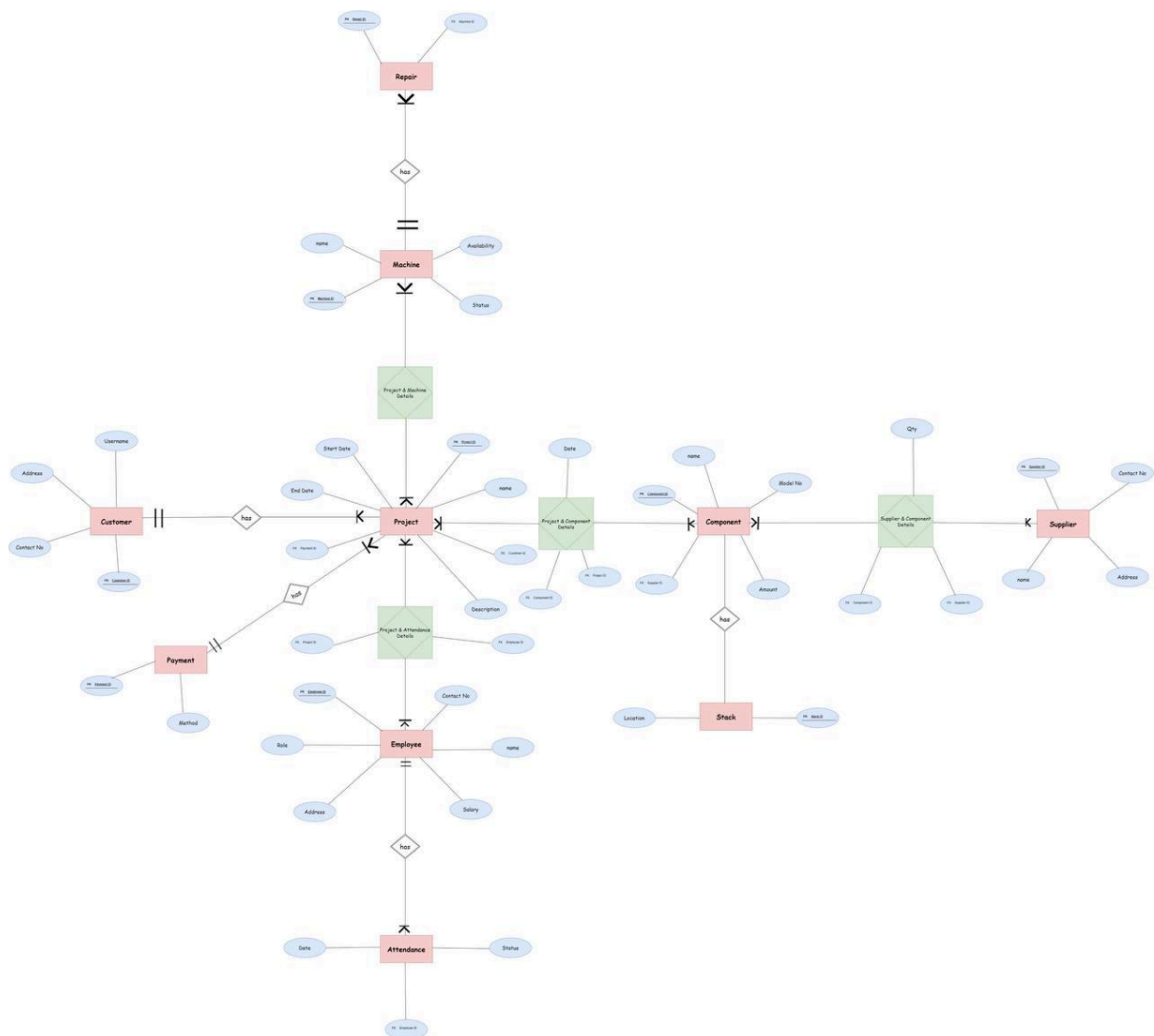


Figure 1.1 Employee Hierarchy

1. Project Manager

- Role: Oversees overall project execution, manages project teams, and ensures that projects meet deadlines and budgets.

- Responsibilities: Plans and coordinates all project activities, manages budgets and resources, communicates with clients, and resolves project issues.

2. Site Supervisor

- Role: Manages day-to-day operations on the construction site and ensures work is performed according to project plans.

- Responsibilities: Supervises construction activities, enforces safety regulations, coordinates with subcontractors, and ensures quality control.

3. Accountant

- Role: Manages financial records and ensures accurate accounting of project costs and payments.

- Responsibilities: Processes invoices, tracks project expenses, manages budgets, and prepares financial reports.

Hierarchy Overview

Project Manager

- Site Supervisor
- Construction Workers
- Subcontractors
- Suppliers
- Accountant

This hierarchy ensures a structured and efficient operation within your construction management system, with clear roles and responsibilities to enhance project execution and team collaboration.