

UNIBOOK EMPLOYEE MANAGEMENT SYSTEM

GROUP 8

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Index

Executive Summary	3
Introduction	3
System Planning Phase Report	3
1.0 Client and Industry Background	4
1.1 Opportunity	4
1.2 Project Objective	4
1.3 Project Scope	4
2.0 Project Methodology: Parallel Development	5
3.0 Project Plan	6
System Analysis Phase Report	
4.0 Requirements	6
4.1 Business Requirements	7
4.2 User Requirements	7
4.2.1 Employees	7
4.2.2 Supervisors	7
4.2.3 Manager	8
4.3 Functional Requirements	8
4.4 Non-Functional Requirements	8
5.0 Data Flow Diagrams	9
5.1 Context Diagram	9
5.2 Level 0 Diagram	10

Executive Summary

This document outlines the details of the proposed Employee Management System (EMS) called UniBook EMS. The system is intended to enhance the existing processes of employee shift scheduling, task tracking, employee discount verification, on-shift employee tracking, and inventory management for the University Book Center, a retail bookstore located on the campus of the University of Maryland in College Park, Maryland, USA. With the implementation of UniBook EMS, the University Book Center expects to see significant improvements in employee productivity, customer service, and overall store operations.

The team responsible for the development of UniBook EMS will use a parallel waterfall project methodology to ensure that the project is completed within the expected timeline of 74 days. This methodology involves dividing the project into multiple phases and working on some phases simultaneously. The parallel approach will enable the team to complete the project quickly and efficiently while ensuring that each phase is fully developed and meets all project requirements.

The UniBook EMS will be developed with the aim of improving the employee management processes of the University Book Center. The system will automate many of the manual processes currently in use and provide an easy-to-use interface for employees and managers. UniBook EMS will also provide real-time data analysis and reporting, allowing management to make informed decisions based on accurate and up-to-date inventory information. With the implementation of UniBook EMS, the University Book Center will be better equipped to manage employee schedules, track tasks, and monitor inventory levels, authenticate employee discounts and track on-shift employee attendance.

Introduction

The creation of UniBook EMS, an employee management system, is the main objective of this project. Its purpose is to provide managers, supervisors, and employees of the University Book Center with a comprehensive tool for scheduling, task tracking, inventory management, employee discounts verification, and on-shift employee tracking. The system will streamline the current processes and enhance the efficiency of the bookstore's operations.

System Planning Phase Report

1.0 Client and Industry Background

The University Book Center is a retail bookstore located on the campus of the University of Maryland in College Park, Maryland, USA. The bookstore offers a wide selection of textbooks, course materials, and other academic supplies, as well as a variety of general interest books, apparel, and gifts. It serves the students, faculty, and staff of the University of Maryland who are interested in purchasing academic materials or supporting the university through the purchase of

branded merchandise. The bookstore is operated by Follett Higher Education Group, which is a leading provider of educational products and services to institutions of higher learning throughout the United States and Canada.

The University Book Center employs a mix of full-time and part-time workers to fulfill its operational needs. Full-time employees typically hold managerial or supervisor positions. Part-time employees, typically college students who work on flexible schedules, are responsible for customer service and sales, and inventory management.

1.1 Opportunity

One of the main objectives of any bookstore is to provide high-quality products and services at competitive prices and maximize profits. The University Book Center, as the sole bookstore on campus, has a unique opportunity to serve the needs of students, faculty, and staff of the University of Maryland.

However, there are various areas where the bookstore can improve its current processes to ensure customer satisfaction, streamline employee scheduling, and enhance inventory management. Furthermore, implementing an employee discount verification system would be beneficial to minimize the risk of loss due to fraudulent transactions.

With this in mind, it was decided that a centralized management system for all University BookStore employees should be pursued.

1.2 Project Objective

The main objective is to develop a mobile app and a computer-based application for the university bookstore that streamlines employee scheduling, task tracking, employee discounts verification, on-shift employee tracking and inventory management.

1.3 Project Scope

This application will provide a user-friendly interface for bookstore employees to easily view and manage their work schedule as well as allow managers/supervisors to efficiently assign shifts and track employee's task progress. Additionally, the app will integrate with the bookstore's Billing System to provide employee discounts on selected items and reduce fraudulent transactions. Overall, this project objectively aims to increase operational efficiency and customer satisfaction at the university bookstore through the development of a customized mobile app for both iOS and Android platforms as well as a Windows/ Mac application for ease of access for the Manager/Supervisors.

2.0 Project Methodology: Parallel Development

Based on the project requirements and the Work Breakdown Structure (WBS), parallel waterfall methodology would be the most suitable approach for this project.

The WBS is a visual representation of the project's tasks, deliverables, and dependencies. It highlights how the tasks are interrelated and the order in which they must be completed. By examining the WBS, it becomes evident that certain tasks must be completed before others can commence. For example, before development can begin, the requirements gathering phase must be completed. Similarly, before testing can be performed, the development phase must have been finished.

In this project, the parallel waterfall methodology is the most appropriate choice because it enables the team to work on multiple tasks concurrently without sacrificing quality. For example, after gathering requirements, the application development - front-end and back-end will happen concurrently. This approach ensures that there is a continuous flow of work and reduces the risk of delays caused by completing each task one after the other.

Additionally, the parallel waterfall methodology is a suitable choice because of the project's rigid requirements and scope. The client has specified precise requirements that must be met, and there is little room for error or deviation. The parallel waterfall methodology's structured approach ensures that the project's goals are met within the required timeline and budget.

In conclusion, based on the WBS analysis and the project's requirements, the parallel waterfall methodology is the best approach. Its ability to work on multiple tasks simultaneously without sacrificing quality and its structured approach are well-suited to the project's rigid requirements and scope.

Ability to develop systems with...	Waterfall	Agile	Parallel Development
Clear User Requirements	Poor	Good	Excellent
Customer Feedback	Poor	Good	Excellent
Collaborative Approach	Poor	Good	Excellent
A Short Time Constraint	Poor	Poor	Excellent

3.0 Project Plan

WBS	Name	Duration	Start	Finish
1	UniBook Employee Management System	74 days	4/5/23 8:00 AM	7/17/23 5:00 PM
1.1	Planning	14 days	4/5/23 8:00 AM	4/24/23 5:00 PM
1.1.1	Plan Project Initiation Meeting	2 days	4/5/23 8:00 AM	4/6/23 5:00 PM
1.1.2	Communication Plans	2 days	4/7/23 8:00 AM	4/10/23 5:00 PM
1.1.3	Establish Project Steering Committee	2 days	4/11/23 8:00 AM	4/12/23 5:00 PM
1.1.4	Identify Primary Stakeholders	3 days	4/13/23 8:00 AM	4/17/23 5:00 PM
1.1.5	Get Charter Approved	5 days	4/18/23 8:00 AM	4/24/23 5:00 PM
1.2	Analysis	12 days	4/18/23 8:00 AM	5/3/23 5:00 PM
1.2.1	Establish Requirements	2 days	4/18/23 8:00 AM	4/19/23 5:00 PM
1.2.1.1	Employee Requirements	2 days	4/18/23 8:00 AM	4/19/23 5:00 PM
1.2.1.2	Manager Requirements	2 days	4/18/23 8:00 AM	4/19/23 5:00 PM
1.2.1.3	Supervisor Requirements	2 days	4/18/23 8:00 AM	4/19/23 5:00 PM
1.2.2	Integrations Analysis	2 days	4/20/23 8:00 AM	4/21/23 5:00 PM
1.2.3	Develop Use Cases	4 days	4/24/23 8:00 AM	4/27/23 5:00 PM
1.2.4	Review Use Cases	2 days	4/28/23 8:00 AM	5/1/23 5:00 PM
1.2.5	Approve Use Cases	2 days	5/2/23 8:00 AM	5/3/23 5:00 PM
1.3	Design	20 days	5/4/23 8:00 AM	5/31/23 5:00 PM
1.3.1	Develop Database Design	5 days	5/4/23 8:00 AM	5/10/23 5:00 PM
1.3.2	Application Design	10 days	5/11/23 8:00 AM	5/24/23 5:00 PM
1.3.2.1	Develop Front-end Design	10 days	5/11/23 8:00 AM	5/24/23 5:00 PM
1.3.2.2	Develop Back-end Design	10 days	5/11/23 8:00 AM	5/24/23 5:00 PM
1.3.3	Testing	5 days	5/25/23 8:00 AM	5/31/23 5:00 PM
1.4	Implementation	33 days	6/1/23 8:00 AM	7/17/23 5:00 PM
1.4.1	Training	5 days	6/1/23 8:00 AM	6/7/23 5:00 PM
1.4.1.1	User Training	5 days	6/1/23 8:00 AM	6/7/23 5:00 PM
1.4.2	Deployment	3 days	6/8/23 8:00 AM	6/12/23 5:00 PM
1.4.3	Maintenance	5 days	6/13/23 8:00 AM	6/19/23 5:00 PM
1.4.4	Operations	5 days	6/20/23 8:00 AM	6/26/23 5:00 PM
1.4.5	Track Performance	5 days	6/27/23 8:00 AM	7/3/23 5:00 PM
1.4.6	Feedback Analysis	10 days	7/4/23 8:00 AM	7/17/23 5:00 PM

System Analysis Phase Report

4.0 Requirements

The processes that we will be improving/integrating in our system are the following:

1. Manage Shift Scheduling
2. Manage Task Assignment
3. Employee Discount Verification
4. On-Shift Employee Tracking
5. Inventory Management System

The Requirements for the above processes are mentioned below:

4.1 Business Requirements:

- System should allow the manager to assign shifts according to the employee schedule.
- System should allow the employee to view all the available shifts.
- System should allow the employee to enter the preferences of their shifts.
- System should be able to store information regarding employee work authorization.
- System should allow the manager to put up task details.
- System should generate reports of employee attendance.
- System should ensure that employee discounts are easy to apply and prevent misuse.
- System should allow employees to exchange shifts with other employees.
- System should alert the manager/supervisor if a product count is low.

4.2 User Requirements:

4.2.1 Employees:

- User should be able to view the tasks assigned to them.
- User should be able to view the shifts assigned to them after approval.
- User should be able to choose the time slots when they want to work.
- User should be able to send/ receive messages from other employees/ supervisors/ manager.
- User should be able to update the status of the task assigned to them.
- User should be able to view the task assignment details.
- User should be able to avail employee discounts.
- User should be able to request a discount, and authenticate the transaction.
- User should receive an alert if they are outside the store for more than 15 minutes during their shift.
- User should be able to view their break timings.

4.2.2 Supervisors:

- User should be alerted when employees drop/exchange shifts.
- User should have the ability to mark a task as completed.
- User should be able to assign a particular task to an employee.
- User should get an alert when the stock of an item on the floor is below threshold.
- User should be able to assign break timings.
- User should be able to assign tasks and shifts.
- User should be able to view the task completion updates and the task list.
- User should receive an alert if the employee assigned to them are outside the store for more than 15 minutes during their shift.

4.2.3 Manager:


- User should be able to assign a particular task to a supervisor.
- User should be able to approve the timeslot chosen by a particular employee.
- User should be able to see the attendance records of the employee.
- User should be able to approve the exchange of shifts initiated by employees.
- User should be able to send/receive messages from employees/supervisors.
- User should be able to customize the low stock alert threshold for each product.
- User should get an alert when the stock of an item on the floor is below threshold.
- User should be able to assign tasks and shifts.
- User should be able to view the task completion updates and the task list.
- User should receive an alert if an employee is outside the store for more than 15 minutes during their shift.

4.3 Functional Requirements:


4.3.1 Process Requirements

- The system should be able to integrate employee work schedules and availability.
- The system should be able to send work schedules to employees and track their progress.
- The inventory management system should alert the supervisor and manager if the stock quantity of any particular product goes below the threshold on the floor.
- The system should be able to track employee hours.
- The system should restrict the number of hours scheduled by each employee based on their work authorization.
- The system should send an alert to the manager 15 mins after an employee's shift has started and they are not present/signed in.

4.3.2 Information Requirements:

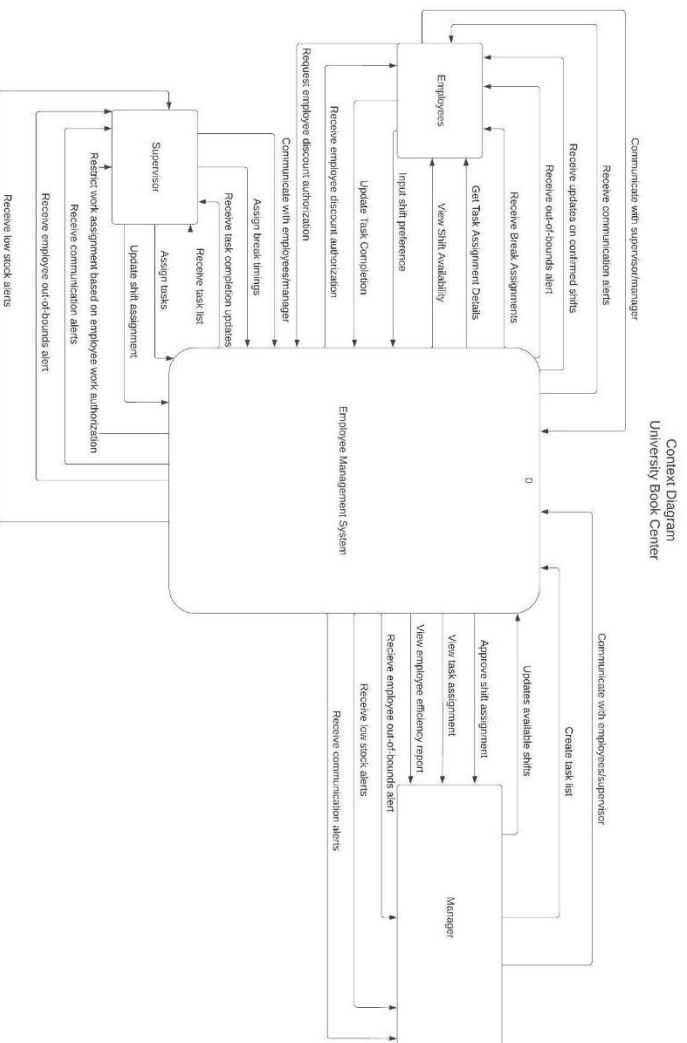
- The system should be able to store employee data.
- The system should be able to store employee work hours and location.
- The system should be able to store employee details and verify discounts.
- The system should be able to provide real-time inventory data. 
- The system should be able to store package data and track its location.

4.4 Non-Functional Requirements:

- Security & Privacy: Different levels of access based on specific permissions and roles.
- Personal information is protected in compliance with existing laws and regulations.
- The system should be fast and responsive to user requests.
- The system should be compatible with existing hardware and software at the University Book Center.
- The system should be able to handle a growing number of users and transactions. 
- The system should store the employee location only when they are on their shifts.

5.0 Data Flow Diagrams

5.1 Context Diagram



External Entities:

Employees(Staff): Represents a current part-time (student) employee working at the University Book Center.

Supervisors: Represents higher-level employees who manage different sections and staff.

Manager: Represents our beloved manager Doug Bunk who is the heart and soul of the University Book Center.

