Table of Contents

Project Charter

Project Purpose or Justification

The motivation behind creating the "**Campus Canteen**" app is rooted in the desire to improve the overall campus dining experience for students. Most of the students in Mokarram Bhaban area of Dhaka University face problems finding good food nearby as there is only one canteen throughout this area. This case is similar in all the campuses. Recognizing the prevalent issues with unhygienic canteens and limited food choices, we sought to revolutionize the food culture on these campuses. By empowering individual students to share their culinary talents and enabling established food providers to reach a broader audience, the app seeks to promote a vibrant and inclusive campus food ecosystem.

Measurable Project Objectives and Related Success Criteria

Objectives:
1. Develop a User-Friendly Web Application
2. Ensure Timely Food Delivery
3. Increase User Engagement
4. Achieve Financial Viability
5. Ensure Data Security and Compliance
6. High Customer Satisfaction
7. Efficient Admin Management

Objective 1: Develop a User-Friendly Web Application

Success Criteria:

- **User Testing:** Conduct usability testing, and achieve a minimum average user satisfaction rating of 4 out of 5.
- **Low Error Rate:** Ensure that the application has an error rate of less than 1% during testing and actual usage.
- **Responsiveness:** Achieve a page load time of under 3 seconds for the majority of users.

Objective 2: Ensure Timely Food Delivery

Success Criteria:

- **Delivery Time:** Set a maximum expected delivery time (e.g., 30 minutes) and achieve an on-time delivery rate of at least 95%.
- **Real-time Tracking:** Provide real-time tracking of orders, with updates every 5 minutes during delivery.
- **Order Accuracy:** Maintain an order accuracy rate of 98% or higher, minimizing incorrect orders.

Objective 3: Increase User Engagement

Success Criteria:

- **User Activity:** Increase daily active users (DAU) by 20% within the first three months of launch.
- **Social Sharing:** Encourage users to share their orders on social media, resulting in a 15% increase in referrals from social platforms.

Objective 4: Achieve Financial Viability

Success Criteria:

- **Revenue Growth:** Achieve a monthly revenue growth rate of at least 10% during the first year of operation.
- **Profit Margin:** Maintain a profit margin of 15% or higher.

Objective 5: Ensure Data Security and Compliance

Success Criteria:

- **Data Breach Incidents:** Record zero data breach incidents during the first year of operation.
- **Compliance Audits:** Pass external compliance audits (e.g., GDPR, HIPAA, or local regulations) with no major violations.

Objective 6: High Customer Satisfaction

Success Criteria:

- **Customer Surveys:** Conduct regular customer satisfaction surveys and achieve a minimum average satisfaction rating of 4.5 out of 5.

- **Customer Support:** Maintain a response time of under 24 hours for customer inquiries and support requests.

Objective 7: Efficient Admin Management

Success Criteria:

- **Admin Dashboard:** Provide administrators with an efficient dashboard, resulting in a 20% reduction in order processing time.
- **Reporting and Analytics:** Generate monthly reports that help administrators make data-driven decisions and improve efficiency.

These success criteria will help to measure the achievement of each objective and ensure that the "Campus Canteen" app project is on track for success.

High-level requirements

- ☐ Authentication
- ☐ User Dashboard
- ☐ Ordering System
- ☐ Restaurant Listings and Menus
- ☐ Order Tracking
- ☐ Rating and Reviews
- ☐ Advertisement Section for Post Promotion

Assumptions and constraints

Assumptions
- Availability of Vendors
- Customer Adoption
- Technology Infrastructure
- Legal and Regulatory Compliance

Constraints
- Budget Constraints
- Low adoption rate of new products in the market
- User Connectivity

High-level Project Description and Boundaries

A high-level project description and boundaries provide a clear overview of what the Campus Canteen is. This description helps stakeholders understand the project's scope and objectives. Here's a high-level project description along with its boundaries:

1) High-Level Project Description:

The Campus Canteen Application project aims to create a user-friendly Web application that facilitates food delivery services tailored specifically for students. The application will connect students with local restaurants, hall dinings, allowing them to browse menus, place orders, and track their deliveries conveniently from their computers.

2) Project Boundaries:

1. Platform Focus: The project is focused exclusively on the development of a Web application. It does not include the creation of mobile apps

2. Vendor Inventory Management: While the application will display restaurant menus, it does not encompass the management of vendors' inventory or supply chain logistics. Vendors will be responsible for managing their menu items and inventory.

3. Geographic Limitations: The initial launch of the application will be limited to a specific campus, with a defined radius for restaurant availability and delivery. Expansion to other campuses will be considered separately.

4. Marketing and Promotion: Marketing and promotional activities will be within the project's scope to attract users. Vendors will also promote their items.

5. Physical Goods Delivery: The application will exclusively facilitate the delivery of prepared food items from restaurants to customers. It will not include the delivery of physical goods or products.

High-level Risks

- **Technical Challenges:** The development of a user-friendly Web application may encounter technical complexities, such as cross-platform compatibility issues or integration problems with restaurant systems.

- **Competitive Landscape:** Existing food delivery platforms in the area could pose a challenge in gaining a foothold in the market, especially if they offer a wider range of restaurants and user incentives.

- **Vendor Reliability:** Dependence on local restaurants and individual cooks may expose the project to risks related to food quality, delivery reliability, or sudden closures of food providers.

- **Payment Processing:** Relying on third-party payment processors exposes the project to potential issues like transaction disputes, payment delays, or processing fees.

- **User Engagement:** Encouraging students to embrace the app and change their dining habits from traditional canteens may prove challenging, affecting user adoption rates.

- **Order Accuracy:** Ensuring orders are delivered accurately, especially with diverse menus and customization options, presents a risk of order errors that can lead to customer dissatisfaction.

- **Resource Constraints:** Recruiting and retaining skilled personnel for project management, development, and customer support roles could be challenging, affecting project efficiency.

- **External Factors:** Unexpected events like natural disasters or pandemics can disrupt supply chains, restaurant operations, and customer behavior, impacting the project.

Summary Milestone Schedule

Sprint 1: User Authentication & Dashboard for users

Timeline : 17 August - 31 August

- Register user to the app
- User login and logout
- Create admin dashboard
- User account verification by admin

Sprint 2: Dashboard for users

Timeline : 31 August - 14 September

- Create Database for Vendor and menu
- Create CRUD operation on menu for vendor
- Create Vendor Dashboard UI
- Create customer Dashboard UI
- Test vendor's CRUD operation on menu
- Test Customers' accessibility to menu items

Sprint 3-4: Promotion timeline, Ordering food for users

Timeline : 14 September - 12 October

- Create order placement function for customers.
- Create vendor operation on incoming orders.
- Create a vendor UI for incoming orders.
- Create CRUD operation for vendors' organization advertisement .
- Create admin functionalities for order activities, vendor ad campaigns, sales reports and user engagement.
- Create admin functionalities to categorize and sort the normal and paid (premium) advertisements.

Sprint 5-6: Ordering food, Order status, Order delivery, payment for users

Timeline : 12 October - 9 November

- Create users' function for scheduled order at a specific time.
- Create users' function to subscribe to a catering package for a fixed time period.
- Create users' functions to modify the order status accordingly.
- Create vendors' function to manipulate the scheduled delivery management (timing, amount, cost).
- Create users' function and UI to make payment on cash-on-delivery and online payment after placing an order.
- Create a payment confirmation module.
- Create a module to connect SSLCOMMERZ for online payment activities.
- Create a module to provide users' credit/debit card info for transactions in a secure way.
- Create a module for notifications for all ordering and payment activities.

Sprint 7: Promotion timeline, Customer reward, review vendors.

Timeline : 9 November - 23 November

- Create a delivery person's dashboard.
- Create a module for real time order status for users.
- Create UI for users to interact with the advertisement posts in the timeline.
- Create a module for users for providing feedback and review for any anomalies regarding ordering and deliveries.
- Create a module for customers for calculating reward points and discounts for purchases.
- Create a module for the admin to connect with the vendors regarding any complaints about their services.
- Create an UI and functions for admin to view and respond to customer queries.

This schedule divides the project into 7 sprints, each spanning a 2-week period, to align with the Scrum process.

Summary Budget

The budget for the "Campus Canteen" application project is estimated at [total budget amount]. This budget includes various components to ensure the successful development, launch, and operation of the application. Below is a high-level breakdown of the budget:

Resource	Average Cost per Month (Qty/Package)	Duration (Months)	Total Cost (BDT)
Personnel Cost			
Product Owner	1 x 80,000	4	3,20,000
Scrum Master	1 x 60,000	4	2,40,000
Team Member	6 x 40,000	4	9,60,000
Business Analyst	1 x 50,000	4	2,00,000
Software Tools and Licenses			
VS Code	0	4	0
Jira	15,200	4	60,800
Confluence	11,000	4	44,000
Infrastructure and hosting			
Server	2,000	12	24,000
Domain	-	12	1,500
Development Resources			
Payment Gateway	15,000	4	60,000
Google Maps API	1,000	4	4,000
External services: Legal and Compliance			
Legal Consultant	20,000	4	80,000
Trade License	2,000	4	8,000
Operational Cost			
Food	5,000	4	20,000
Miscellaneous	3,000	4	12,000
Total Estimated Budget			20,34,300

Grand Total Monthly Cost:

Total Monthly Cost for all resources is estimated to be **20,34,300 BDT.**

It is essential to note that this budget is an estimate, and adjustments may be made as the project progresses and more precise cost data becomes available. Close monitoring of expenditures and adherence to the budget is a critical aspect of project management to ensure financial viability and success.

Stakeholder List

- Students
- Food Sellers
- Delivery Team
- Founders and Investors

Project Approval Requirements

Project approval requirements define what constitutes project success, who has the authority to make that determination, and who needs to sign off on the project. These requirements ensure alignment among stakeholders and a clear understanding of project objectives. In the case of Campus Canteen project, here are the project approval requirements:

1. Project Success Criteria:

Completion of Key Deliverables: All project deliverables, including the web application, and documentation, must be completed as outlined in the project charter and detailed project plan.

- **User Adoption and Satisfaction**: The application should achieve a minimum number of monthly active users (students) as specified in the project objectives. Additionally, user satisfaction, as measured by user reviews and surveys, should meet or exceed the target score.

- **Financial Viability:** The project should generate a positive net profit within the specified timeframe and achieve the defined return on investment (ROI) goals.

- **Technical Performance**: The application should operate without major technical issues, such as frequent crashes or security breaches.

2. Project Approval Authority:

In the absence of sponsors and vendors, the project approval authority may rest with the core project team and key stakeholders:

Scrum Master: The Scrum Master is responsible for overseeing the project and ensuring that it meets its objectives. They will play a pivotal role in determining whether the project has been successfully completed.

Product Owner: The product owner, representing the interests of end-users, will have a significant say in project approval. Their role is critical in assessing whether the software meets user needs and priorities.

Business Analyst: The business analyst, who is responsible for gathering and documenting project requirements and analyzing business needs, can provide valuable insights into whether the project meets its intended business objectives.

3. Project Sign-Off:

Project Manager: The project manager, responsible for overseeing and executing the project, will compile all relevant project documentation, including the project charter, detailed project plan, and performance reports.

Stakeholder Input: The product owner may seek input from key stakeholders, including representatives from student user groups, restaurant partners, and delivery personnel.

Project Approval: After a comprehensive review of the project's performance and considering stakeholder input, the product owner will make the final determination regarding project approval or disapproval.

Assigned Project Manager, Responsibility and Authority Level

Project Manager - Mushfiqur Rahman

Responsibilities:

- **Project Planning**

- **Stakeholder Management**

- **Resource Allocation**

- **Team Leadership**

- **Project Execution**

- **Budget Management**

- **Documentation**

- **Risk Management**

- **Project Closure**

Authority Level:

The project manager's authority level should be clearly defined in the project charter and communicated to all team members and stakeholders. The authority level typically includes the ability to make decisions related to project execution, resource allocation, task assignment, and risk management within the boundaries set by the product owner and organizational hierarchy.

The project manager may also have the authority to approve minor changes or deviations from the project plan but should escalate significant issues or changes to the product owner or relevant decision-makers for approval.

Effective project management relies on a balance of responsibility and authority, enabling the project manager to lead the team and execute the project while maintaining alignment with organizational goals and owner expectations.

Project Management Plan

Project Management Plan—The process of defining, preparing, and coordinating all subsidiary plans and integrating them into a comprehensive project management plan. The project's integrated baselines and subsidiary plans may be included within the project management plan. The key benefit of this process is a central document that defines the basis of all project work. This process results in a project management plan that is progressively elaborated by updates, and controlled and approved through the Perform Integrated Change Control process.

Inputs:

1. Project Charter

2. Outputs from the processes

   - Communications management plan

   - Cost management plan

   - Human resource plan

   - Procurement management plan

   - Process improvement plan

   - Quality management plan

   - Requirements management plan

   - Risk management plan

   - Schedule management plan

   - Scope management plan

   - Stakeholder management plan

   - Cost Baseline

   - Schedule baseline

   - Scope baseline

   - Project management plan updates

Project Scope of "Campus Canteen"

The detailed project scope for the "Campus Canteen" app encompasses all the features, functionalities, and deliverables required to meet the project's objectives. It includes the following components:

1.1 User Authentication

User registration with name, ID, phone number, email, and password. Account verification via OTP and password recovery mechanism. Separate accounts and login system for customers, vendors, cooks, and delivery personnel.

1.2 User Dashboards

1.2.1 Customer Dashboard

Vendor exploration in card-style layout. Search and filter options. A customer can visit all the restaurants and their menu items along with their promotional features and ordering activities.

1.2.2 Admin Dashboard

The admin dashboard will have access control for administrators, Customer ID verification and user account management. The admin can also handle queries, feedback, and monitor vendors and customers from the dashboard.

1.2.3 Vendor Dashboard

The vendor dashboard will include management of menus and prices, order handling and status updates, order history and analytics.

1.2.4 Delivery Personnel Dashboard

The dashboard of the delivery personnel includes management of delivery orders, delivery address and route navigation, order billing details and status updates for deliveries.
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1.3 Ordering System

1.3.1 Catering System (Subscription-based)

Purchase meal packages with flexible payment options, cancellation with points-based refund system, scheduled delivery from caterers and reward points for completed meal packages.

1.3.2 Single Meal Order

Single meal order includes selection of individual items, multiple payment methods (Cash, SSLCOMMERZ), order review and placement.

1.4 Delivery

- Normal and scheduled delivery options.
- Payment handling for different scenarios (cash-on-delivery, online payment).
- Transaction history storage.

1.5 Payment (Cash/SSLCOMMERZ)

The payment module has features such as clear payment options at checkout, secure payment gateway (SSLCOMMERZ), payment confirmation and error handling, storage of payment information with data protection.

1.6 Order Status Tracking

This module indicates the real-time tracking with status updates, timestamps for status changes and notifications for delays or changes during order.

1.7 Advertisement Section for Post Promotion

There will be a timeline wall where the vendors can put posts about vendor-driven ad campaigns, promotion of popular food items/packages and display of ongoing sales. Ad creation, editing, and deletion can also be done. There are Normal and paid premium advertisement options.

1.8 Review System for Vendor

Rating system (1 to 5 stars) for overall experience, specific aspect ratings (e.g., food taste, timeliness), descriptive reviews by customers and admin intervention for low-rated vendors.
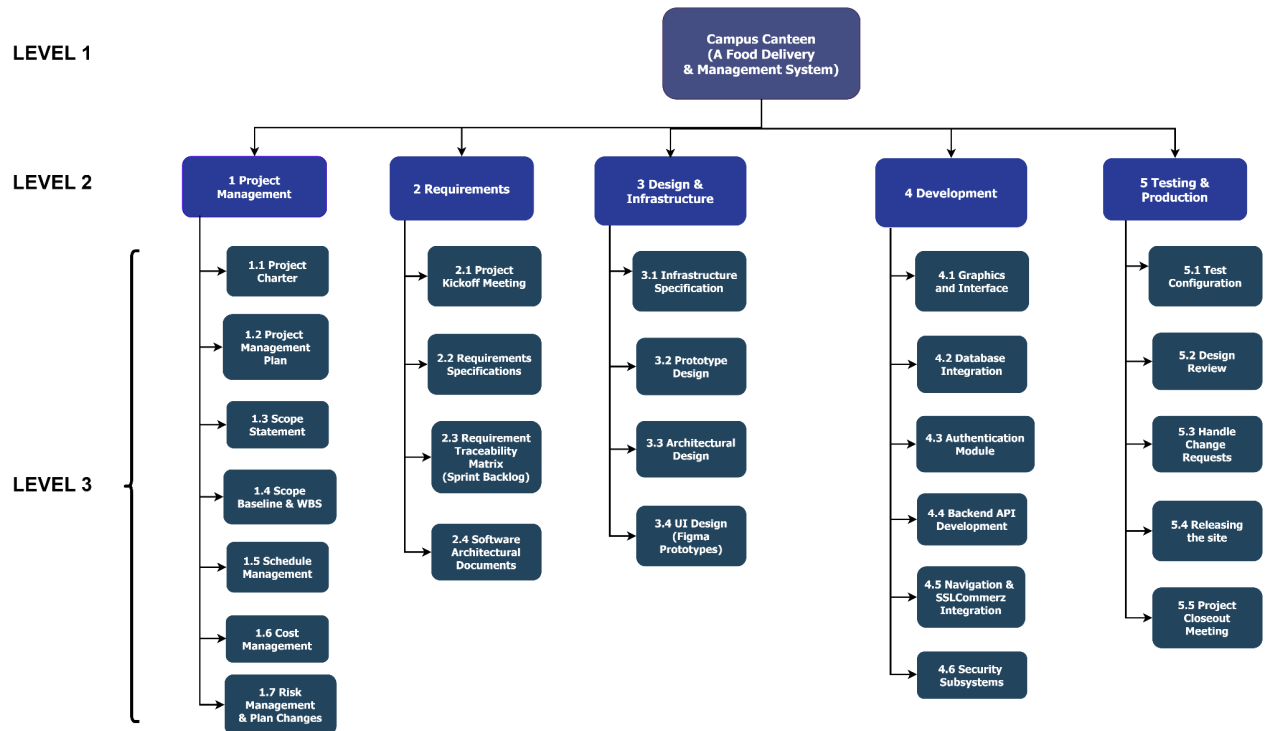
1.9 Reward System for Customers

There are reward points for account creation and orders, points earned based on order amount and frequency and deductions for order cancellations.

1.10 Customer Support/Feedback

The customers can give feedback and there will be a support section for customers. The customers can report irregularities in delivery.

Scope Baseline

Work Breakdown Structure

LEVEL 1

Campus Canteen
(A Food Delivery
& Management System)

LEVEL 2

1 Project Management	2 Requirements	3 Design & Infrastructure	4 Development	5 Testing & Production

LEVEL 3

1 Project Management
- 1.1 Project Charter
- 1.2 Project Management Plan
- 1.3 Scope Statement
- 1.4 Scope Baseline & WBS
- 1.5 Schedule Management
- 1.6 Cost Management
- 1.7 Risk Management & Plan Changes

2 Requirements
- 2.1 Project Kickoff Meeting
- 2.2 Requirements Specifications
- 2.3 Requirement Traceability Matrix (Sprint Backlog)
- 2.4 Software Architectural Documents

3 Design & Infrastructure
- 3.1 Infrastructure Specification
- 3.2 Prototype Design
- 3.3 Architectural Design
- 3.4 UI Design (Figma Prototypes)

4 Development
- 4.1 Graphics and Interface
- 4.2 Database Integration
- 4.3 Authentication Module
- 4.4 Backend API Development
- 4.5 Navigation & SSLCommerz Integration
- 4.6 Security Subsystems

5 Testing & Production
- 5.1 Test Configuration
- 5.2 Design Review
- 5.3 Handle Change Requests
- 5.4 Releasing the site
- 5.5 Project Closeout Meeting

WBS Dictionary

https://docs.google.com/spreadsheets/d/1bN_7ihEmhmH9HpOWNHjAThbvMM-Zzsk33kIC1YnRAIk/edit?usp=sharing

Scope Management Plan

How the WBS will be Maintained and Approved

The WBS will be maintained and approved through a collaborative process involving project stakeholders and the project manager. Any changes or updates to the WBS will follow a formal change control process. The steps for WBS maintenance and approval are as follows:

Initial WBS Development

The project manager, in consultation with relevant stakeholders, will develop the initial WBS.

Stakeholder Review

The initial WBS will be reviewed by key stakeholders, including project sponsors, team leads, and subject matter experts.

Approval

Once stakeholders provide feedback and approve the WBS, it will be considered the baseline for the project scope.

WBS Updates

Any proposed changes to the WBS must be documented and submitted for review.

Change Control

Changes to the WBS will be subject to formal change control procedures, including impact assessment, stakeholder review, and approval by the change control board.

Formal Acceptance of Completed Project Deliverables

Obtaining formal acceptance of completed project deliverables is a crucial step in the project management process. It ensures that the project's objectives and requirements have been met to the satisfaction of the stakeholders. In the case of the "Campus Canteen" application project, formal acceptance will be obtained through the following process:

User Acceptance Testing (UAT)

- User acceptance testing is a critical phase where the end-users, in this case, students and food sellers, will actively test the application to verify its functionality, usability, and alignment with their needs and expectations.
- Test cases and scenarios will be developed based on the project requirements and objectives. These test cases will cover various aspects of the application, including authentication, ordering, payment, delivery tracking, and user engagement features.
- End-users will be invited to participate in UAT, and they will perform tests according to the predefined test cases.
- Test results will be documented, and any issues or discrepancies will be recorded in a formal issues log or defect tracking system.

Stakeholder Review and Approval

- Once UAT is complete, the project manager, along with the product owner, will conduct a formal review of the test results and any reported issues.

- The project manager will prepare a summary report that includes details of the testing process, test results, identified issues, and any necessary corrective actions.

- A meeting or presentation will be scheduled with key stakeholders, including representatives from the student user group, food sellers, and delivery team.

- During the meeting, the project manager will present the UAT results and the summary report. Stakeholders will have the opportunity to review the findings and ask questions.

- Based on stakeholder feedback and the project manager's recommendation, a decision will be made regarding whether the project deliverables meet the acceptance criteria defined in the project charter and detailed project scope statement.

- If the stakeholders are satisfied with the results and believe that the project objectives have been met, they will provide formal approval and sign-off on the project deliverables.

- In the event that issues or discrepancies are identified, a plan for addressing these issues will be developed and documented.

Formal Sign-Off

- Formal sign-off on the project deliverables will be obtained through signed acceptance documents. Key stakeholders, including the product owner and representatives from user groups, will sign these documents to indicate their approval and acceptance of the project outcomes.

- The signed acceptance documents will serve as an official record of project completion and stakeholder satisfaction.

Transition to Operations

- Once formal acceptance is obtained, the project manager will oversee the transition of the application to operations, including deployment, maintenance, and ongoing support.

- The project manager will ensure that all necessary documentation, training materials, and operational procedures are handed over to the appropriate teams responsible for the application's ongoing management.

- The project manager will also coordinate any post-launch activities, such as monitoring user feedback and addressing any outstanding issues or enhancement requests.

Change Management Process

Requests for changes to the detailed project scope statement will be processed through a structured change management process to ensure that any modifications or additions to the project scope are carefully evaluated, documented, and approved. The change management process for the "Campus Canteen" application project includes the following steps:

Change Request Identification

Any team member or stakeholder who identifies a need for a change to the project scope should complete a formal change request form. This form will include details of the proposed change, including the rationale, impact on project objectives, and any associated risks or costs.

Change Request Submission

The completed change request form will be submitted to the project manager for initial review and assessment.

Change Request Review

a. The project manager will convene a change control board (CCB) or change review committee consisting of key stakeholders, including the product owner, development team leads, and representatives from user groups.

b. The CCB will assess the change request based on its impact on project objectives, budget, schedule, and risks.

c. The CCB will determine whether the change is necessary and aligned with project goals.

Impact Analysis

If the change is approved for further consideration, a detailed impact analysis will be conducted to assess the implications of the change on project scope, timeline, budget, and resources.

Evaluation and Decision

    a. The CCB will evaluate the impact analysis findings and make a decision regarding whether to approve, reject, or defer the change request.

    b. The decision will be based on the project's overall goals, constraints, and priorities.

Documentation

Approved change requests will be documented, and any updates to the project scope, schedule, or budget will be recorded.

Communication

The decision on the change request will be communicated to the relevant stakeholders, and the necessary actions will be taken based on the decision.

Implementation

If the change is approved, the project team will implement the requested modifications to the project scope as per the approved change request.

Reassessment

After implementation, the impact of the change will be reassessed to ensure that it has achieved its intended objectives and that there are no unforeseen issues.

Documentation Update

Any changes to the project scope, objectives, or deliverables resulting from approved change requests will be reflected in updated project documentation, including the detailed project scope statement.

This structured change management process ensures that changes to the project scope are carefully evaluated and that only those changes that align with project goals and objectives are approved and implemented. It helps maintain project focus and prevent scope creep.

Requirements Management Plan

Requirements Management Plan for Campus Canteen Project

1. Requirements Activities Planning, Tracking, and Reporting

- **Planning:** The requirements activities will be planned during project initiation. This includes identifying stakeholders, defining scope, and creating a requirements management plan.

- **Tracking:** Requirements will be tracked throughout the project using a dedicated requirements management tool. The tool will provide real-time visibility into the status of each requirement.

- **Reporting:** Regular status reports will be generated to communicate the progress of requirements activities. These reports will be shared with the project team, stakeholders, and sponsors as needed.

2. Managing Changes to Requirements

- **Initiation:** Changes to product requirements can be initiated by project stakeholders, including users, sponsors, or team members. Change requests will be submitted using a standardized form.

- **Impact Analysis:** A dedicated change control board (CCB) will be responsible for analyzing the impact of proposed changes on the project scope, schedule, and budget.

- **Traceability:** Changes and their impacts will be traced using a traceability matrix, which will link requirements to change requests, implementation status, and testing outcomes

- **Authorization Levels:** Changes will require approval from the CCB. Minor changes may be approved by the project manager, while major changes will involve stakeholders and sponsors.

3. Requirements Prioritization

Requirements will be prioritized using the following criteria:

- **Business Value:** The impact of the requirement on achieving project goals.

- **Technical Feasibility:** The ability to implement the requirement with available resources and technology.

- **User Impact:** The significance of the requirement to end-users.

- A scoring system will be used to assign priority levels (e.g., High, Medium, Low) to each requirement based on the criteria above.

4. Product Metrics and Rationale

Key product metrics will include:

- **User Adoption Rate:** To measure user engagement and success.

- **Order Accuracy Rate**: To ensure the quality of food deliveries.

- **System Uptime:** To monitor the availability and reliability of the application.

5. Traceability Structure

The traceability matrix will capture the following requirement attributes:

- **Requirement ID:** A unique identifier for each requirement.

- **Description:** A clear and concise description of the requirement.

- **Source:** The stakeholder or document from which the requirement originated.

- **Status:** The current status of the requirement (e.g., Proposed, Approved, Implemented, Tested, Completed).

- **Change Requests:** Any associated change requests and their status.

- **Testing Results:** The outcome of testing related to the requirement.

This traceability structure will provide a comprehensive view of each requirement's lifecycle, from inception to implementation, and allow for effective tracking and reporting.

Schedule Baseline

A schedule baseline is the approved version of a schedule model that can be changed only through formal change control procedures and is used as a basis for comparison to actual results. It is accepted and approved by the appropriate stakeholders as the schedule baseline with baseline start dates and baseline finish dates. During monitoring and controlling, the approved baseline dates are compared to the actual start and finish dates to determine whether variances have occurred. The outputs from a schedule model are schedule presentations.:

Project Schedule

Your project schedule should be a dynamic document that evolves throughout the project. It should include:

- A detailed list of tasks and subtasks.
- Task dependencies and relationships.
- Task durations.
- Resource assignments.
- Milestones.
- Start and end dates.
- Critical path analysis

Extracting Dependencies

Determining dependencies between activities is crucial for creating an effective project schedule and ensuring that tasks are completed in the correct order. Dependencies can be categorized into four main types:

1. **Finish-to-Start (FS):** Activity B cannot start until Activity A has finished.
2. **Start-to-Start (SS):** Activity B cannot start until Activity A has started.
3. **Finish-to-Finish (FF):** Activity B cannot finish until Activity A has finished.
4. **Start-to-Finish (SF):** Activity B cannot finish until Activity A has started.

Here are some potential dependencies between the activities in your provided activity list:

1. User Management:

- 1.2 User Authentication depends on 1.1 User Registration (FS): User authentication can't start until users are registered.
- 1.4 Account Management may depend on 1.1 User Registration (FS): Account management features may be related to registered users.
- 1.5 User Profile may depend on 1.1 User Registration (FS): User profiles are typically created after registration.

2. Dashboard for Users:

- 2.2 User account verification by admin on 1.2 User Authentication (FS): User account verification will be done after user authentication.
- 2.3 Create Vendor Dashboard UI may depend on 1.1 User Registration (FS): Vendor dashboard will be created after user registration.
- 2.4 Create customer Dashboard UI may depend on 1.1 User Registration (FS): Customer dashboard will be created after user registration.

3. Food Ordering & Delivery:

- 3.2 Order Acceptance may depend on 3.1 Place a normal order (FS): After placing a normal order, the order will be accepted.
- 3.4 Order Subscription may depend on 3.3 Scheduled Ordering (FS): Order subscription will execute after scheduled ordering.

4. Promotion Timeline:

- 4.2 Categorize and sort the normal and paid (premium) advertisements may depend on 4.1 Post advertisements for organization in the timeline (SS): After Post advertisements for organization in the timeline, advertisements will categorize and sort according to normal and premium advertisement service.

5. Payment Integration:

- 5.1 Cash-on-delivery and online payment after placing an order may depend on 3.1 Place a normal order (FS): After normal order, cash on delivery and online payment will be placed.
- 5.4 Receive notifications for all my ordering and payment activities may depend on 5.3 Provide credit/debit card info for transactions in a secure way (FS): Notifications will be received after providing credit/debit card info for transactions.

6. Review Vendors & Reward Customer:

- 6.3 Vendors regarding any complaints about their services may depend on 6.2 Feedback for any anomalies regarding ordering and deliveries (FS): After Feedback for any anomalies regarding ordering and deliveries, vendors can able to see any complaints about their services.

Schedule Baseline

WBS NUMBER	TASK TITLE	START DATE	DUE DATE	DURATION (Days)
1	User Authentication	08/17/2023	08/23/2023	7
1.1	User Registration	08/17/2023	08/20/2023	3
1.2	User Authentication and Authorization	08/20/2023	08/22/2023	2
1.3	Password Recovery	08/22/2023	08/23/2023	1
2	Dashboard for Users	08/23/2023	09/06/2023	15
2.1	Create admin dashboard	08/23/2023	09/03/2023	10
2.2	User account verification by admin	09/03/2023	09/05/2023	3
2.3	Create Vendor Dashboard UI	09/05/2023	09/06/2023	4
2.4	Create customer Dashboard UI	09/06/2023	09/06/2023	1
3	Food Ordering & Delivery	09/06/2023	09/13/2023	7
3.1	Place a normal order	09/06/2023	09/07/2023	1
3.2	Order Acceptation	09/07/2023	09/09/2023	2
3.3	Scheduled Ordering	09/09/2023	09/11/2023	2
3.4	Order Subscription	09/11/2023	09/13/2023	2
4	Promotion Timeline	09/13/2023	09/17/2023	4
4.1	Post advertisements for organization in the timeline	09/13/2023	09/15/2023	2
4.2	Categorize and sort the normal and paid (premium) advertisements	09/15/2023	09/17/2023	2
5	Payment Integration	09/17/2023	10/01/2023	14
5.1	Cash-on-delivery and online payment after placing an order	09/17/2023	09/22/2023	5
5.2	Secure SSLCOMMERZ for online payment activities	09/22/2023	09/24/2023	2
5.3	Provide credit/debit card info for	09/24/2023	09/27/2023	3

		transactions in a secure way			
5.4	Receive notifications for all my ordering and payment activities	09/27/2023	10/01/2023	4
6	Review Vendors & Reward Customers	10/01/2023	10/15/2023	14
6.1	Give reviews to the vendors	9/26/2023	10/2/2023	4
6.2	Feedback for any anomalies regarding ordering and deliveries	9/29/2023	10/5/2023	4
6.3	Vendors regarding any complaints about their services	10/5/2023	10/08/2023	3
6.4	Reward points and discounts for my purchases	10/08/2023	10/10/2023	2

https://docs.google.com/spreadsheets/d/1P7guklh74XROmH1ekP6YuQSuGuBNvepIaMWowIIDAyA/edit?usp=sharing

Schedule Management Plan

A component of the project management plan that establishes the criteria and the activities for developing, monitoring, and controlling the schedule. The schedule management plan may be formal or informal, highly detailed or broadly framed, based upon the needs of the project, and includes appropriate control thresholds.

It should include:

1. Project schedule model development

- The scheduling team will be responsible for creating and maintaining the project schedule model.

2. Level of accuracy

- Realistic activity duration estimates will be determined with a level of accuracy appropriate for the project's needs.
- Contingencies will be factored into the estimates to account for uncertainties.

3. Units of measure

- Standard units of measure, such as staff hours, staff days, or weeks, will be used for time measures.
- Quantity measures will be expressed in relevant units, such as meters, liters, tons, kilometers, or cubic yards.

4. Organizational procedures links

- The Work Breakdown Structure (WBS) will provide the framework for the schedule management plan, ensuring consistency with estimates and resulting schedules.
- All project team members will follow established organizational procedures related to schedule management.

5. Project schedule model maintenance:

- The project schedule model will be regularly updated to reflect the current status of the project during its execution.
- Progress will be recorded in the schedule model to track deviations from the baseline plan.

6. Control thresholds:

- Variance thresholds will be specified to monitor schedule performance. These thresholds will indicate the allowable amount of variation before corrective action is required.
- Thresholds will be expressed as percentage deviations from baseline parameters.

The Schedule Management Plan provides the framework for effectively managing the project schedule throughout the project's lifecycle. It will be reviewed and updated as necessary to ensure alignment with project objectives and changes in scope or requirements.

Campus Canteen Cost Baseline

Data Analysis

Objective

To effectively manage, track, and control the costs associated with the development and ongoing maintenance of the Campus Canteen platform.

1. Resource Allocation

A. Human Resources

- **Project Manager**: Responsible for overall project direction, cost control, and coordination.
- **Product Owner**: Defines the project's features, ensures alignment with user needs, and manages feedback.
- **Team Player**: Includes developers, designers, and testers responsible for building and refining the platform.

B. Technology

- **Servers and Hosting**: Infrastructure costs to keep the platform online.
- **Software Licenses**: Licensing costs for frameworks and tools like Python, Django, React, etc.
- **Development Tools & IDEs**: Software applications to aid development.
- **Version Control**: Git for code versioning and collaborative development.

C. Third-Party Services

- **Stripe**: Payment processing for transactions.
- **Email Service Provider**: Manage email notifications, marketing, etc.
- **Google Maps API**: For location-based services or features.

D. Administrative

- **Project Management Tools**: Jira for task tracking, sprint planning, etc.
- **Communication Tools**: Zoom or Meet for team meetings and stakeholder interactions.
- **Legal Consultations**: Ensuring platform compliance and addressing legal considerations.

2. Cost Estimation

Grand Total Cost:

Grand Total Cost = **20,34,300 BDT**

3. Cost Monitoring & Reporting

- **Tracking Tools**: Utilize software that provides real-time monitoring of project expenses.

- **Regular Reviews**: Conduct monthly reviews of actual vs. budgeted costs.

- **Variance Analysis**: Evaluate and report any discrepancies between projected and actual expenses.

- **Reporting**: Deliver monthly budget reports to stakeholders, highlighting any major deviations and the associated reasons.

4. Contingencies

- **Contingency Fund**: Allocate 10% of the budget (203430 BDT) for unforeseen expenses.

- **Management Reserves**: A reserve of 5% (101715 BDT) for unexpected changes in project scope or requirements.

5. Cost Baseline

- **Cost Baseline**: 2034300 BDT + Contingency + Management Reserves = 2339445 BDT

6. Budget Adjustments

- Incorporate a structured change control process for any proposed adjustments to the budget.
- Regularly update and communicate the approved budget to all stakeholders.

7. Review & Feedback Mechanism

- Collect regular feedback on the cost management process.
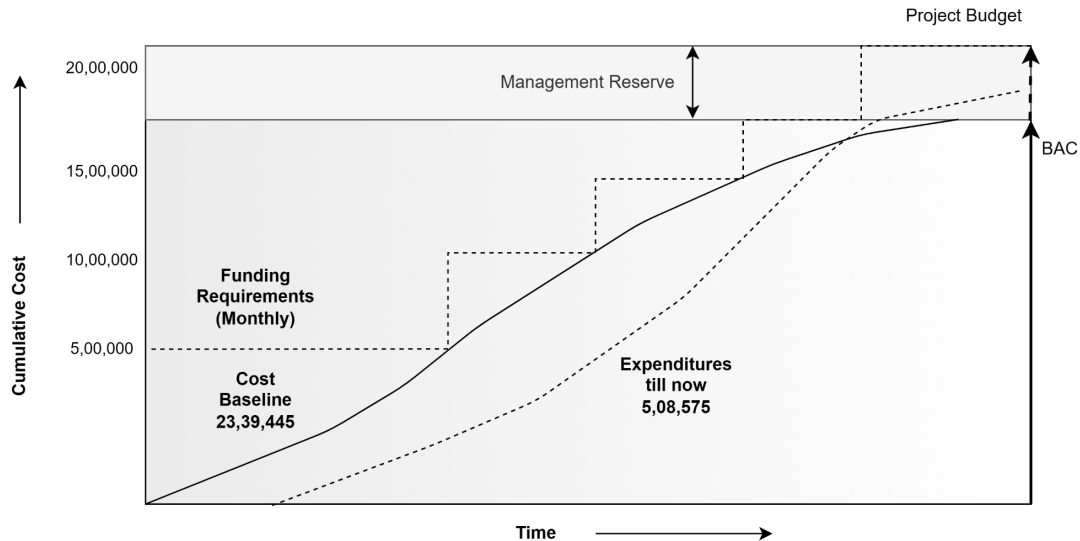- Use lessons learned to refine the cost management strategy for future projects or project phases.

Figure: Cost Baseline, Expenditures and Funding Requirements

Earned value analysis (EVA)

Earned value analysis compares the performance measurement baseline to the actual schedule and cost performance. EVM integrates the scope baseline with the cost baseline and schedule baseline to form the performance measurement baseline. EVM develops and monitors three key dimensions for each work package and control account:

Planned Value (PV): Planned value (PV) is the authorized budget assigned to scheduled work. It is the authorized budget planned for the work to be accomplished for an activity or work breakdown structure (WBS) component, not including management reserve

So far, Campus Canteen's PV is: 26 Man-days

Budget at Completion (BAC): The total planned value for the project is also known as budget at completion (BAC).

So far, Campus Canteen's BAC is 26 Man-days

Actual Cost (AC): Actual cost (AC) is the realized cost incurred for the work performed on an activity during a specific time period. It is the total cost incurred in accomplishing the work that the EV measured**.**

Campus Canteen's actual cost is 28 Man-days

Earned Value (EV): Earned value (EV) is a measure of work performed expressed in terms of the budget authorized for that work. It is the budget associated with the authorized work that has been completed.

Campus Canteen's earned value is 26*.928 = 24.18 Man-days

% Completed Planned = PV/BAC = 26/26 = 100%

% Completed Actual = AC/EAC = 26/28 = 92.8%

Variance Analysis : Cost and schedule variances are the most frequently analyzed measurements. For projects not using formal earned value analysis, similar variance analyses can be performed by comparing planned cost against the actual cost to identify variances between the cost baseline and actual project performance. Further analysis can be performed to determine the cause and degree of variance relative to the schedule baseline and any corrective or preventive actions needed.

Schedule Variance (SV): Schedule variance (SV) is a measure of schedule performance expressed as the difference between the earned value and the planned value. It is the amount by which the project is ahead or behind the planned delivery date, at a given point in time

EV - PV = 24.18 - 26 = -1.82 Man-day

Cost Variance (CV) : Cost variance (CV) is the amount of budget deficit or surplus at a given point in time, expressed as the difference between earned value and the actual cost

EV - AC = 24.18-28 = -3.82 Man-day

Schedule performance index: The schedule performance index (SPI) is a measure of schedule efficiency expressed as the ratio of earned value to planned value. It measures how efficiently the project team is accomplishing the work.

EV/PV = .928

Cost performance index: The cost performance index (CPI) is a measure of the cost efficiency of budgeted resources, expressed as a ratio of earned value to actual cost. It is considered the most critical EVA metric and measures the cost efficiency for the work completed

EV / AC = .863
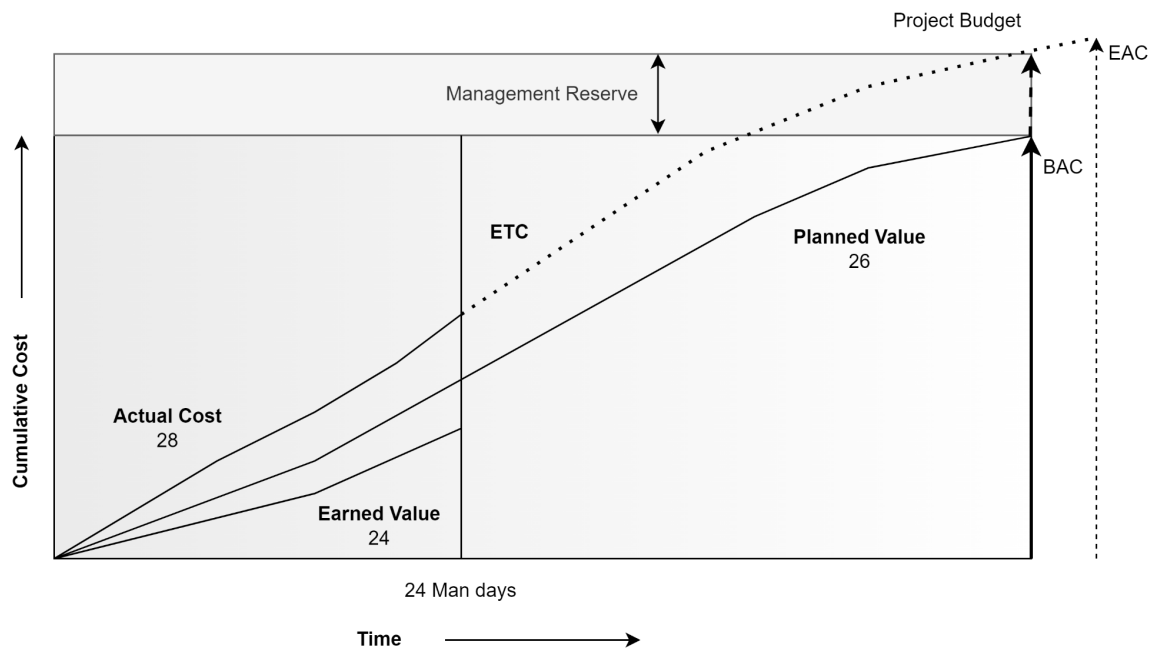
Trend Analysis:

Figure: Earned Value, Planned Value, and Actual Costs

Case Study of 2 Change Requests

Case 1

Streamlining Authentication and Integrating Social Logins. The change request involves merging the authentication processes of two separate products and introducing Google and Facebook login options.

Context:

Our software development project encompasses two distinct products, each with its own authentication process. Product A and Product B have been developed independently and offer email and password-based authentication to their users. The need for change arises due to a strategic decision to unify the user experience and improve user onboarding.

The Change Request:

The change request encompasses two primary aspects:

Merging Authentication Processes: The objective was to streamline the user experience by merging the authentication processes of both products. When a user signs up for one product, they should be automatically registered for the other product with a shared account.

Introducing Social Logins: Additionally, the change request includes the integration of Google and Facebook authentication options to provide users with more convenient login choices.

Challenges Faced:

Several challenges were encountered in response to this change request:

Data Integration: Merging authentication processes required significant changes in the backend to ensure seamless data synchronization between the two products.

User Experience: The challenge of maintaining a smooth and intuitive user experience during the transition was critical.

How did we handle it:

1. **Assessment:** To assess the impact of the change request, we conducted a thorough analysis of the existing systems.
2. **Communication:** We initiated extensive communication with stakeholders, including the product owners, development teams, and end-users.
3. **Implementation:** The implementation encompassed:
   - Development of a new authentication backend capable of handling user sign-ups, logins, and authorization for both products.
   - Data migration from the legacy authentication systems to the new backend.
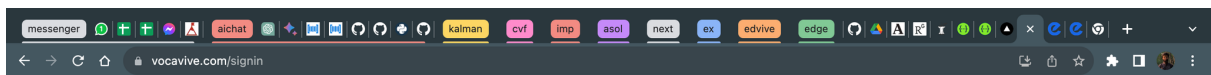   - Integration of Google and Facebook authentication using industry-standard protocols.
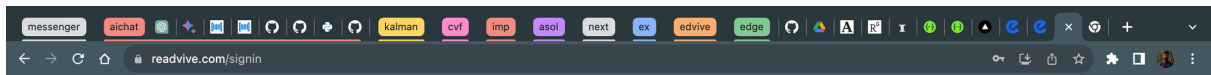
Figure: Readvive & Vocavive Login Page

How It Could Be Better:

Lessons Learned:

- Effective communication with stakeholders is essential for managing expectations and ensuring a smooth transition.

Best Practices:

- Conduct a comprehensive impact analysis and risk assessment when implementing substantial changes.
- Plan for scalability and future changes in user authentication methods, ensuring adaptability.

Conclusion:

The successful implementation of this change request led to a more streamlined and user-friendly authentication process for our products. It underscores the importance of adaptability in software development, prioritizing user experience, and safeguarding data security. This case study serves as a valuable reference for future projects facing similar challenges.

Case 2

Changing Frontend Design on BEPS Mapper for WTA and TPA Selection

Context:
Our company operates a web application that offers Tax analyzers the option to select either "World Tax Analyzer (WTA)" or "Transfer Pricing Analyzer (TPA)" services. These services provide essential support to travelers in various situations. Previously, the selection for WTA and TPA was displayed as checkboxes below the "Country" selection dropdown on our page. However, due to user feedback and design improvements, it was decided to change the user experience so that the WTA and TPA selection only becomes visible after a country is chosen.

Change Request:

As an intern in the development team, I received a change request to update the front end of our web application to hide the WTA and TPA checkboxes until the user selects

a country. The goal was to simplify the process and make it more intuitive for our users. This change aimed to enhance the user experience and reduce potential confusion during the booking process.

How We Faced It:

1. Requirement Analysis: I started by thoroughly analyzing the change request and discussing it with the project lead to ensure a clear understanding of the objective.

2. **Code Implementation:** I proceeded to modify the frontend code to hide the WTA and TPA checkboxes initially. I used React to implement this change effectively.

3. Testing: After implementing the change, extensive testing was conducted to verify that the new feature functioned correctly. This included testing on various browsers and devices to ensure cross-browser compatibility.

How It Could Be Better:

To further enhance the process of changing the frontend design for the WTA and TPA selection, we could consider the following improvements:

1. User Testing: Conduct user testing sessions with a sample of our actual users before implementing the change to gather valuable insights and identify potential issues in advance.

2. Feedback Loop: Establish a feedback loop with customer support and user experience teams to continuously monitor user feedback and sentiment after the change is implemented, and make further refinements as necessary.

3. Documentation: Provide documentation and training for customer support and other relevant teams to address potential user inquiries or issues related to the front-end change.

Figure: BEPS mapper

By implementing these improvements, we can ensure a smoother transition when making changes to the frontend design, while also optimizing the user experience and overall satisfaction with our application.

Figma Design

[Figma File](#)

Sprint Planning

[Sprint Tasks](#)