CSE 4408

System Analysis and Design

Lab 4: Project Management

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MedRadar

by team **CookiesAndCaches**

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Summary of Analysis

- **Problem**: Manual system delays and a lack of medical info access
- **Goal:** Digitize pharmacy discovery, stock tracking, and user-pharmacy communication
- **Key Requirements**: Real-time updates, role-based access, smart filtering/search
- **Constraints**: Limited pharmacy onboarding, small dev team, minimal existing infrastructure
- **Feasibility:** Agile + O-O approach for flexibility and reuse
- **Analyst role**: Internal agent of change

Work Breakdown Structure

Chosen Methodology: Agile + Basic O-O principles

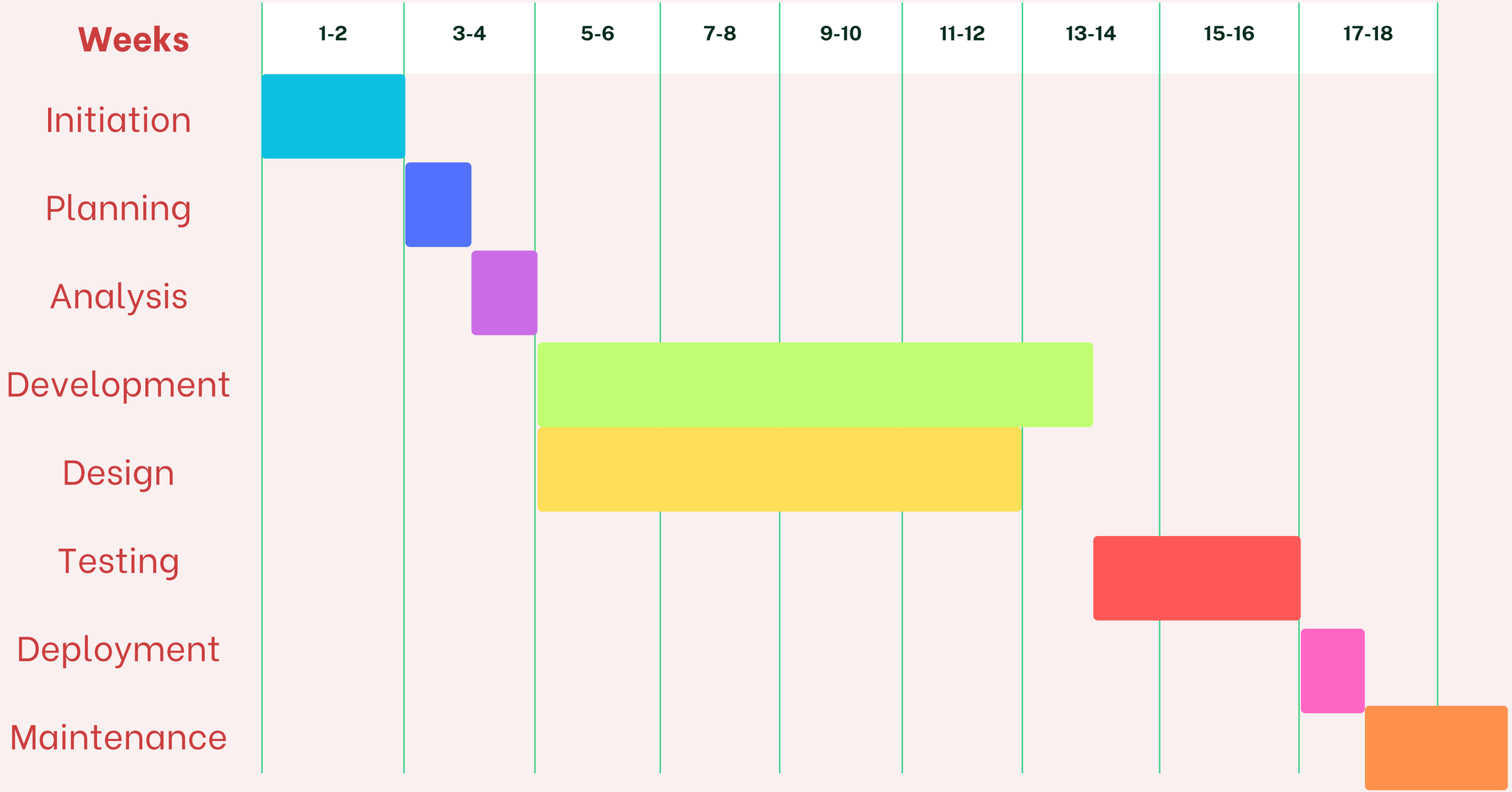
Initiation	Planning	Analysis	Design
• Defining Project Vision • Forming Dev Team • Validating the need through forms and queries	• Breaking the project into sprints • Choosing tools and tech stack	• Identifying system requirements and components • Prepare DFD, Use case and ERD	• UI design • Design database schema • Define system interface interactions

Work Breakdown Structure

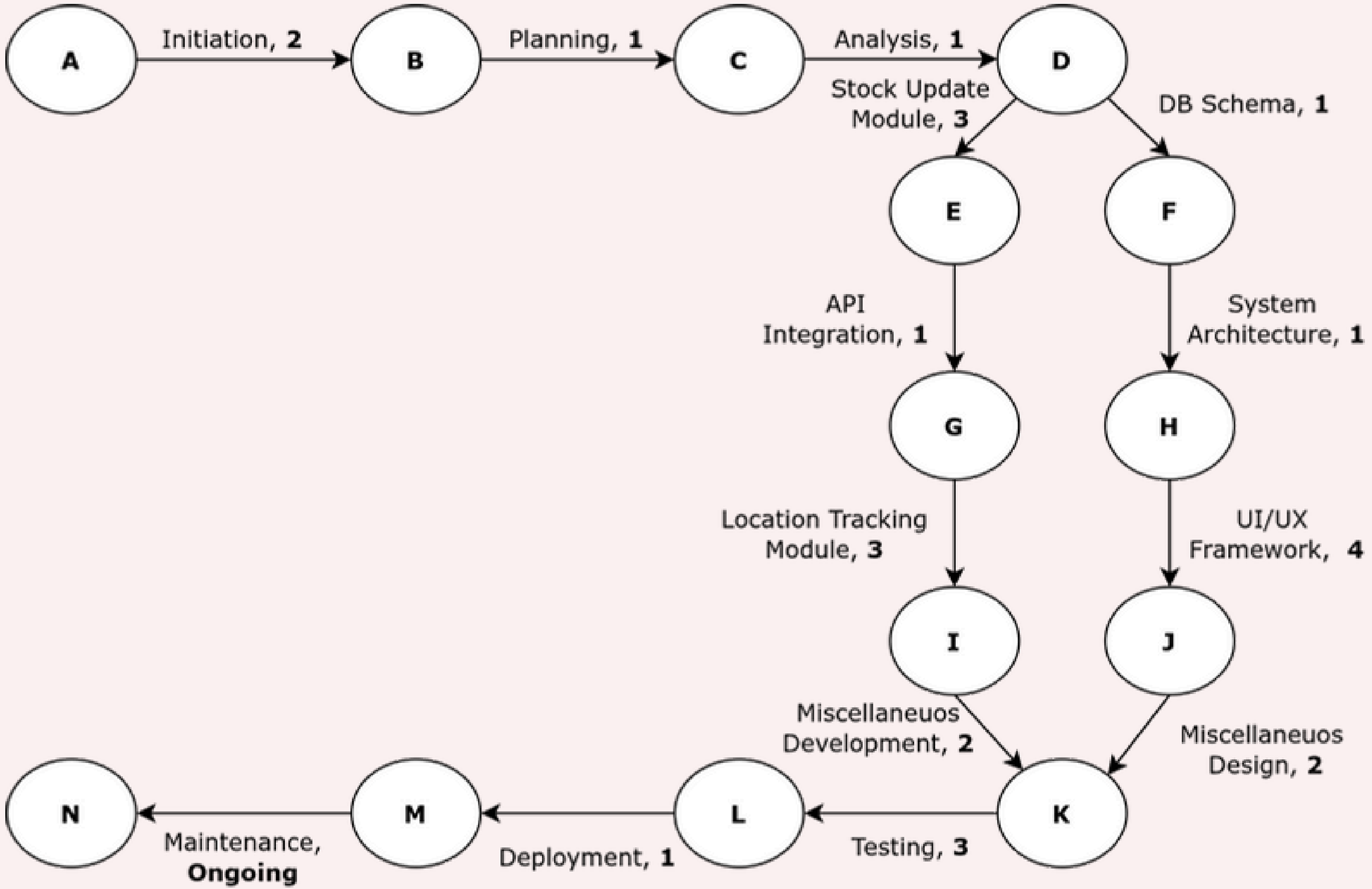
Continued

Development	Testing	Deployment	Maintenance
• sprint-wise and iterative dev • Build backend + define data flow between backend and frontend • Integrate maps and API	• Continuous testing is integrated into each sprint • Integration testing of the whole system • User Acceptance Testing (UAT)	• Conducting a pilot launch, • Providing setup support • Execute phased rollout	• Set up system for regular updates, • Monitor Pharmacy Compliance • Collect Feedback for future upgrades, • Prepare Documentation

Gantt Chart


Weeks
1-2
3-4
5-6
7-8
9-10
11-12
13-14
15-16
17-18
Initiation
Planning
Analysis
Development
Design
Testing
Deployment
Maintenance

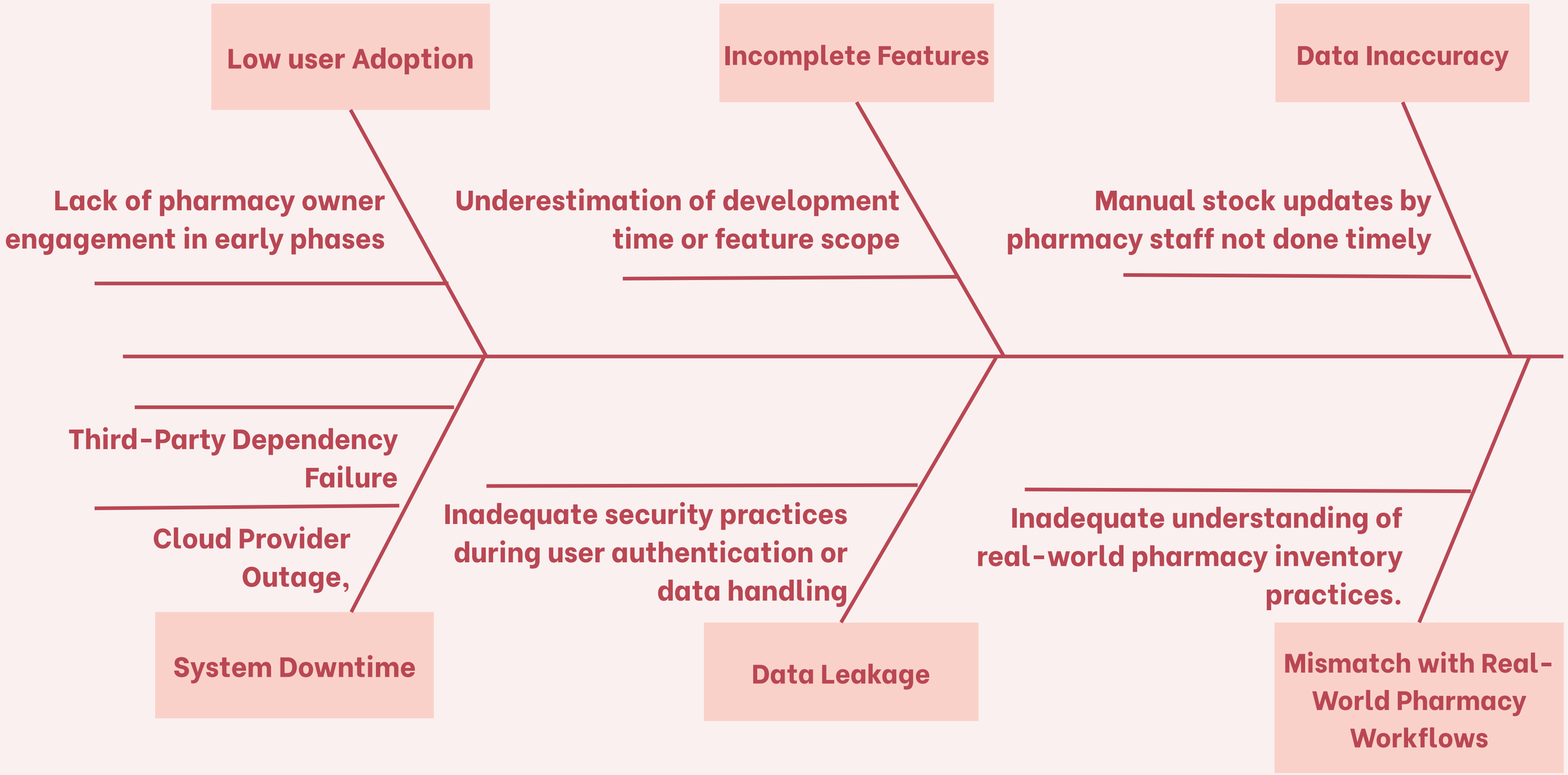
PERT Chart


A
Initiation, 2
B
Planning, 1
C
Analysis, 1
D
Stock Update Module, 3
DB Schema, 1
E
F
API Integration, 1
System Architecture, 1
G
H
Location Tracking Module, 3
UI/UX Framework, 4
I
J
Miscellaneuos Development, 2
Miscellaneuos Design, 2
N
Maintenance, Ongoing
M
Deployment, 1
L
Testing, 3
K

Key Skills And Roles

Role	Skills Required	Phase Focuses on
Bussiness Analyst	Requirement elicitation, stakeholder interviews, storyboarding	Planning, Analysis
Programmer	MERN Stack (React, Node.js, Express), RESTful API skills	Development, Testing
Database Specialist	MongoDB schema design, indexing, query optimization	Design, Development
UI/UX Designer	Wireframing (Figma), responsive layout, usability testing	Design, Testing
Domain Expert	Pharmacy operations knowledge, drug database understanding	Analysis, Testing

Assessment of Project Risks



Project Charter

Key Objective

- Provide students quick access to medical resources through a centralized pharmacy locator and stock viewer.

Scope

In scope:

- User interface to search/order medicines and view availability
- Display of pharmacy details and stock info
- Location and category based search/filtering
- Portals for providers to update stock
- Rating and feedback system

Out of scope:

- No automated stock update system
- No detailed patient health history/ diagnosis tracking
- No advertisements/monetization features

Project Charter

Methods

- Agile methodology, iterative delivery with testing at each stage; MERN stack implementation.
- Object-oriented approach for modular system design.

Participants

Project Team **:**

- Project Manager
- Business Analyst
- Programmer
- Database Specialist
- UI/UX Designer
- Domain Expert

Stakeholders:

- Students
- End-users

Project Charter

Deliverables

- Functional web application (frontend + backend)
- User guide, deployment manual, system documentation.
- API documentation
- Testing Reports
- User feedback summary

Evaluation Criteria

- A post-usage survey to evaluate the ease of navigation, visual clarity, response time, and overall satisfaction.
- Number of successful searches
- Zero critical bugs on launch

Project Charter

Timeline

- Initiation → 2 Weeks
- Planning Sprint and Tools → 1 Week
- Analyzing System → 2 Weeks
- Development → 9 Weeks
- Design → 8 Weeks
- Testing → 3 Weeks
- Deployment → 1 Week
- Maintenance → Ongoing

Project Charter

Training Plan

- Quick start guide
- Live demo sessions
- Collect short post-training surveys or feedback
- Use results to update training materials and address misunderstandings

Maintenance

- Post launch feedback collection
- Monthly bug-fixes
- Monitor key performance metrics
- Provision of proper documentation during the handover process

Project Proposal Outline

Executive Summary

- **Who**: University students & nearby pharmacies
- **What**: A secure web app for real-time pharmacy info & stock tracking
- **When/Where**: Launched within one semester for the campus & surrounding area
- **Why:** Solve issues with medicine availability and manual searching
- **How**:
  - Agile development
  - Student-led team
- **Recommendations**: Allocate testing support and pharmacy onboarding sessions
- **Desired Action**: Approval to move to development & pilot testing phase

Project Proposal Outline

Outline of Systems Study

***Data Collection Methods*:**

- Surveys
- Competitor analysis
- Feedback from UI/UX prototype testing
- Prototype testing with sample users

***Participants*:**

- Students (target users)
- Pharmacy owners (stock providers)

Project Proposal Outline

Detailed Results of Study

***Key Problems Identified*:**

- No centralized stock info
- Confusion and travel during urgent needs
- No direct student-pharmacy communication

***Opportunities Identified*:**

- Real-time pharmacy search
- Trusted, user friendly interface
- Build a verified pharmacy database
- Category and location based search/filter

Project Proposal Outline

Alternative Analysis

Alternative 1: Continue manual search

✓ No setup

✗ Delays, high effort, no tracking

Alternative 2: Use general search platforms (e.g., Google Maps)

✓ Location info present

✗ No medicine data or reliability

Alternative 3 (Recommended): Build MedRadar

✓ Custom, verified, role-based access

Recommendation

Alternative 3 is optimal–

- aligns with user needs
- low-cost in long term
- scalable in multiple regions

Project Proposal Outline

Systems Analysts' Recommendation

Recommended Solution: Develop MedRadar

WHY

- Aligns with actual user needs
- Scalable and modular

Supports

- Human-centered design
- University's digital vision

Next Step: Proceed with development

Project Proposal Outline

Proposal Summary:

- **Objective**: Improve access to medicine by digitizing local pharmacy data
- **Feasibility & Backing**: Sufficient
- **Recommendation**: Proceed with MedRadar system build
- **Final Note**: MedRadar will reduce stress and improve health access for students

Project Proposal Outline

Conclusion

- Economically, technically, and operationally feasible
- Aligned with strategic goals of improving healthcare access
- Scalable, community-driven digital solution for medicine availability