MGT 501

Agile Project Management

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Group Project Assignment

MediTrack: Medication Adherence Tool

Authors

Amrita Thapa (20162)

Nilisha Pradhan (19912)

Daria Kuznetsova (20186)

Muskan Arora (19972)

Persabel Tesfay (20127)

Belen Woldegabriel (20117)

Submitted to:

Hari Hirani

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MediTrack: Medication Adherence Tool

I. INTRODUCTION

It is vital for diabetic patients to keep track of their medications, have a good understanding of their medications' functions, and receive the exact dose at the needed time in prescribed intervals. Incorrect medication usage can lead to serious health problems. That is why we want to present MediTrack: a medication adherence tool that will make health control a little easier for diabetic patients.

II. BACKGROUND

Diabetes management is a critical aspect of healthcare that requires consistent and accurate medication adherence to prevent complications and improve patient outcomes. Diabetic patients often struggle with the complexities of their medication regimens, which can include multiple medications taken at various times throughout the day. Forgetting to take medications, taking incorrect doses, or accidentally taking multiple doses are common issues that can lead to severe health complications. As a result, there is a pressing need for a solution that helps patients manage their medication schedules effectively and ensures adherence.

III. EXECUTIVE SUMMARY

MediTrack Medication Adherence Tool is designed to assist healthcare providers and patients in managing medication regimens effectively. Our mission is to improve patient outcomes by providing a safe, easy-to-use solution that offers prompt reminders, instructional materials, and smooth integration with medical systems. The project utilizes agile methodologies to ensure continuous improvement and user-centric design.

Project Goal: The primary objective of the MediTrack project is to assist diabetic patients in adhering to their medication schedules by providing timely reminders, ensuring safe and timely medication intake, and enhancing overall patient outcomes.

User Needs: The app is specifically designed for diabetic patients who struggle with medication adherence due to forgetfulness or the complexity of their medication regimen. It focuses on ensuring patients take their medication correctly and on time.

Design Inputs and Outputs: The app requires basic information about each medication, such as name, dosage, and schedule. It then provides customizable reminders, tracks medication quantities, sends refill reminders, and logs adherence. Additionally, it allows users to share their adherence records with their doctors.

Design Verification and Validation: MediTrack will track medication adherence, provide refill reminders, and offer adherence logs for sharing with healthcare providers. The prototype will undergo iterative development and testing, with user feedback driving continuous improvements.

Project Overview: MediTrack is a medication adherence tool designed to help healthcare providers and patients manage medication regimens effectively. It aims to improve patient outcomes by providing reminders, educational resources, and integration with healthcare systems.

Mission Statement: To improve patient outcomes by offering a safe, easy-to-use medication adherence solution that facilitates prompt reminders, instructional materials, and smooth interaction with medical systems.

Project Objectives:

1. Enhance medication adherence and patient education through dose tracking, frequent reminders, and educational resources.

2. Ensure a secure and integrated user experience with customized profiles and connectivity with healthcare providers' systems.

3. Enable continuous improvement and support through frequent user acceptance testing (UAT), feedback collection, and comprehensive training.

Project Deliverables: The project will be executed using Agile methodology, focusing on key features in successive sprints:

1. Sprint 1: User authentication and profile creation.

2. Sprint 2: Medication schedule setup interface.

3. Sprint 3: Reminder system development.

4. Sprint 4: Adherence tracking and reporting.

5. Sprint 5: Educational resources integration.

6. Sprint 6: API development for healthcare system integration.

User acceptance testing (UAT), security and performance testing, and stakeholder feedback will be integral to each sprint. Training will be provided to ensure users can fully benefit from the tool.

Assumptions:

- Users are motivated and technologically capable of engaging with the tool regularly.

- The tool provides clear instructions and integrates seamlessly with existing healthcare systems.

- The tool addresses common adherence barriers and ensures data privacy and security.

Constraints:

- Data security risks and legal liabilities.

- Market competition and stakeholder negotiation challenges.

- Development risks such as technical issues and system downtime.

Envision Phase: MediTrack aims to revolutionize medication adherence for diabetic patients through automated reminders, educational resources, and seamless integration with healthcare systems.

Speculate Phase: The exploratory phase includes drafting the release plan and iteration plan, focusing on incremental improvements and feedback integration.

Adopt Phase: Customer focus groups, technical reviews, and team performance evaluations will be conducted to gather feedback and ensure the tool meets user needs and technical standards.

Closing Phase: The final phase involves consolidating documentation, evaluating achievements, conducting user training, and planning for continuous improvement. Final deliverables include a comprehensive project report, presentation, user manual, and technical documentation.

Conclusion: MediTrack is designed to enhance medication adherence for diabetic patients, improve patient outcomes, and support healthcare providers through innovative technology and user-centered design. The project's success relies on iterative development, user feedback, and continuous improvement.

1. PROJECT SCOPE

- **Project Goal:** The primary goal of the MediTrack is to help users remember to take the right medication, the right way, at the right time. The app aims to simplify the lives of diabetic patients by helping them to remember to take their medication on time and ensure safety and timely medication intake.

- **User Needs:** The app is designed to cater to diabetic patients who have a hard time complying with their medication schedules. We focus on users who need to take medication every few hours and may forget to do so, or accidentally retake a dose, can benefit from Dosecast.

- **Design Inputs:** The app requires basic information about each medication the user takes, such as the name, dosage, and how and when they take it.

- **Design Outputs:** The app provides reminders on a daily/weekly/monthly schedule, every few days or weeks, or for a pre-set number of hours or days after the last dose. It adjusts to the user's changing day, enabling them to take a dose early or postpone it as needed.

- **Design Verification and Validation:** As users take doses, MediTrack tracks the remaining quantities, sends refill reminders, and logs medication adherence. It also allows users to share their medication adherence with their doctor.

- **Prototype Development:** A prototype of the app would be developed based on the MVP, which in this case, would be a basic medication reminder system. Each set of features for the prototype would go through the same testing, feedback, and redesign phases that the full prototype will.

- **Iterative Development and Testing:** MediTrack would undergo iterative development and testing, with each iteration improving upon the last based on user feedback and testing results

1.1. Project Title: MediTrack: Medication Adherence Tool
1.2. Project Overview

Medication adherence tool is designed to assist healthcare providers and patients in managing medication regimens effectively.

This project will provide ways for practitioners to engage and track patients' medication and help them in making informed decisions about their medication and ensuring they are effectively taken on time.

The project will use up to date technological features to assess a patient's medication adherence and integrate it into a treatment planning process.

The project will offer strategies and best practices to promote medication management tailored to help individual patient needs

1.3. Mission Statement

Our mission is to improve patient outcomes by offering a safe, easy-to-use medication adherence solution that facilitates prompt reminders, instructional materials, and smooth interaction with medical systems.

1.4. Project Objectives

The Medication Adherence Tool Project is designed to enhance patient through achieving the following 3 primary objectives:

1. <u>Enhance Medication Adherence and Patient Education:</u> Provide a complete solution that helps patients understand the significance of medication adherence and effectively adhere to their schedules by providing dose tracking, frequent reminders, and educational resources.

2. <u>Ensure Secure and Integrated User Experience:</u>To safeguard patient data and promote coordinated treatment, employ secure user authentication, customized profiles, and smooth connectivity with the systems of healthcare providers.

3. <u>Enable Continuous Improvement and Support:</u> To make sure the product satisfies user demands and upholds high standards of performance and usability, conduct frequent user acceptance testing (UAT), collect feedback for ongoing upgrades, and offer comprehensive training and support.

1.5. Project Deliverables

The execution of 'The Medication Adherence Tool' will involve a framework that complies with the iterative and flexible nature of agile methodology.

Firstly, the team should understand the objective and expected outcome of the project. This includes sharing stories of the patient, their issue with adherence to medication.

In addition to that, collaboration with the stakeholders will provide a brief idea on which factor should be prioritized like ease of use.

Then, the project will be planned in sprints, with each sprint focusing on a key feature: user authentication, medication schedule setup, reminder systems, adherence tracking, educational resources, and system integration.

Development will proceed through a series of sprints illustrated as following:

1. <u>Sprint 1:</u> The focus will be on implementing user authentication and creating user profiles.

2. <u>Sprint 2:</u> Developing the interface for setting up medication schedules, including dose times, frequency, and instructions.

3. <u>Sprint 3:</u> Building the reminder system using notifications via email, SMS, and app alerts.

4. <u>Sprint 4:</u> Creating tracking features to log when medications are taken and generate adherence reports.

5. <u>Sprint 5:</u> Integrating educational resources about medications and adherence.

6. <u>Sprint 6:</u> Developing APIs for integration with healthcare providers' systems.

Throughout these sprints, user acceptance testing (UAT) will be conducted with patients, caregivers, and healthcare providers to ensure the tool meets their needs. Security and performance testing will also be performed, and user interface (UI) prototypes will be developed and refined based on stakeholder feedback.

Following the steps, a beta version will be created for a selected group of users, and it will gradually roll out to a larger audience based on feedback and stability. Changes shall be made as per the feedback so that the program is compliant to the user. Most importantly, training will be provided for the patients, caregivers and healthcare providers so that everyone can get full benefit of the program.

As the execution plan continues, there will be timely meetings to discuss the obstacles and progress. After each sprint, there will be a review with all the team members to ensure everyone is aligned to the common goal.

The execution will be followed by maintenance, user assistance and quick issue resolution.

1.6. Assumptions
For developing the Medical Adherence Tool, the key assumptions are:

1. <u>User Engagement:</u> Users are motivated and willing to interact with the tool regularly.

2. <u>Health Literacy:</u> The tool provides clear, understandable instructions for users with varying levels of health literacy.

3. <u>Technological Accessibility:</u> Users have access to and are comfortable with the necessary technology.

4. <u>Healthcare Integration:</u> The tool integrates seamlessly with existing healthcare systems and workflows.

5. <u>Behavioral Factors:</u> The tool addresses common barriers to adherence (e.g., forgetfulness, lack of motivation).

6. <u>Data Privacy and Security:</u> User data is protected and secure, ensuring trust.

7. <u>Measurable Outcomes:</u> The tool's effectiveness can be quantified through specific metrics.

8. <u>Cost-Effectiveness:</u> The tool is affordable and provides economic benefits by improving adherence.

1.7. Constraints

In order to create a perfectly working plan for the 'Medication Adherence Tool,' we need to overview all the possible constraints and risks of this project so we can easily adjust and change our actions during the plan's implementation.There are several types of risk, which can treat 'Medication Adherence Tool' project implementation. These risks are: **Data Security risk** (risk of unauthorized access to sensitive patient data); **Legal risk** (responsibility for the incorrect reminders, which can cause a missed medication, and potential harm to patients); **Market risk** (strong competitors on the market, which already have patients' trust. It will be hard to make such clients to switch to a brand new app); **Stakeholder Risks** (difficulties in negotiations between healthcare providers, patients, IT team, caregivers and pharmacists can affect the timeline of the projects, its ROI, satisfaction rate); **Development Operation risk** (technical issues, unfixed bugs can cause the system downtime and can effect app UX and adaptability). Knowing potential threads will help to address it to the project planning, which will help to eliminate unexpected problems and improve outcomes.

2. Envision Phase

MediTrack is a cutting-edge medication adherence tool designed to enhance the health outcomes of diabetic patients. By automating reminders, providing educational resources, and ensuring seamless integration with healthcare systems, MediTrack offers a secure, user-friendly solution for effective medication management. This tool empowers patients, supports caregivers, and facilitates better patient monitoring for healthcare providers, ultimately improving the overall quality of care.

2.1. Front of the Package

MediTrack: Revolutionizing Medication Adherence for Diabetic Patients

Improving patient outcomes through effective medication management.

- <u>Automated Reminders</u>: Ensures timely medication intake.

- <u>Educational Resources</u>: Provides instructional materials for patients.

- <u>Seamless Integration</u>: Connects with healthcare providers' systems.

- <u>Secure Authentication</u>: Protects patient data.

- <u>Adherence Tracking</u>: Monitors and reports medication compliance.

2.2. Back of the Package

Features:

- Timely Reminders:
- Educational Resources:
- Seamless Integration:
- Secure User Authentication:
- Adherence Tracking:

For Whom:

- Diabetic Patients: Enhances medication adherence and understanding.
- Healthcare Providers: Facilitates better patient monitoring and care.
- Caregivers: Provides tools for effective patient support and monitoring.

Why MediTrack:

- Improved Health Outcomes: Reduces the risk of complications from missed medications.
- Patient Empowerment: Increases patient knowledge and responsibility.
- Enhanced Communication: Strengthens the connection between patients and healthcare providers.
- Data Security: Ensures patient information is safe and secure.

2.3. Elevator pitch

"Imagine a world where diabetic patients never miss a dose of their medication. Meet MediTrack, the ultimate medication adherence tool designed specifically for diabetic patients. With our innovative solution, patients receive timely reminders, educational resources, and seamless integration with healthcare systems, ensuring they stay on track with their treatments. MediTrack not only improves health outcomes but also empowers patients with the knowledge and tools they need for effective medication management. Join us in revolutionizing diabetes care and enhancing patient lives with MediTrack."

3. Speculate Phase

The Medication Adherence Tool project's exploratory phase is essential for laying out the roadmap for the tool's timely and successful delivery. This stage includes the detailed story cards for agile project management, platform development and launch, release strategy, and iteration plan.

3.1. Release plan

Throughout the course of the project's six months, the release plan establishes significant benchmarks and offers a broad time frame. To improve the tool, it is intended to provide gradual improvement and frequent feedback. An initial planning meeting is held at the beginning of the project to establish the goals, main stakeholders, and project scope.

Timeline: 6 months

- <u>Month 1</u>: Draft a backlog and early user stories, which serve as a roadmap for the next stages of development.

- <u>Month 2</u>: Develop the user authentication system and add functionality for user profile management. Ensuring users can safely login and manage their profiles is part of this. In order to get input and make the required changes, initial user acceptability testing (UTA), will be carried out.

- <u>Month 3</u>: Focus on executing the interface for setting up drug schedules. This entails incorporating dosage schedules, frequency, and directions for every user's prescribed drug schedule. To guarantee usability and functionality during this stage, UAT is still essential.

- <u>Month 4</u>: Create a medication reminder system that will remind people to take their medication by sending out emails, SMS messages, and app alerts. The comprehensive testing process guarantees the dependability and efficiency of the reminder system.

- <u>Month 5</u>: Produce adherence reports and adherence tracking features. During this stage, customers can view reports on their adherence trends and log when they take their drugs.

- <u>Month 6</u>: Integrate drug education materials with adherence guidance, creates APIs for systems integration with healthcare providers. The tool is put through extensive UAT, security testing, and performance testing to make sure it's ready for a wider release.

By the end of the sixth month, we will start getting ready for the release. To make sure everyone is able to utilize the tool properly, training sessions are held for patients, caregivers, and healthcare personnel. To make any final tweaks before a full deployment, feedback from the release is gathered.

3.2. Iteration plan

The iteration plan makes sure that the development process is gradual and iterative, with a particular focus on tasks and deliverables at each iteration. The four primary tasks of our iteration are planning, development, testing, and review. Iterations are two weeks long.

Our team chooses user stories from the backlog, allocates responsibilities to team members, and establishes the goals and tasks for the iteration during the planning phase. Implementing the additions and functionality slated for the iteration, doing code reviews, and making sure coding standards are followed are all part of development.

Testing is a crucial stage in which defects are found and fixed through the execution of unit and integration tests. Selected users participate in user acceptance testing to make sure the tool satisfies their needs. Lastly, the review and retrospective phase entails showcasing finished features, getting input from relevant parties, and holding a retrospective meeting to talk about enhancements for the following iteration.

3.3. Platform development and launch

During the first development phase, fundamental functions including user authentication, profile management, and medication schedule configuration are developed, as well as the development environment and tools are set up.

The implementation of the adherence tracking, reminder system, and instructional materials is the next step in feature development. APIs are created to be integrated with systems used by healthcare providers. Throughout these stages, extensive testing and validation are carried out to guarantee functionality and performance.

Developing training materials, holding training sessions, and completing the release schedule are all part of launch preparation. Before the official launch, a version is made available to a limited number of users, and their input is gathered to make the required changes.

3.4. Story cards

Throughout the development process, user tales are recorded and monitored via the story card. For the user authentication system, an example story card might be like follows:

User Story 1: Draft Backlog and Early User Stories

- **Story:** As a product owner, I want to draft a backlog and early user stories so that I can provide a roadmap for the next stages of development.
- **Acceptance Criteria:**
  - A comprehensive backlog is created.
  - Early user stories are detailed and prioritized.
- **Value Points:** 5

User Story 2: Develop User Authentication and Profile Management System

- **Story:** As a user, I want a secure authentication system and profile management functionality so that I can safely login and manage my personal information.

- **Acceptance Criteria:**
    - Users can register, log in, and recover passwords.
    - Users can update personal information and notification preferences.

- **Value Points:** 10

User Story 3: Interface for Setting Up Drug Schedules and Initial UAT

- **Story:** As a user, I want to set up my drug schedules and participate in initial UAT to ensure the system meets my needs.

- **Acceptance Criteria:**
    - Users can input medication details and set reminders.
    - UAT sessions are conducted, and feedback is used to make necessary changes.

- **Value Points:** 10

User Story 4: Develop Medication Reminder System and Comprehensive Testing

- **Story:** As a user, I want to receive reliable reminders to take my medication, and as a product owner, I want to ensure the system is thoroughly tested.

- **Acceptance Criteria:**
    - Reminder system sends alerts via email, SMS, and app notifications.
    - Functional, reliability, and performance testing is conducted.

- **Value Points:** 12

User Story 5: Produce Adherence Reports and Tracking Features

- **Story:** As a user, I want to log my medication intake and view adherence reports to track my trends.

- **Acceptance Criteria:**
    - Users can log medication intake and view/export adherence reports.
    - System provides visual aids such as charts and graphs.

- **Value Points:** 8

User Story 6: Integrate Drug Education Materials and Healthcare Provider APIs

- **Story:** As a user, I want access to drug education materials, and as a healthcare provider, I want to integrate with the tool to monitor patient adherence.

- **Acceptance Criteria:**

    - Users can access educational content related to their medications.

    - APIs are developed for secure integration with healthcare provider systems.

- **Value Points:** 10

User Story 7: Extensive UAT, Security, and Performance Testing

- **Story:** As a product owner, I want to conduct extensive UAT, security testing, and performance testing to ensure the tool is ready for wider release.

- **Acceptance Criteria:**

    - UAT sessions are completed, security vulnerabilities are resolved, and performance benchmarks are met.

- **Value Points:** 10

User Story 8: Training Sessions and Final Adjustments

- **Story:** As a project manager, I want to conduct training sessions and gather feedback from the release to make final adjustments before full deployment.

- **Acceptance Criteria:**

    - Training materials are developed, and sessions are conducted.

    - Feedback from initial users is collected and used to make final adjustments.

- **Value Points:** 10

4. Explore Phase
4.1. Iteration Planning

Iteration planning in the Medication Adherence Tool project involves organizing and scheduling the development work into manageable, time-boxed sprints, typically two weeks long. This iterative approach ensures that the project progresses steadily, allows for frequent reassessment, and incorporates user feedback continuously.

Objectives:

1. Define Clear Goals for Each Iteration: Break down the project into smaller, actionable tasks with specific goals for each iteration.Ensure that each iteration delivers a potentially shippable product increment.

2. Prioritize User Stories: Select and prioritize user stories from the product backlog that align with project objectives and user needs.Ensure that the most critical features are developed first.

3. Allocate Resources Effectively: Assign tasks to team members based on their skills and availability.Balance the workload to avoid bottlenecks and ensure steady progress.

4. Establish Success Criteria: Define clear acceptance criteria for each user story.Ensure that the iteration goals are measurable and achievable.

Activities:

1. Iteration Planning Meeting:

   - Hold a meeting at the beginning of each iteration with the entire team to discuss goals, user stories, and tasks.

   - Review the product backlog and select user stories for the iteration.

2. Task Breakdown and Assignment:

   - Break down selected user stories into smaller tasks.

   - Assign tasks to team members, considering their expertise and workload.

3. Establishing a Definition of Done (DoD):

   - Define what constitutes "done" for each task and user story.

   - Ensure that the DoD includes coding, testing, documentation, and user acceptance criteria.

4. Estimation:

   - Estimate the effort required for each task using techniques like Planning Poker or story points.

   - Ensure that the iteration scope is realistic and achievable within the time frame.

4.2. Monitoring Iteration Progress

Effective monitoring of iteration progress ensures that the Medication Adherence Tool project stays on track, meets deadlines, and maintains high quality. Here are the key components and best practices for monitoring iteration progress:

Objectives:

1. Track Task Completion: Ensure that all tasks assigned in the iteration are completed on time.Monitor the status of each task and user story.

2. Identify and Resolve Issues Quickly: Detect any obstacles or issues early in the iteration.Facilitate prompt resolution to avoid delays.

3. Maintain Quality Standards :Continuously test and review code to maintain high-quality standards.Ensure that the product meets the defined acceptance criteria.

4. Facilitate Team Communication :Keep all team members informed about progress, issues, and changes.Promote transparency and collaboration within the team.

Activities:

Sprint Planning Meetings

Sprint 1 Planning Meeting

1. **Date**: June 1, 2024

2. **Attendees**: Project manager, Nilisha, Belen, Daria, Amrita, Persabel, Edet, Muskan.

3. **Agenda**:

   ○ Introduction to the project and objectives

   ○ Discuss user stories related to user authentication and profile creation

   ○ Estimate tasks and assign them to team members

4. **Discussion**:

   ○ **Project Introduction**: Overview of the MediTrack project, its purpose, and goals. Emphasis on the importance of secure and reliable user authentication and profile creation.

   ○ **User Stories**:

      ■ As a user, I want to create a secure account to save my medication data.

      ■ As a user, I want to log in with my credentials to access my profile.

   ○ **Task Estimation**:

      ■ Task 1: Design user registration form (4 hours)

      ■ Task 2: Implement backend for user registration (6 hours)

      ■ Task 3: Design user login form (4 hours)

      ■ Task 4: Implement backend for user login (6 hours)

   ○ **Task Assignment**:

      ■ Muskan: Design user registration and login forms

- ■ Belen: Implement backend for user registration

- ■ Daria: Implement backend for user login

5. **Decisions**:

   - ○ Approved user stories for user authentication and profile creation.

   - ○ Task assignments finalized.

6. **Action Items**:

   - ○ To start designing the user registration form.

   - ○ To begin implementing the backend for user registration.

   - ○ To start implementing the backend for user login.

Sprint 2 Planning Meeting

1. **Date**: June 8, 2024

2. **Attendees**: Project Manager, Nilisha, Belen, Daria, Amrita, Persabel, Edet, Muskan.
   Agenda:

   - ○ Review progress of Sprint 1

   - ○ Discuss user stories related to medication schedule setup interface

   - ○ Estimate tasks and assign them to team members

3. **Discussion**:

   - ○ **Sprint 1 Review**:

     - ■ User authentication and profile creation features successfully implemented.

     - ■ Issues faced: API integration challenges.

     - ■ Solutions: Detailed documentation and collaboration resolved the issues.

   - ○ **User Stories**:

     - ■ As a user, I want to set up my medication schedule to receive reminders.

     - ■ As a user, I want to edit my medication schedule to update my dosage or timing.

   - ○ **Task Estimation**:

     - ■ Task 1: Design UI for medication schedule setup (6 hours)

     - ■ Task 2: Implement backend logic for scheduling (8 hours)

- Task 3: Create test cases for schedule interface (4 hours)
  - **Task Assignment**:
    - Persabel: Design UI for medication schedule setup
    - Amrita: Implement backend logic for scheduling
    - Edet: Create test cases for schedule interface

4. **Decisions**:
   - Approved user stories for medication schedule setup interface.
   - Task assignments finalized.

5. **Action Items**:
   - to design the UI for medication schedule setup.
   - to implement the backend logic for scheduling.
   - to create test cases for the schedule interface.

Daily Stand-up Meetings: These are the most important five meetings out of ten which were held for this project.

Daily Stand-up Meeting 1 (June 2, 2024)

1. **Date**: June 2, 2024
2. **Attendees**: Project Manager, Nilisha, Belen, Daria, Amrita, Persabel, Edet, Muskan
3. **Agenda**:
   - What was done yesterday?
   - What will be done today?
   - Any impediments/blockers?
4. **Updates**:
   - **Project Manager**: Reviewed project objectives and coordinated with team members. Today, we will monitor the progress and assist with any blockers.
   - **Muskan**: Completed the initial design for the user registration form. Today, we will finalize the design and start on the user login form.
   - **Belen**: Set up the project repository and database schema. Today, we will start coding the backend for user registration.

- ○ **Daria**: Researched API integration methods. Today, we will begin implementing the backend for user login.

5. **Impediments**:

   - ○ **Daria**: Encountered difficulties with API authentication. Needs support from Belen.

6. **Next Steps**:

   - ○ **Project Manager**: Continue project oversight and provide assistance as needed.

   - ○ **Muskan**: Complete design tasks and move to login form design.

   - ○ **Belen**: Assist Daria with API authentication and continue backend development.

   - ○ **Daria**: Resolve API issues with help from Belen and continue backend implementation.

Daily Stand-up Meeting 3 (June 10, 2024):

- ○ **What was done yesterday?**
   - i. User stories for medication schedule setup were finalized.
   - ii. Initial design for the reminder system was drafted.

- ○ **What will be done today?**
   - i. Begin coding the medication schedule setup interface.
   - ii. Continue refining the design for the reminder system based on team feedback.

- ○ **Any impediments?**
   - i. Waiting for final confirmation on the API integration requirements.

Daily Stand-up Meeting 5 (June 23, 2024)

- ○ **What was done yesterday?**
   - i. Coding for medication schedule setup was initiated.
   - ii. Team reviewed and provided feedback on the initial design of the reminder system.

- ○ **What will be done today?**
   - i. Finalize coding for medication schedule setup.
   - ii. Start initial development of the reminder system.

- - **Any impediments?**
    - i. API integration requirements still pending.

Daily Stand-up Meeting 8 (July 12, 2024)

- - **What was done yesterday?**
    - i. Completed initial development of the reminder system.
    - ii. Started testing the medication schedule setup.
- - **What will be done today?**
    - i. Continue testing medication schedule setup.
    - ii. Begin drafting user stories for adherence tracking.
- - **Any impediments?**
    - i. None at this moment.

Daily Stand-up Meeting 10 (July 30, 2024)

- - **What was done yesterday?**
    - i. Testing for medication schedule setup is almost complete.
    - ii. Initial user feedback on the reminder system was gathered.
- - **What will be done today?**
    - i. Address feedback on the reminder system.
    - ii. Start development of the adherence tracking feature.
- - **Any impediments?**
    - i. Need clarification on user interface changes suggested by feedback.

Sprint Review Meetings

Sprint 1 Review Meeting

1. **Date**: June 7, 2024
2. **Attendees**: Project Manager, Nilisha, Belen, Daria, Amrita, Persabel, Edet, Muskan, Stakeholders
3. **Agenda**:

- Demonstration of completed work

- Feedback from stakeholders

4. **Discussion**:

- **Demo**: Presented the user authentication and profile creation features. Showed the user registration and login process.

- **Feedback**:

- Positive response to the secure and efficient user authentication.

- Suggestions for improvement: Add password recovery option and enhance user profile UI.

5. **Decisions**:

- Decided to add a password recovery feature in the next sprint.

- Enhance the user profile UI based on feedback.

6. **Action Items**:

- to design the password recovery UI.

- to implement the password recovery backend.

- to improve the user profile UI.

Sprint Retrospective Meetings

Sprint 1 Retrospective Meeting

1. **Date**: June 7, 2024

2. **Attendees**: Project Manager,Nilisha, Belen, Daria, Amrita, Persabel, Edet, Muskan

3. **Agenda**:

- What went well

- What didn't go well

- Improvements for the next sprint

4. **Discussion**:

- **What Went Well**:

- Successful implementation of user authentication and profile creation.

- Strong team collaboration and communication.

- ○ **What Didn't Go Well**:
    - ■ Encountered API integration issues, causing minor delays.
- ○ **Improvements**:
    - ■ Plan for more detailed technical reviews before starting implementation.
    - ■ Increase frequency of team check-ins to identify and resolve issues early.

5. **Decisions**:
   - ○ Agreed to conduct a dedicated technical review session before each sprint.
   - ○ Increase daily stand-up meeting duration to allow for more thorough updates.

6. **Action Items**:
   - ○ to schedule and lead technical review sessions.
   - ○ to document API integration processes and share with the team.
   - ○ to monitor daily stand-up meetings and ensure all issues are addressed.

Necessary Approvals

Tool Approvals in Sprints

Sprint 1: User Authentication and Profile Creation

- ● **Key Focus:**
    - ○ Implementing user authentication and creating user profiles.
    - ○ Ensuring secure user login and data protection.
- ● **Tasks:**
    - ○ Develop a secure authentication system.
    - ○ Implement profile creation functionality.
    - ○ Regulatory Compliance: Secure FDA approval for compliance with healthcare standards.

Sprint 2: Medication Schedule Setup Interface

- ● **Approval Needed**: Usability testing and user experience design.
- ● **Approved By**: UX Designer

Sprint 3: Reminder System Development

- **Approval Needed**: Integration with notification services (Email, SMS).

- **Approved By**: Tech Lead

Sprint 4: Adherence Tracking and Reporting

- **Approval Needed**: Data accuracy and reporting standards.

- **Approved By**: Data Analyst

Sprint 5: Educational Resources Integration

- **Approval Needed**: Content accuracy and relevance.

- **Approved By**: Content Specialist

Sprint 6: API Development for Healthcare System Integration

- **Approval Needed**: API security and interoperability standards.

- **Approved By**: API Specialist

5. Adopt Phase
5.1. Customer Focus Groups

Stakeholders including healthcare providers, patients and caregivers are the focal point to complete the project of MediTrack. After they have interacted with the tool, we realize how their experience was, how user friendly the tool is and what changes should be adapted for the better outcome. These qualitative insights helped us refine the working methods.

Objectives:

- To deliver product based on user preferences and needs

- To validate the acceptable constraints related to medication management.

- To authenticate user interface (UI) design, functionality, and overall usability.

- To identify opportunities for enhancing user experience and satisfaction.

Key Findings:

- 8 customers reviewed the product to provide feedback.

- Healthcare providers appreciated the tool's integration with electronic health records (EHRs) for smooth patient data access.

- Patients valued the tool's intuitive UI and reminders for medication adherence.

- Patients suggested having the daily, weekly or monthly medication reminders for the same person based on the medication requirement. One patient can have polypharmacy i.e., multiple medications to be taken as per the requirement. One medicine should be taken daily while some medicine should be taken twice daily. So, change was adapted in a way that the reminder is based on the medication of the patient.

- Caregivers emphasized the importance of customizable alerts and notifications for patient monitoring. If caregivers are also notified about the medication alerts, then, they can also effectively use it in the best way possible.

- The patient and caregivers suggested that the drug education material should be easy to read and understand. They preferred layman terms and definitions over medical jargons.

- Some patients have the tendency to forget the password, so they suggested having easier access to recover the password.

- Some android users had difficulty in using the application. Users suggested that it is important for the program to be accessible across different devices. We must ensure to have a mobile responsive design.

- Enhance language support to accommodate diverse patient demographics. Language shouldn't be a barrier to the program. We must accommodate diverse languages to meet the patient demographics.

- Users didn't find the reporting system within the program. This suggestion can be implemented to develop personalized reporting features for better patient management.

5.2. Technical Reviews

Technical reviews are performed so that the program is well designed, is of quality and is cost effective. Any flaws in the programming part can be corrected with timely feedback, testing in periodic intervals. Having technical review and technical excellence will help us adapt as per customer requirement while being cost effective.

Objectives:

- To assess system performance under different loads and data volume.

- To validate compliance with healthcare data security.

- To identify potential areas for technical optimization and enhancement.

Key Findings:

- 5 members of the technical team are part of the technical review session.

- Performance testing ensured that the program could handle the existing and new user activities without lagging or delay. Timely performance review is required to review the stability of the system.

- Security audits verified adherence to data encryption and control protocols. Data security ensures that the program has all the data encrypted and secured with no issue of data leakage. The data is in control with the programming team. Timely security assessments help to cut off any possible threats.

- Timely system optimizations help to determine the unnecessary bugs and enhance efficiency. This helps the program to stay stable during peak usage periods. Timely optimization helped us to explore the data recovery capability in case of any data loss.

5.3. Team Performance Evaluations

Team performance evaluations evaluated the discipline, productivity, outcome and process of Agile team to ensure they are delivering releasable products and if any changes should be implemented.

Objectives:

- To ask questions like "What went well?" "What didn't go as well?" and "How do we improve the next iteration?" and "What don't we understand?" to adhere with continuous improvement.(Highsmith,2009)

- To evaluate collaboration, communication and responsiveness of the team.

Summary of Evaluation:

- A self-assessment was performed where team members evaluated how well they planned the iteration and their performance. The performance and behavior of the team was at standard and above standard. The below standard part is to be analyzed for further improvement. Figure 1 shows the Team self assessment graph with behavior in X-axis and performance in Y-axis.(Highsmith,2009)
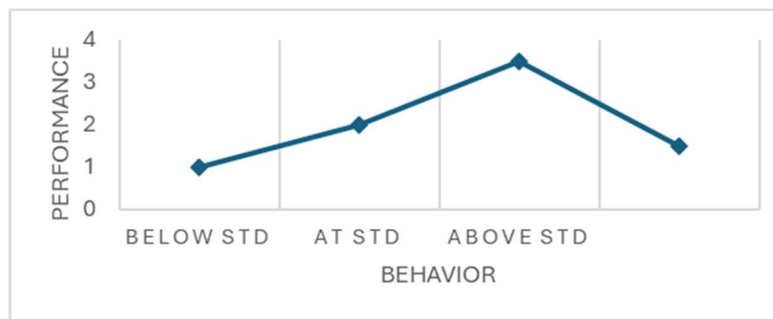
- The team performance evaluation showed that the project manager is not micro-managing.

- Team shared that team members are committed to daily meetings.

- Every team member agreed with the periodic daily stand-up meetings, and no one suggested changing them.

- Team met the sprint goals showing the effectiveness of Agile project management.

- Communication channels between development, testing and execution teams were smooth providing quick problem solving.

- Feedback to include cross functional training was provided to enhance the versatility of the team.

- Feedback of knowledge sharing and continuous learning through workshops and peer reviews was provided as a part of continuous improvement.

5.4. Project Status Reports

The report of project status provides control of project and assists in enhancing team performance. Project Status Report provides updates and progress to the stakeholders and even to the project leaders. The status report showed that the product is economically feasible, and no feature is required to eliminate. This report ensures that the dimensions of Agile Triangle i.e., value, quality and constraints are addressed.

Value and Scope Status:

- The burn up chart was determined based on the number of stories delivered. The team has a good performance with minimal difference from the original plan. The plan is progressive and provides transparency for everyone. Figure 2 shows the Burn up chart showing the delivery performance with Iterations in X-axis and Stories in Y-axis.(Highsmith,2009)

Figure 2 Delivery Performance (Burn-Up Chart)

Quality Status:

- The technical reviews provided us with the information that the program is quality by design.

- Product Quality Assessment in Figure 3 shows the team's assessment of their work as better performance. Iteration is in the X-axis and the assessment level is in Y-axis of the graph.(Highsmith,2009)
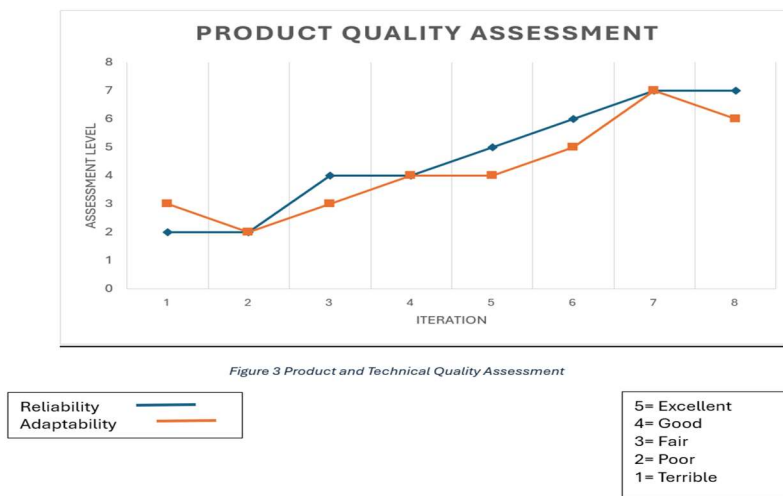

Figure 3 Product and Technical Quality Assessment

Figure 3 Product and Technical Quality Assessment

Reliability
Adaptability

5= Excellent
4= Good
3= Fair
2= Poor
1= Terrible

Cost Status:

- The expected cost to complete is in shape and according to the plan.

Key Findings:

- In this phase, we had an overview of completed Agile sprints, including user story implementation and acceptance testing results.

- We identified and mitigated strategies for potential risks and challenges encountered during Agile iterations.

- Stakeholders appreciated the clear visibility into project milestones and outcomes provided by the Agile project status reports.

- Regular feedback loops were established to incorporate stakeholder input into iterative development cycles, ensuring alignment with end-user needs.

6. Close Phase

In this phase, we consolidate the outcomes and insights gained throughout the MediTrack project, ensuring thorough documentation, evaluation of achievements, and preparation for ongoing support and future enhancements.

6.1. Final Deliverables and Documentation

The final deliverables of the MediTrack project include comprehensive documentation detailing every aspect of the project, such as user manuals, technical specifications, and implementation guides.

Project Report:

This report covers the entire lifecycle of the project, from conception through execution, detailing the background, objectives, and scope. It includes execution phases such as iterative development, stakeholder engagement, technical reviews, and user feedback. Challenges encountered, such as data security risks, legal risks, market competition, and stakeholder negotiations, are documented along with the mitigation strategies employed.

Presentation

Final Presentation Deck:

A visually appealing presentation summarizing key points, methodologies, findings, and recommendations for stakeholders. This deck will be used for final presentations to project sponsors and stakeholders, providing a comprehensive overview of the project's achievements and outcomes.

User Manual

Comprehensive Guide:

A detailed user manual covering all aspects of the tool, including user authentication, profile management, medication schedule setup, reminder systems, adherence tracking, and integration with healthcare systems. It includes step-by-step instructions, screenshots, and troubleshooting tips to assist users in navigating the tool effectively.

Technical Documentation

System Architecture/ Prototype:

Detailed diagrams and descriptions of the system architecture, including the design and implementation of key features such as user authentication, reminder systems, and data integration.

API Documentation:

Documentation of all APIs developed for integration with healthcare providers' systems, including endpoints, request/response formats, and usage examples.

6.2. Evaluations and Lessons Learned

<u>Evaluation Summary</u>

<u>Customer Focus Groups:</u>

Focus groups conducted with healthcare providers, patients, and caregivers provided valuable insights into user preferences, needs, and pain points. The feedback gathered led to several key improvements in the user interface and functionality.

<u>Technical Reviews:</u>

Regular technical reviews ensured that the tool met scalability, reliability, and security standards. Performance testing confirmed the tool's ability to handle concurrent users and data processing without performance degradation.

<u>Lessons Learned</u>

<u>Agile Methodology:</u>

The iterative approach allowed for continuous feedback and improvement, ensuring that the tool met user needs and maintained high-quality standards. However, more frequent and detailed sprint planning sessions could have further optimized resource allocation and task management.

<u>Stakeholder Engagement:</u>

Regular communication with stakeholders was crucial in aligning project goals with user expectations. Establishing clear communication channels from the beginning helped in managing expectations and addressing issues promptly.

6.3. Closure Activities
<u>Final Meetings</u>

<u>Meeting Summary:</u>

We held 4 meetings from Tuesday, June 14th, until today. The meetings lasted 15-25 minutes each and were held via Zoom. These meetings were critical for discussing progress, addressing challenges, and planning next steps.

Documentation Handover:

All project documentation, including the project report, presentation, user manual, and technical documentation, will be handed over to the relevant stakeholders and archived for future reference.

6.4. Post-Project Activities

User Training and Support

Training sessions will be conducted for patients, caregivers, and healthcare providers to ensure they can utilize the tool effectively. Comprehensive support will be provided to address any issues or questions that may arise post-launch.

Monitoring and Maintenance

Ongoing monitoring of the tool's performance and user feedback will be conducted to identify areas for improvement. Regular maintenance updates will be scheduled to ensure the tool remains secure and functional.

6.5. Continual Improvement and Future Planning

Feedback Loop

Establishing a continuous feedback loop with users to gather insights and suggestions for future enhancements. This will help in keeping the tool relevant and user-friendly.

Roadmap for Future Development

A roadmap outlining potential future features and improvements based on user feedback and technological advancements. This includes exploring new functionalities, integrating with additional healthcare systems, and enhancing user experience.

7. Conclusion

So, MediTrack stands as a vital tool in transforming the medication adherence landscape for diabetic patients. By leveraging the Agile Project Management approach, we have navigated through various constraints and uncertainties to develop a user-friendly, secure, and integrated solution. MediTrack aims to enhance patient outcomes through effective medication management, prompt reminders, and seamless interaction with healthcare systems.

Through comprehensive planning, execution, and stakeholder collaboration, MediTrack has been meticulously designed to meet the diverse needs of patients, healthcare providers, and caregivers. The iterative development process ensured that each feature, from user authentication to adherence tracking, was thoroughly tested and refined based on feedback, ensuring a high-quality and reliable tool.

As we move forward, the continuous support, regular updates, and user training will ensure that MediTrack remains an essential part of diabetic patients' health management. Our commitment to ongoing improvement and adaptation based on user feedback will keep MediTrack relevant and effective in the ever-evolving healthcare landscape. By addressing the challenges of medication adherence with innovative solutions, MediTrack is set to make a significant positive impact on patient health and well-being.

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