Monen: A new way to learn

Software Development Plan

Version 1.0

Revision History

| **Date** | **Version** | **Description** | **Author** |
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Software Development Plan

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# Introduction

This *Software Development Plan* contains the following information:

Project Overview — provides a description of the project's purpose, scope, and objectives.  It also defines the deliverables that the project is expected to deliver.

Project Organization — describes the organizational structure of the project team.

# Project Overview

## Project Purpose, Scope, and Objectives

**Project Purpose:**

The purpose of this project is to develop a modern and interactive flashcard application called "Monen". Monen aims to provide an engaging and efficient learning experience by combining the concept of flashcard revision with playing games. This app is designed to make learning enjoyable and interactive while catering to a wide range of learners.

**Project Scope:**

The project encompasses the entire software development life cycle of Monen, including requirements analysis, design, development, testing, and deployment. It also involves the creation of supporting documentation and user guides. The scope of the project extends to delivering both mobile versions for iOS and Android platforms.

**Project Objectives:**

Create an Engaging Learning Environment: Develop a user-friendly app that offers engaging learning experiences through gamified activities.

Encourage Collaboration: Enable users to interact with each other through multiplayer games, class setups, and forums.

Customization and Personalization: Allow users to customize flashcards and personalize their learning journey.

Enhance Accessibility: Ensure that Monen is accessible to users on both iOS and Android, providing a convenient way to study on the go.

Promote Consistent Learning: Implement features like daily attendance and achievements to motivate users to study regularly.

Provide Quality Content: Allow users to access a library of flashcard decks created by others, ensuring the availability of valuable learning resources.

## Assumptions and Constraints

Assumptions:

* The project assumes that there will be access to the necessary budget and resources for development.
* It assumes that the team has the required skills and expertise for software development.
* The project assumes that users will have access to smartphones running iOS or Android.

Constraints:

* Budget constraints may affect the scope and features of the app.
* The availability of skilled staff may impact the project timeline.
* Constraints related to hardware and software compatibility may arise during development.
* The project has 4 people, there will be no more people added during the project.

## Project Deliverables

The project will deliver the following artifacts:

* Monen flashcard DEMO application (Target Delivery: [Date])
* Monen authentication (Target Delivery: [Date])
* Multiplayer games and collaborative features (Target Delivery: [Date])
* User guides and documentation (Target Delivery: [Date])
* Access to a library of flashcard decks (Target Delivery: [Date])
* Daily attendance and achievement features (Target Delivery: [Date])
* Third party social network integration (Target Delivery: [Date])
* Application customization (Target Delivery: [Date])

# Project Organization

## Organizational Structure

The organizational structure of the project team for the development of Monen is designed to efficiently manage and oversee the various aspects of the project. The project team consists of the following key roles:

Project Manager (PM): The Project Manager is responsible for overall project management, including planning, resource allocation, and monitoring project progress. The PM ensures that the project stays on track and is completed within the established timeline and budget.

Development Team: The development team includes software engineers, designers, and developers responsible for creating the Monen flashcard application for iOS and Android.

Quality Assurance (QA) Team: The QA team is tasked with testing the application, identifying and reporting issues, and ensuring the final product meets the required quality standards.

User Experience (UX) Designers: UX designers focus on creating an intuitive and user-friendly interface for the application, ensuring that users have an enjoyable and efficient experience.

Game Designers: Game designers work on custom-designed games integrated into the learning experience to make it engaging and interactive.



## Roles and Responsibilities

| **Person** | **Role** |
| --- | --- |
| Nguyễn Nhật Quang, Software Engineer  Phùng Quang Minh Huy, Software Engineer  Huỳnh Đăng Khoa, Software Engineer  Trần Minh Khoa, Software Engineer | Responsible for software development and coding.  Workflow details: This team will follow the software development life cycle (SDLC) to design, code, test, and deploy the application. |
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| Nguyễn Nhật Quang Project Manager | Responsible for overall project management.  Workflow details: Planning, resource allocation, and project monitoring.  Supporting processes: Risk management, stakeholder communication, and project reporting. |
| Phùng Quang Minh Huy, UX Designer  Trần Minh Khoa, UX Designer | Responsible for designing the user interface and enhancing user experience.  Workflow details: Creating wireframes, prototypes, and user interface designs.  Supporting processes: User testing, feedback analysis, and design iteration. |
|
| Huỳnh Đăng Khoa, Quality Assurance  Trần Minh Khoa, Quality Assurance  Phùng Quang Minh Huy, Quality Assurance | Responsible for testing the application to ensure quality and functionality.  Workflow details: The QA team will create test cases, execute testing, and report defects.  Supporting processes: Test plan creation, defect tracking, and regression testing. |
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|
| Nguyễn Nhật Quang, Game Designer  Huỳnh Đăng Khoa, Game Designer | Responsible for creating custom games within the application.  Workflow details: Game concept creation, game design, and integration with the learning experience.  Supporting processes: User feedback incorporation, game testing, and updates. |
|

# Management Process

## Project Estimates

## Project Plan

### Phase and Iteration Plan

Phase 1: Design

Estimated Duration: 2 weeks

Objective: Analyze user requirements, design the user interface and user experience, and establish a detailed plan for the next phase.

Phase 2 :Develope

Estimated Duration: 2 weeks

Objective: Develop and design all essential pages required for the app, ensuring a seamless and user-friendly interface.

Phase 3: Add Features and Demo

Estimated Duration: 2 week

Objective: Develop the Demo application, with integrated games and all basic features. Build the Demo.

Phase 4: Add Feature

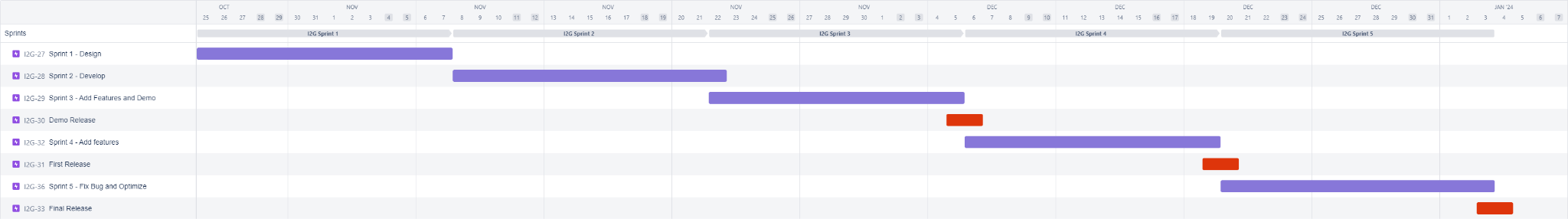
Estimated Duration: 2 week

Objective: Test the application, identify and report issues, and ensure quality and performance. Build the first release

Phase 5:Fix Bug and Optimize

Estimated Duration: 2 week

Objective: Deploy the application to app stores, monitor performance, and collect user feedback. Build the final release



### Releases

- Sprint 1: Complete the app design

* Write the Vision Documentation
* Write the Software Development Plan
* Setup Environment
* Design User Interface
* Database design
* Design games

- Sprint 2: Add new features

* Create Register Page
* Create Login Page
* Create Home Page
* Code the Flashcard Page
* Code the Flashcard Deck Page
* Create User Profile

- Sprint 3:Create the first Demo

* Create the Flashcard Deck storing system
* Create Search Bar with Search Engine
* Code games
* Create the Flashcard Deck learning mode
* Create Course Feature

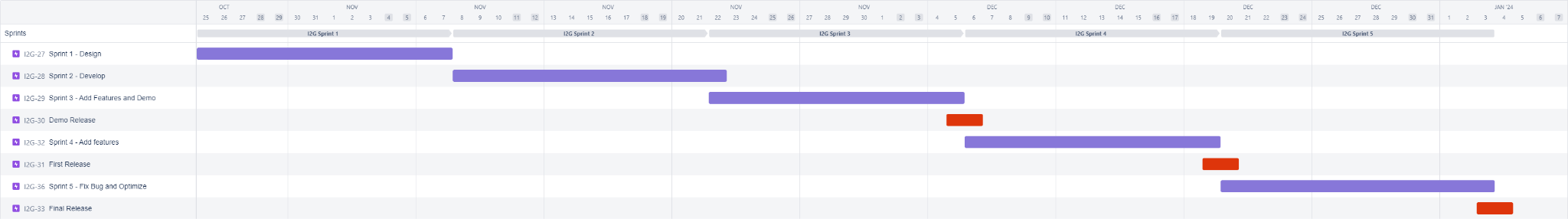
- Sprint 4:Add new feature

* Connect the 3rd party to send reminders via mail or notifications
* Customize App Theme
* Write the user guiding Documentation

- Sprint 5: Fix bug and optimize

* Fix bugs
* Optimize code

### Project Schedule

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## Project Monitoring and Control

### Reporting

Weekly meeting: use Google Meets every Monday of the week. Via Google Meets, all the members can present the difficulties and find the solutions together.

Weekly status report: while meeting, all the group write the report together.

Informal chats: all the problems while doing project can be discussed by Messenger.

### Risk Management

| **Risk ID** | **Risk Description** | **Probability** | **Impact** | **Risk Exposure** | **Priority** | **Mitigation Strategy or Contingency Plan** |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | Sudden Requirement Changes occur when users or clients request significant changes to project requirements, leading to schedule changes and increased costs | 70% | 100 | 70 | High | **Change Control Process:**  Establish a clear process for assessing, approving, and implementing changes.  **Buffer Resources:**  Maintain resource buffers to absorb the impact of unexpected changes.  **Documentation and Traceability:**  Keep detailed documentation for understanding change impacts.  **Risk Management:**  Regularly assess project risks and predefine strategies for changes.  Stakeholder Involvement:  Actively involve stakeholders to identify changes early in the process. |
| 2 | Funding and Budget Overruns: Budget constraints or unexpected costs could disrupt the project timeline. | 60% | 90 | 54 | High | **Detailed Cost Estimation:**  Ensure thorough and accurate estimation of project costs before initiation.  **Contingency Budget:**  Allocate a contingency budget to absorb unforeseen expenses and risks.  **Regular Financial Reviews:**  Conduct regular reviews to track expenditures against the budget.  **Prioritize Features:**  Collaborate with stakeholders to prioritize features based on available funds. |
| 3 | Lack of Resources may occur when there are insufficient resources for the application development phase, leading to delays and increased costs. It may create pressure on the project team. | 50% | 50 | 25 | High | **Resource Backup Plan:**  Develop a backup plan for key roles to address unexpected resource shortages.  **Skill Development Programs:**  Invest in skill development programs to enhance the capabilities of the existing team.  **Flexible Scheduling:**  Implement flexible scheduling to accommodate resource constraints without compromising productivity.  **Prioritization and Phasing:**  Prioritize tasks and consider phasing to manage workloads during resource shortages. |
| 4 | Loss of Communication with Team Members may occur when project team members do not regularly report progress or lose communication, leading to misunderstandings and delays. | 30% | 60 | 18 | Medium | **Establish Communication Protocols:**  Define clear communication protocols and channels for the team.  **Regular Check-Ins:**  Conduct regular check-in meetings to ensure continuous communication.  **Use Collaboration Tools:**  Leverage collaboration tools for real-time communication and updates.  **Team Building Activities:**  Foster team cohesion through team-building activities to strengthen relationships. |
| 5 | Dependencies on external services, APIs, or third-party components might face disruptions. | 30% | 50 | 15 | Low | **Fallback Mechanisms:**  Develop fallback mechanisms or alternative workflows in case of service disruptions.  **Continuous Monitoring:**  Implement continuous monitoring of external services for early detection of issues.  **Contractual Agreements:**  Review contractual agreements with third-party providers for dispute resolution.  **Escalation Plans:**  Create escalation plans to expedite issue resolution with external service providers. |
| 6 | Rapid Technological Advancements: in technology may render certain app features obsolete or less competitive. | 10% | 30 | 3 | Low | **Agile Adaptation:**  Embrace an agile mindset to quickly adapt to new technologies as they emerge.  **Diversified Technology Stack:**  Maintain a diversified technology stack to reduce the impact of rapid changes in a single area.  **Innovation Reserve:**  Allocate a portion of the budget and resources for innovation and experimentation.  **Strategic Partnerships:**  Form strategic partnerships with technology vendors to access early insights and support. |

### Configuration Management

Appropriate tools will be selected which provide a database of Change Requests and a controlled versioned repository of project artifacts.

All source code, test scripts, and data files are included in baselines. Documentation related to the source code is also included in the baseline, such as design documentation. All customer deliverable artifacts are included in the final baseline of the iteration, including executables.