

**Individual Project**

**Project Plan Document**

**Date: 19.03.2024**

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**Version History**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Version | Date | Author | Changes | State |
| 1.0 | **23.02.2024** | **Claudiu Badea** | **Initial plan with objectives and risk assessment.** | **Complete** |
| 1.1 | **26.02.2024** | **Claudiu Badea** | **Updates on testing strategies** | **Complete** |
| 1.2 | **05.03.2024** | **Claudiu Badea** | **Updates on configuration management** | **Complete** |
| 1.3 | **19.03.2024** | **Claudiu Badea** | **Added roles** | **Complete** |

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## **Project Definition**

### **Project Background**

QWEST is a web application designed to simplify travel planning. It combines a React frontend and Java Spring Boot backend to offer users customized travel itineraries. The platform uses user preferences and real-time travel data to create personalized travel plans, enhancing the planning experience with interactive features.

### **Project Goal**

The primary objective of the QWEST is to simplify and personalize the travel planning process. By offering an adaptive and user-friendly platform, it aims to cater to the unique needs and preferences of travellers worldwide, making travel planning an enjoyable and hassle-free experience.

### **Constraints**

Development will use React for a responsive interface and Java Spring Boot for backend services. MySQL and JPA/Hibernate will manage data, with JWT for secure access control.

### **Current Situation**

Travelers currently face the challenge of using multiple platforms to plan trips. QWEST aims to unify these aspects into a single, streamlined service, enhancing the user experience by offering a platform that adapts to their personal travel preferences and simplifies the entire planning process.

## **Risk Assessment**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Risk Category | Risk Description | Mitigation Strategy | Probability | Impact | Priority |
| Technical | **Misinterpretation of project requirements** | **Regular communication with advisors and iterative feedback cycles** | **Unlikely** | **Harmful** | **High** |
| Technical | **Integration challenges with travel APIs** | **Early testing with APIs and contingency planning for alternative data sources** | **Likely** | **Moderate** | **High** |
| Technical | **Database issues (e.g., corruption, loss)** | **Implement regular backups and database redundancy plans** | **Rare** | **Critical** | **High** |
| Technical | **Inadequate system performance** | **Conduct performance testing and optimization regularly** | **Likely** | **Moderate** | **Medium** |
| Managerial | **Misalignment with user expectations** | **User testing and feedback loops in early stages** | **Likely** | **Harmful** | **High** |
| Managerial | **Poor time management** | **Adopt Agile methodology with defined sprints and milestones** | **Likely** | **Harmful** | **High** |
| Managerial | **Scope creep impacting timelines** | **Enforce a strict change control process with stakeholder agreement** | **Likely** | **Moderate** | **Medium** |
| Managerial | **Resource allocation challenges** | **Detailed project planning and resource management strategies** | **Unlikely** | **Moderate** | **Medium** |
| External | **Changes in travel regulations affecting features** | **Stay updated with travel regulations and adapt the platform accordingly** | **Rare** | **Moderate** | **Low** |
| External | **Third-party API limitations or failures** | **Establish agreements with API providers and have backup solutions** | **Likely** | **Moderate** | **Medium** |
| External | **Cybersecurity threats to user data** | **Implement state-of-the-art security measures and conduct regular security audits** | **Likely** | **Critical** | **High** |

## **Deliverables**

* 1. **Functionality**

1. **Website**
   * + **Home Page: Interactive interface for inputting travel preferences, dynamic itinerary suggestions.**
     + **Itinerary Customization: User interface for modifying and booking itineraries.**
     + **User Profile: Registration, login, profile management, and historical itineraries.**
     + **Feedback System: Interface for rating, reviewing, and sharing itineraries.**
     + **Search and Filter: Advanced filtering options for itineraries based on destinations, budget, etc.**
     + **Privacy Policy & Terms of Use: Legal pages detailing user rights and obligations.**
     + **Support and FAQs: Help sections for user guidance.**
     + **404 and Error Handling: Custom error pages for better user experience.**
2. **Admin Dashboard**
   * + **Login System: Secure access for admin roles.**
     + **Content Management: CRUD operations for itineraries, destinations, and user feedback.**
     + **User Management: Admin functionalities to manage traveler and optional content creator profiles.**
     + **Analytics Dashboard: Insights on user behavior, popular itineraries, and feedback.**
     + **Notification Management: System for creating and managing alerts and advisories for travelers.**
     + **Settings: Configuration settings for application parameters, API integrations, etc.**

**3.2 Non-Deliverables**

* **Real-time Multi-user Itinerary Planning: Collaborative planning features will not be included in this phase.**
* **Mobile Application: A dedicated mobile app is not planned for this project phase.**

**3.3 Documentation**

* **Comprehensive Project Documentation: This will encompass the project plan, technical specifications, and user documentation, elaborating on QWEST's architecture, design choices, and features. It aims to provide a thorough understanding of the project's framework and functionalities.**
* **Test Reports and Quality Assurance Documentation: Detailed records of testing strategies, methodologies employed, test outcomes, and quality assurance actions undertaken during the development cycle. This documentation is critical for ensuring the platform's reliability and optimal performance.**

**3.3 Roles**

1. **Traveler (Regular User):**
   * **Registration and profile management**
   * **Customize itineraries and book services directly, with real-time pricing and availability.**
   * **Rate and review itineraries and bookings, contributing to a community-driven recommendation system.**
2. **Travel Consultant (Admin):**
   * **Manage user-generated content for quality and appropriateness.**
   * **Manages notifications and partnerships with service providers.**
3. **Content Creator (Contributor) - Optional:**
   * **Submits travel guides, tips, and itineraries for platform publication, enriching the content and user experience.**

## **Phasing**

QWEST will implement an Agile Scrum methodology with a six-sprint structure. This approach facilitates iterative development, continuous feedback integration, and promotes adaptability to ensure optimal project outcomes.

**Sprint 1: Project Setup and Initial Backend (Weeks 1-3)**

* **Week 1: Research technologies, finalize the project plan, and begin backend setup with Spring Boot; focus on user authentication using JWT.**
* **Week 2-3: Continue backend setup, establish basic REST endpoints, and start database design discussions. Begin drafting documentation including URS.**

**Sprint 2: Frontend Development and User Flow (Weeks 4-6)**

* **Week 4: Set up the React development environment and start working on the homepage and user registration/login pages.**
* **Week 5: Develop the itinerary questionnaire interface and profile management functionalities.**
* **Week 6: Review and iterate based on initial feedback. Finalize the static pages and ensure responsive design principles are applied.**

**Sprint 3: Database Design and Data Management (Weeks 7-9)**

* **Week 7: Design the MySQL database schema. Integrate JPA/Hibernate for ORM. Start implementing the logic for dynamic itinerary creation.**
* **Week 8-9: Develop database connectivity and ensure data flows correctly between the frontend and backend. Begin simple data retrieval operations.**

**Sprint 4: Advanced Backend Features-Security Measures (Weeks 10-12)**

* **Week 10: Develop complex itinerary generation logic. Start integrating travel APIs for real-time data.**
* **Week 11: Implement role-based access control and enhance security measures. Continue API integration and testing.**
* **Week 12: Focus on performance testing and optimization. Begin preliminary testing of itinerary customization features.**

**Sprint 5: Integration, Testing, and Feedback (Weeks 13-15)**

* **Week 13: Integrate frontend and backend components thoroughly. Focus on itinerary customization and booking functionalities.**
* **Week 14: Conduct user acceptance testing, gather feedback, and iterate on the product.**
* **Week 15: Enhance the user feedback system and refine the UI/UX based on user testing insights.**

**Sprint 6: Final Adjustments (Weeks 16-18)**

* **Week 16: Implement real-time functionalities using Websockets. Prepare for deployment by setting up Docker.**
* **Week 17: Finalize documentation, including the test plan and project plan revisions. Conduct final testing of all features.**
* **Week 18: Review, finalize, and submit the project. Ensure all deliverables are prepared and that the application is ready for launch.**

**For QWEST, the adoption of three-week sprints aims to strike a balance between swift development and sufficient time for in-depth feature creation, testing, and evaluation. This period facilitates ongoing feedback incorporation and cyclic enhancements without sacrificing quality or project breadth.**

**Sprint operations include:**

* **Sprint Planning: Initiating each sprint by pinpointing tasks, setting project focus, and establishing sprint objectives.**
* **Sprint Demo: Concluding each sprint with a demonstration to present completed features to stakeholders, enabling feedback collection and work validation.**
* **Sprint Review: Following the demo, this meeting allows stakeholders and the team to reflect on sprint accomplishments, examine the progress, and solicit feedback for subsequent sprints.**
* **Sprint Retrospective: Conducted post-review to assess sprint performance, pinpoint improvement areas, tweak future sprint processes, and discuss successes.**

## **Testing Strategy and Configuration Management**

## **Testing Strategy**

* + - **Unit Testing: Individual components tested using JUnit for Java backend and Jest for React components.**
    - **Integration Testing: Ensures modules work together, using Spring's testing framework and React Testing Library.**
    - **System Testing: Validates the entire system's functionality, utilizing tools like Selenium.**
    - **User Acceptance Testing (UAT): Final phase where users ensure the application meets their needs.**

## **Configuration Management**

* + - **Version Control: Git for branching and merging.**
    - **Dependency Management: Gradle for Java and npm for JavaScript, ensuring consistent environments.**

## **Branching Strategy**

* + - **Implement a Git Flow model, detailing feature, develop, release, and hotfix branches to manage development effectively and maintain production stability.**

## **Quality Assurance**

* + - **Integrate continuous integration/continuous deployment (CI/CD) practices for ongoing quality checks.**
    - **Enforce coding standards and perform code reviews to maintain high code quality.**