|  |
| --- |
| Njaz.org |
| Project Plan |
| Arabic Psychometrics and Surveys Application |

|  |
| --- |
| Khaled Rashwan  6-2-2024 |

Contents

[Introduction 1](#_Toc168306343)

[Project Title 1](#_Toc168306344)

[Background 1](#_Toc168306345)

[Purpose 1](#_Toc168306346)

[Target Audience 1](#_Toc168306347)

[Technology Stack 1](#_Toc168306348)

[Objectives 2](#_Toc168306349)

[Primary Objectives 2](#_Toc168306350)

[Secondary Objectives 2](#_Toc168306351)

[Scope 2](#_Toc168306352)

[In-Scope Features 2](#_Toc168306353)

[Out-of-Scope Features 3](#_Toc168306354)

[Phases, Milestones, and Timeline 3](#_Toc168306355)

[Phase 1: Planning (5 weeks) 3](#_Toc168306356)

[Phase 2: Development (9 weeks) 3](#_Toc168306357)

[Phase 3: Testing (5 weeks) 4](#_Toc168306358)

[Phase 4: Deployment (3 weeks) 5](#_Toc168306359)

[Phase 5: Maintenance (Ongoing) 5](#_Toc168306360)

[Timeline 5](#_Toc168306361)

[Resources 6](#_Toc168306362)

[Human Resources 6](#_Toc168306363)

[Technical Resources 6](#_Toc168306364)

[Risk Management 8](#_Toc168306365)

[Introduction 8](#_Toc168306366)

[Risk Identification 8](#_Toc168306367)

[Risk Assessment 9](#_Toc168306368)

[Risk Mitigation Strategies 9](#_Toc168306369)

[Risk Monitoring and Review 10](#_Toc168306370)

Project Plan

# Introduction

## Project Title

Arabic Psychometrics and Surveys Application

## Background

In the realm of psychological research and assessment, psychometrics play a crucial role in measuring mental capabilities and behavioral style. Surveys are commonly used tools for collecting data that can provide insights into various psychological attributes. Despite the widespread usage of psychometrics and surveys, there is a notable gap in applications tailored specifically for Arabic-speaking researchers and users. According to recent studies, over 420 million people speak Arabic worldwide, yet there is a lack of dedicated psychometric tools available in the Arabic language. This project aims to bridge that gap by creating a React Native application designed to facilitate the creation, distribution, and analysis of psychometric surveys in Arabic.

## Purpose

The primary purpose of this project is to develop a comprehensive, user-friendly mobile and web application that enables researchers to create, manage, and analyze psychometric surveys. This application will cater to the specific needs of Arabic-speaking users, providing an accessible platform for conducting psychological assessments and collecting data. Additionally, the application will support the integration of existing psychometrics from a database, offering flexibility and a wide range of assessment tools for researchers.

## Target Audience

The application is intended for psychologists, researchers, and educators who require a reliable and efficient tool for creating and administering psychometric surveys in Arabic. By providing a platform that supports multiple devices (web, Android, iOS), the application aims to reach a broad audience and facilitate seamless access to essential research tools.

## Technology Stack

The application will be built using Expo and React Native to ensure cross-platform compatibility (web, Android, iOS). The backend services, including user authentication, data storage, and payment processing, will be deployed on AWS to leverage its scalability, reliability, and security features.

# Objectives

## Primary Objectives

1. Develop a cross-platform application (web, Android, iOS) for creating and managing psychometric surveys.
2. Enable users to integrate both custom and existing psychometrics from a centralized database.
3. Provide tools for publishing surveys and generating shareable links.
4. Implement robust data analysis and statistical reporting features.
5. Ensure secure user authentication and data protection.
6. Facilitate payment processing for advanced statistical analysis features.

## Secondary Objectives

Enhance user experience with a responsive and intuitive interface. Initially, the application will focus on Arabic, with plans to support additional languages based on user demand and feedback. Future updates will incorporate third-party integrations to expand functionality, ensuring seamless integration with popular research and data analysis tools.

# Scope

## In-Scope Features

* **User Registration and Authentication**
  + Secure login and registration for researchers.
  + Role-based access control.
* **Psychometric Creation**
  + Tools for creating new psychometric tests.
  + Customizable question formats and scoring methods.
* **Survey Creation**
  + Ability to create surveys using one or more psychometrics.
  + Flexible survey design options.
* **Database Integration**
  + Access to a repository of existing psychometrics.
  + Import and export functionality.
* **Survey Publishing**
  + Generate and share survey links.
  + Options for survey anonymity and data protection.
* **Data Analysis and Statistics**
  + Real-time data collection and visualization.
  + Advanced statistical tools for in-depth analysis.
* **Payment Processing**
  + Integration with payment gateways for subscription and pay-per-use models.

## Out-of-Scope Features

* **Non-Arabic Language Support**
  + Initial release will focus on Arabic; other languages may be considered in future updates.
* **Extensive Third-Party Integrations**
  + Basic integrations planned; extensive integrations will be considered based on user feedback.

# Phases, Milestones, and Timeline

## Phase 1: Planning (5 weeks)

**Week 1-2: Requirement Analysis**

* **Tasks:**
  + Define the features and functionalities of the application through stakeholder interviews, surveys, and market analysis.
  + Identify user roles (researcher, admin).
* **Deliverable:** Requirement Analysis Document

**Week 3: Buffer for Requirement Analysis**

**Week 4: Project Setup**

* **Tasks:**
  + Set up a project repository (e.g., GitHub, GitLab).
  + Configure Expo for React Native.

**Week 5: Design**

* **Tasks:**
  + Create wireframes and UI/UX designs for the application.
  + Define the data model for psychometrics and surveys.
* **Deliverable:** Design Documentation

**Milestones:**

1. End of Week 3: Complete Requirement Analysis Document.
2. End of Week 5: Complete Design Documentation.

## Phase 2: Development (9 weeks)

**Week 6-7: Frontend Development**

* **Tasks:**
  + Build user interfaces using React Native and Expo.
  + Create Development Documentation.

**Week 8-9: Backend Development**

* **Tasks:**
  + Develop APIs and services using AWS.

**Week 10-11: Database Setup**

* **Tasks:**
  + Configure the database.
  + Define Database Schema.

**Week 12-13: Integration**

* **Tasks:**
  + Integrate frontend, backend, and database.

**Week 14: Buffer for Development**

**Milestones:**

1. End of Week 14: Complete Development Documentation.

## Phase 3: Testing (5 weeks)

**Week 15-16: Unit Testing**

* **Tasks:**
  + Write unit tests for frontend and backend components.
  + Document Testing Procedures.

**Week 17: Integration Testing**

* **Tasks:**
  + Test interactions between frontend and backend.

**Week 18: User Acceptance Testing**

* **Tasks:**
  + Conduct UAT with a group of researchers to gather feedback.
  + Document Test Results.

**Week 19: Buffer for Testing**

**Milestones:**

1. End of Week 19: Complete Testing Documentation.

## Phase 4: Deployment (3 weeks)

**Week 20: Deployment to AWS**

* **Tasks:**
  + Set up CI/CD pipelines using AWS services (CodePipeline, CodeBuild).
  + Create Deployment Plan.

**Week 21: Launch**

* **Tasks:**
  + Submit apps to Google Play and Apple App Store.
  + Launch web version.

**Week 22: Buffer for Deployment**

**Milestones:**

1. End of Week 22: Deployment and Launch.

## Phase 5: Maintenance (Ongoing)

**Week 23+: Maintenance and Updates**

* **Tasks:**
  + Track issues and bugs.
  + Release updates and enhancements.
  + Maintain Change Logs and Issue Tracking.

**Key Milestones:**

1. Ongoing: Maintenance Documentation and Updates.

## Timeline

To ensure the project progresses smoothly and meets all deadlines, a detailed Gantt chart timeline is provided below.

A graph with different colored squares

Description automatically generated

# Resources

## Human Resources

* **Project Manager: 1**
  + Oversees project progress and coordinates team efforts.
* **Frontend Developers: 2**
  + Develop user interfaces for web, Android, and iOS.
* **Backend Developers: 2**
  + Build and maintain server-side logic and APIs.
* **QA Engineers: 1**
  + Ensure quality and reliability through rigorous testing.
* **DevOps Engineers: 1**
  + Manage deployment and infrastructure on AWS.

## Technical Resources

**Development Tools and Software**

* **React Native**
  + A framework for building native apps using React, ensuring a single codebase for multiple platforms (iOS, Android, Web).
* **Expo**
  + A set of tools and services built around React Native, used for building, deploying, and quickly iterating on iOS, Android, and web apps.
* **AWS Amplify**
  + A development platform for building secure, scalable mobile and web applications. Amplify simplifies the integration of backend services with your React Native (Expo) project, such as authentication, storage, and APIs.
* **AWS SDK**
  + A software development kit provided by AWS to interact with various AWS services programmatically.
* **GitHub**
  + A platform for version control and collaboration, widely recognized in the developer community. GitHub enhances your visibility and credibility by showcasing your projects and contributions. It also integrates well with CI/CD tools and services, including AWS.
* **VS Code**
  + A lightweight but powerful source code editor that includes built-in support for JavaScript, TypeScript, and Node.js, along with a rich ecosystem of extensions.

**Testing Tools**

1. **AWS CodeBuild**
   * A fully managed continuous integration service that compiles source code, runs tests, and produces software packages that are ready to deploy. It scales continuously and processes multiple builds concurrently, so your builds are not left waiting in a queue.
2. **AWS Device Farm**
   * An app testing service that lets you test and interact with your Android, iOS, and web apps on many real devices simultaneously. It allows you to run automated tests and capture performance data to ensure your app works as expected on all devices.

**Monitoring Tools**

1. **Amazon CloudWatch**
   * A monitoring and observability service built for DevOps engineers, developers, site reliability engineers (SREs), and IT managers. It provides data and actionable insights to monitor applications, respond to system-wide performance changes, and optimize resource utilization. CloudWatch collects monitoring and operational data in the form of logs, metrics, and events.
2. **AWS X-Ray**
   * Helps with analyzing and debugging production, distributed applications, such as those built using a microservices architecture. With X-Ray, you can understand how your application and its underlying services are performing to identify and troubleshoot the root cause of performance issues and errors.
3. **AWS CloudTrail**
   * Enables governance, compliance, and operational and risk auditing of your AWS account. With CloudTrail, you can log, continuously monitor, and retain account activity related to actions across your AWS infrastructure.

**Project Management Tools**

* **AWS CodeStar**
  + A project management service that integrates with various AWS services to provide a unified interface for managing software development projects. It includes features for task tracking, collaboration, and continuous integration and delivery.

**AWS Services**

* **EC2 (Elastic Compute Cloud)**
  + Provides resizable compute capacity in the cloud, used for hosting the backend server and APIs.
* **S3 (Simple Storage Service)**
  + An object storage service, used for storing and retrieving any amount of data at any time.
* **RDS (Relational Database Service)**
  + Managed relational database service, used for setting up, operating, and scaling a relational database in the cloud.
* **Lambda**
  + A serverless compute service that runs code in response to events and automatically manages the compute resources.
* **CloudFront**
  + A content delivery network (CDN) service, used to deliver static and dynamic web content with low latency and high transfer speeds.
* **IAM (Identity and Access Management)**
  + A service that helps securely control access to AWS services and resources for users.
* **Amazon Cognito**
  + A service that provides user sign-up, sign-in, and access control. It scales to millions of users and supports sign-in with social identity providers and enterprise identity providers via SAML 2.0.

# Risk Management

## Introduction

The purpose of the risk management section is to identify potential risks that could impact the project and outline strategies to mitigate these risks. This proactive approach ensures that the project team is prepared to handle unforeseen issues effectively.

## Risk Identification

* **Technical Risks**
  + **Integration Issues**: Challenges in integrating various AWS services and third-party tools.
  + **Performance Issues**: Potential performance bottlenecks in the application.
  + **Data Security**: Risks related to data breaches and security vulnerabilities.
* **Operational Risks**
  + **Resource Availability**: Unavailability of key team members or insufficient resources.
  + **Timeline Delays**: Potential delays in project milestones due to unforeseen circumstances.
* **Financial Risks**
  + **Budget Overruns**: Project costs exceeding the planned budget.
  + **Payment Gateway Issues**: Problems with integrating and processing payments.
* **External Dependencies**
  + **Third-Party Service Failures: Issues with third-party services that could impact project timelines and functionality.**

## Risk Assessment

Assess the impact and likelihood of each identified risk using a risk matrix. Categorize risks into high, medium, and low priority.

## Risk Mitigation Strategies

* **Technical Risks**
  + **Integration Issues**
    - Conduct thorough testing and code reviews.
    - Use proven frameworks and libraries.
  + **Performance Issues**
    - Implement performance testing and optimization during development.
    - Use AWS monitoring tools (e.g., CloudWatch) to identify and resolve performance bottlenecks.
  + **Data Security**
    - Follow best practices for data encryption and access control.
    - Regularly update and patch software to address security vulnerabilities.
* **Operational Risks**
  + **Resource Availability**
    - Maintain a flexible project schedule to accommodate changes in team availability.
    - Cross-train team members to cover critical roles.
  + **Timeline Delays**
    - Set realistic milestones and buffer time for potential delays.
    - Regularly review project progress and adjust timelines as needed.
  + Conduct regular status meetings to assess progress against milestones.
  + Utilize project management tools to track tasks and deadlines.
  + Document changes in progress reports and update the project plan accordingly.
  + Communicate timeline changes promptly to all stakeholders.
* **Financial Risks**
  + **Budget Overruns**
    - Monitor project expenses regularly and adjust the budget as necessary.
    - Use AWS cost management tools to track and optimize spending.
  + **Payment Gateway Issues**
    - Test payment gateway integration thoroughly before deployment.
    - Have backup payment solutions in place.
* **External Dependencies**
  + **Third-Party Service Failures**
    - Establish SLAs with third-party service providers.
    - Monitor third-party service performance and have contingency plans in place.

## Risk Monitoring and Review

Regularly review and update the risk management plan throughout the project lifecycle. Hold periodic risk assessment meetings to ensure that new risks are identified and existing risks are managed effectively.