



Software Requirement Specification of a mobile application for the Namibia Hockey Union(Android Mobile App)

Prepared by:

Chantelle Van Wyk (212087312)

Ruvarashe Mtatiwa(222011068)

Enzo Jantjies (216097975)

Gerald Kufanga (22046465)

Abstract

This report evaluates a planning and organizing mobile application, called **Namibian Hockey Union Mobile App**. It provides all the quality requirement specifications, scope, features, modules, and validations of the application, that form a major sub-category of requirements, define a broad set system-wide attributes such as functionality, performance, usability and scalability. This report is going to be treated as a detailed specifications and requirements documentation to develop testing plans and perform testing later on for the mobile application.

Table of Contents

1. Introduction.....	3
1. Purpose.....	3
2. Intended Audience.....	4
3. Scope.....	4
4. References.....	4
2. Overall Description.....	5
1. Product Perspective.....	5
2. Product Features.....	5
3. User Characteristics.....	5
4. Operating Environment.....	5
5. Dependencies.....	6
6. Design and Implementation Constraints.....	6
3. System Features & Requirements.....	7
1. System Features.....	7
2. Functional Requirements.....	16
3. Non-Functional Requirements.....	20
1. List of Diagrams.....	23
1. Use Case Diagram.....	23
2. Data Flow Diagram.....	24

1. Introduction

Project Overview

This project involves the design and development of an Android mobile application for the **Namibia Hockey Union (NHU)** — the official governing body of field hockey in Namibia. The NHU is affiliated with both the **International Hockey Federation (IHF)** and the **African Hockey Federation (AHF)**. Its headquarters are located in Windhoek, Namibia.

The mobile app aims to streamline key administrative and communication tasks for the NHU, enabling easier interaction between players, teams, and union officials.

This application is available for Android, iPhone, and Window devices as well as for web, but for the sake of this project report, I will be planning and executing tests only on an Android mobile device.

1.1. Purpose

The purpose of this project is to design and develop an Android mobile application for the Namibia Hockey Union (NHU) that simplifies and enhances administrative operations, player and team management, and real-time communication between stakeholders. By streamlining core functions such as team registration, event entries, and player management, the application aims to improve the efficiency, transparency, and accessibility of NHU's operations. While the application is intended to support multiple platforms—including iOS, Windows, and web - this project focuses specifically on the Android version for development and testing..

2. Intended Audience

This mobile application is intended for stakeholders of the Namibia Hockey Union (NHU), including players, coaches, team managers, event organizers, and NHU officials. The app serves as a centralized platform for managing field hockey activities in Namibia - from team and player registration to real-time updates on events and matches.

Union officials can use the app to streamline administrative tasks and ensure efficient communication with teams. Players and coaches can view schedules, register for events, and receive notifications, while team managers can manage their squads, monitor player stats, and track event participation.

While the current focus is on Android device support, the app is designed with scalability in mind, enabling future support for iOS, Windows, and web platforms. All user data is securely stored and managed using Firebase, providing peace of mind in case of device loss or transition.

3. Scope

- **Team Registration:** Create and manage teams participating in NHU leagues and events.
- **Player Management:** Register new players, update profiles, and manage player data.
- **Event Entries:** Register teams and players for tournaments and matches.
- **Login & Account Creation:** Secure user authentication with role-based access (players, officials, admins).
- **Real-time Information Sharing:** Notifications, match schedules, updates, and announcements. The app supports seasonal and annual competition cycles and is built using Android Studio with Kotlin. It is a collaborative effort aimed at digital transformation within Namibian field hockey governance.
- **Cloud-Based Sync:** Seamless data access across devices through Firebase integration.
- **Role-Specific Dashboards:** Tailored interface and features based on user type.

4. References

2. Overall Description

2.1. Product Perspective

The Namibia Hockey Union (NHU) mobile application is developed as a centralized solution for managing field hockey operations in Namibia. It provides a digital platform for players, coaches, team managers, and NHU officials to manage team registrations, player profiles, events, and match participation.

This product is designed to streamline administrative processes, enable real-time updates, and foster efficient communication among stakeholders. The application currently supports Android devices, with potential expansion to other platforms in the future.

2. Product Features

The following are the main features included in the Namibia Hockey Union mobile application:

- User Account
- Team Registration
- Player Registration
- Event Registration (Tournaments/Matches)
- Login & Authentication
- Real-Time Notifications
- Firebase Integration (Cloud Sync & Storage)
- Settings & Profile Management

3. User Characteristics

It is assumed that users have basic knowledge of operating a smartphone and access to the internet. The primary users include:

- Players (Youth and Adults)
- Coaches and Team Managers
- NHU Officials and Administrators

4. Operating Environment

The NHU mobile app is built for the Android operating system using Kotlin and Android Studio. It utilizes Firebase for real-time database services, authentication, and cloud storage. Future versions may support additional platforms such as:

- Windows mobile
- IOS (Future implementation)

2.5. Dependencies

The Namibia Hockey Union Mobile Application relies on a variety of system and platform dependencies to function effectively. These include:

- **Android Operating System:** Requires Android version 8.0 (Oreo) or higher to ensure compatibility with modern features and security updates.
- **Google Play Services:** Essential for Firebase integration, including authentication, real-time database, and cloud storage.
- **Firebase Backend Services:** Includes Firebase Authentication, Firestore Database, and Firebase Cloud Messaging (FCM) for push notifications.
- **Internet Connectivity:** Required for most features including login, data syncing, and notifications.
- **Development Tools:** Android Studio (latest stable version), Kotlin language support, Gradle build system.

2.6. Design and Implementation Constraints

The application is built using **native Android development** with **Kotlin** and integrates **Firebase** for backend services. The following design and implementation constraints apply:

Platform Dependency: Currently limited to the Android ecosystem. A separate development track is needed for iOS or web support.

Database Choice: Firebase Firestore is used due to its scalability and real-time syncing capabilities, but careful consideration must be given to data structure and read/write operations to control costs and improve performance.

Connectivity Requirement: Core functionality requires consistent internet access. Offline caching mechanisms are limited to essential operations.

Security Compliance: Firebase Authentication must enforce secure access with role-based permissions for different user types (players, managers, officials).

Device Compatibility: The application must be tested across a range of Android devices with varying screen sizes and hardware configurations.

UI/UX Guidelines: Adheres to Google's Material Design principles for a consistent and intuitive user experience.

3. System Features & Requirements

3.1. System Features

User Registration & Login

Users can register for the Namibia Hockey Union Mobile Application using their email address or optionally sign in using a linked Google account. Upon registration, users must specify their role (e.g., Player, Coach, Manager, Official) and fill in basic details such as full name, club affiliation, and age category.

If registered manually, a verification email will be sent containing an activation link. Clicking the link completes the account setup and enables full access to the application.

Team & Player Profiles

Each user has a dedicated profile displaying relevant information based on their role. Players can update their jersey numbers, positions, and medical alerts. Coaches and managers can view their team rosters, assign roles, and update team information.

Fixtures & Match Schedules

The application displays upcoming fixtures categorized by team, league, or date. Users can view match details such as location, time, opposing teams, and assigned officials. Notifications are sent ahead of scheduled games to all concerned parties.

Results & Standings

Match results can be submitted by authorized personnel after each game. The app automatically updates team standings, scores, and statistics based on submitted data. Historical match data is also available for review.

News & Announcements

Users will have access to official news updates and announcements from the Namibia Hockey Union. Push notifications will alert users to important developments such as match postponements, event invitations, or administrative updates.

Push Notifications

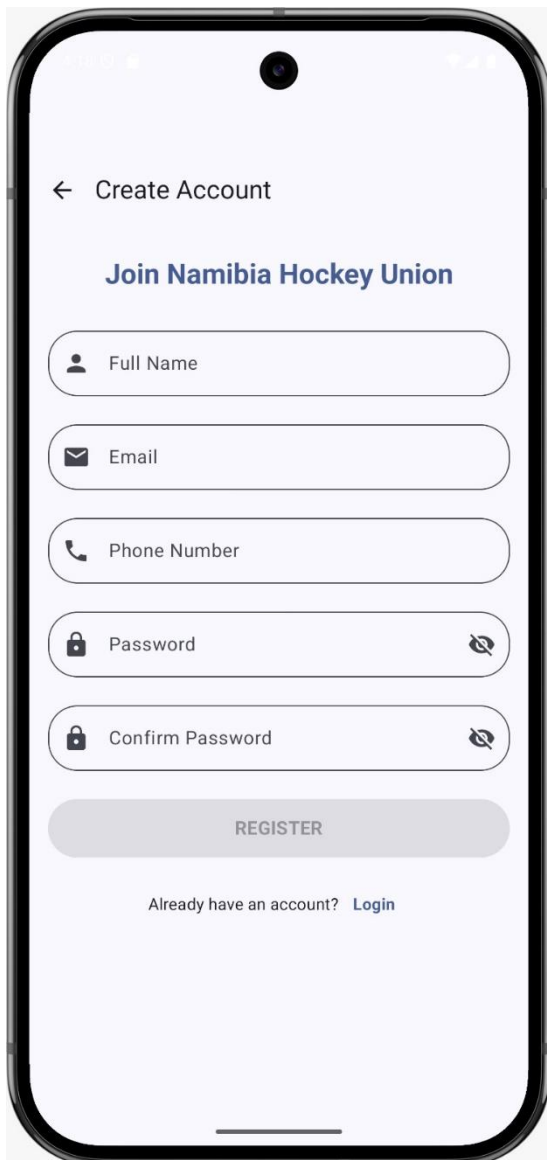
The app sends real-time push notifications for match reminders, training alerts, results updates, and administrative announcements. Users can manage their notification preferences in the settings menu.

Settings & Preferences

Users can adjust their personal settings, update profile information, change their notification preferences, and securely log out of the application. Role-based access ensures users only see content relevant to their assigned category.

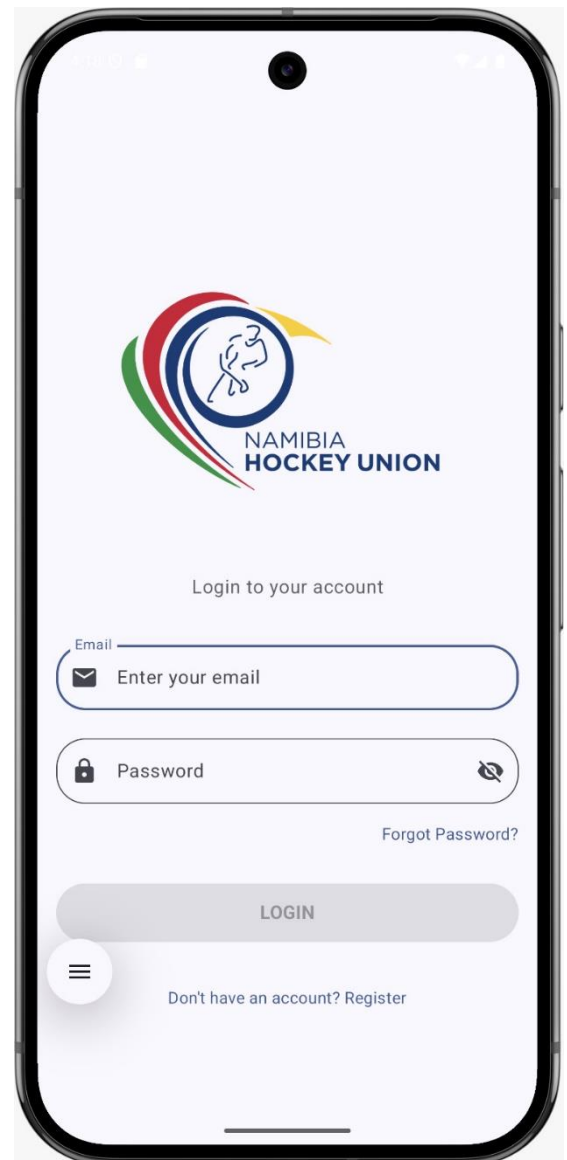
Some of the Screenshots of the mobile application are as follows:

Sign Up



The Sign Up screen displays a 'Create Account' header with a back arrow. Below it is the title 'Join Namibia Hockey Union'. The form includes five input fields: 'Full Name', 'Email', 'Phone Number', 'Password', and 'Confirm Password'. Each field has a corresponding icon (person, envelope, phone, and padlocks respectively). The Password and Confirm Password fields include toggle icons for visibility. A 'REGISTER' button is positioned below the fields. At the bottom, there is a link: 'Already have an account? Login'.

Login



The Login screen features the Namibia Hockey Union logo at the top. Below the logo is the text 'Login to your account'. The form consists of two input fields: 'Email' (with an envelope icon) and 'Password' (with a padlock icon). A 'Forgot Password?' link is located to the right of the Password field. A 'LOGIN' button is centered below the fields. At the bottom, there is a link: 'Don't have an account? Register'. A hamburger menu icon is visible on the left side of the screen.

Add new event

←

Add New Event

Event Details

Hockey Type

Indoor Hockey

Hockey played in indoor courts with different rules

Outdoor Hockey

Field hockey played on grass or turf fields

Title

Description

Location

Start Date

End Date

Registration Deadline

Add Event

Add news

←

News Feed

All

Tournament

League

Team

Player

Bookmarked

Search news...

TEAM

National Team Selection Announced

H Hockey Admin

A new National Team Selection has been announced. These will be the players that will represent the Land of the Brave Internationally

Read more

GENERAL

New Training Facilities Unveiled

N Namibia Hockey Union

Mar 25, 2025

State-of-the-art training facilities for hockey players been unveiled in Windhoek. The facilities include synthetic turf fields, modern avm equipment, and video ...

Home

Events

Teams

News

Players

Team registration

Team Registration

Outdoor Hockey Team

Register Your Team

Hockey Type

☐

Indoor Hockey
Hockey played in indoor courts with different rules

☒ Outdoor Hockey
Field hockey played on grass or turf fields

Team Details

Team Name

Category

Division

Team Staff Information

Coach Name

Manager Name

Player management

Player Management

My Team

All Players

Search players...

John Doe

Forward | #10

Windhoek Warriors

Jane Smith

Goalkeeper | #1

Windhoek Warriors

Michael Brown

Defender | #4

Windhoek Warriors

Sarah Johnson

Midfielder | #7

Windhoek Warriors

+

Home

Events

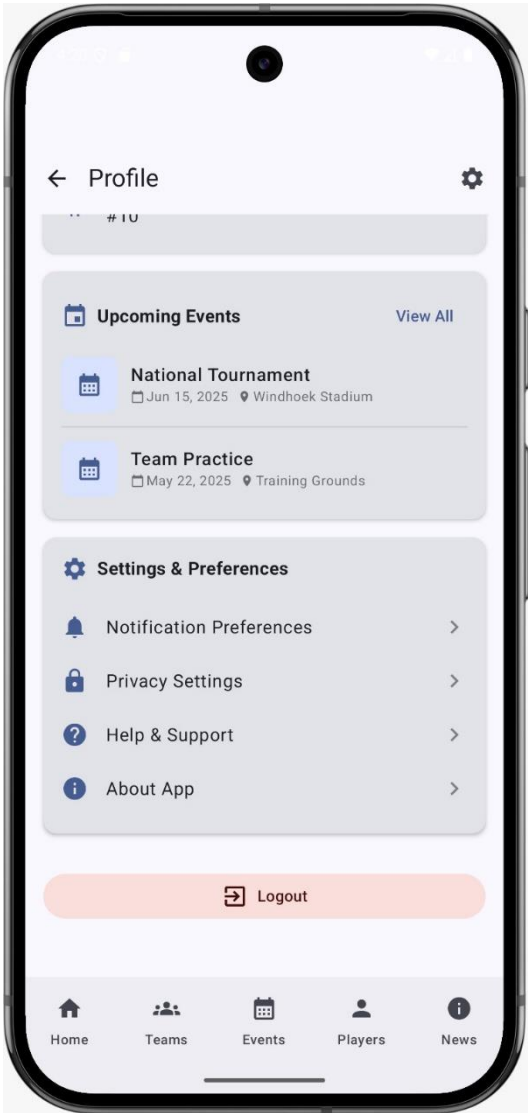
Teams

News

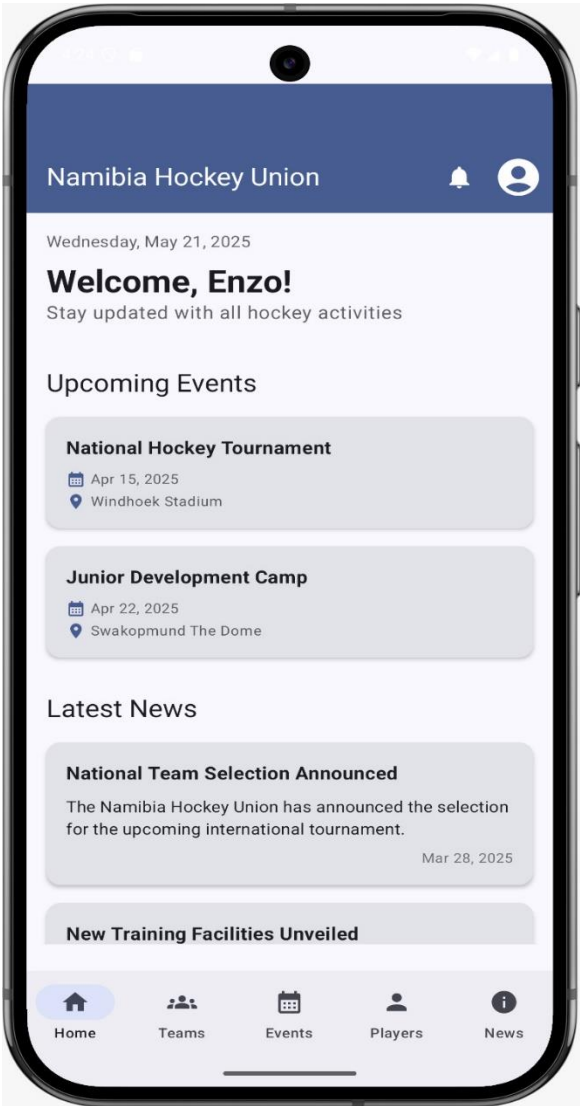
Players

15

Settings & preferences



Home screen



3.2. Functional Requirements

Modules	Functional Requirements
Sign Up	<ul style="list-style-type: none"> • User can sign up using their Google account • User can sign up using their email address • User can select their role (Player, Coach, Manager, Official) during sign-up • User receives a verification email to activate their account
Sign In	<ul style="list-style-type: none"> • User can sign in using their Google account • User can sign in using their registered email and password • User can use the "Forgot Password" option to reset login credentials
New User	<ul style="list-style-type: none"> • User can enter their full name and team/club affiliation • User can select age group and playing position (if Player) • User can set notification preferences for match and training alerts
Menu	<ul style="list-style-type: none"> • Username and email displayed at the top of the menu • Dashboard • Fixtures • Results • Training • Teams • News & Announcements • Settings

Fixtures	<ul style="list-style-type: none">• User can browse upcoming matches with team, venue, and time details• Fixtures can be filtered by league, team, or date• Notifications sent before match start times
Results	<ul style="list-style-type: none">• Authorized users can submit match scores• Users can view past match results and performance stats• Standings are automatically updated after result submission
News & announcements	<ul style="list-style-type: none">• Union can post updates and broadcast important news• Users receive push notifications for urgent announcements• News items are categorized (General, Match, Event, Administrative)
Settings	<ul style="list-style-type: none">• User can update their profile information• User can manage notification preferences• User can change password or log out securely

3.3. Non-Functional Requirements

Performance

The system must be interactive and the updates must be fast. So, in every action-response of the system, there are no immediate delays. In case of adding or changing tasks, classes or exams the changes made must appear seamless and immediate. Also connecting to user accounts shouldn't take more than 2 seconds.

Scalability

The app should be able to adopt itself to increased usage or able to handle more data as time progress. When the user data increases app should be capable of handling them without delay by optimizing the way storage is done and accessed.

Responsiveness

The application should be responsive to the user input or to any external interrupt which is of highest priority and return back to same state.

Usability

User should be able to understand the flow of app easily, that is users should be able to use the app without any guideline or help from manuals.

Reliability

The application should be reliable to perform the business, i.e when user perform some action it should be acknowledged with confirmation.

Availability

The user can access the application to install and look for regular updates and give feedback from Google Play store.

Screen Adaption

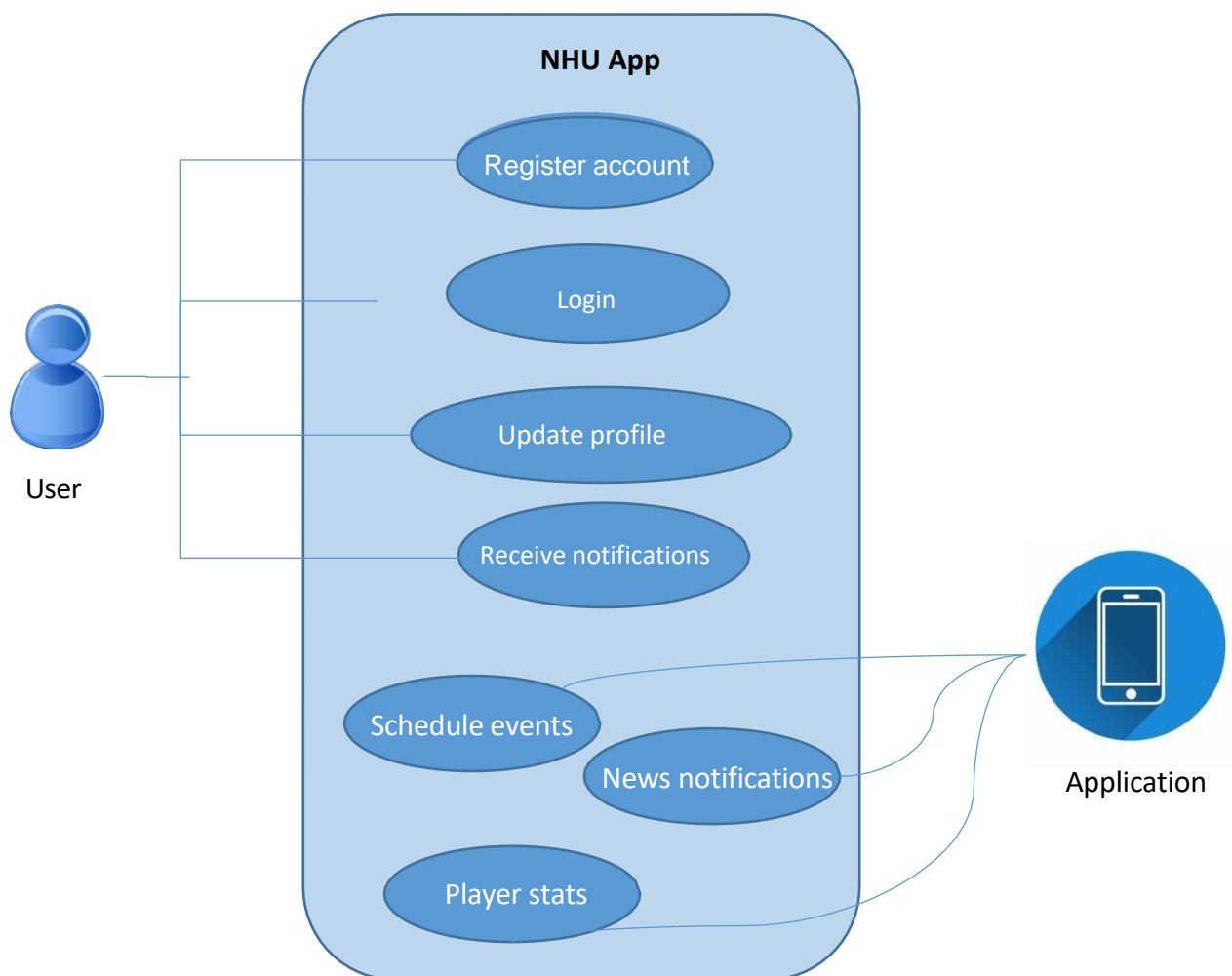
The application should be able to render it's layout to different screen sizes, along with automatic adjustment of font size and image rendering

Network Coverage

The app should be able to look out for WiFi, if it's not available then it should automatically switch to mobile network.

5. List of Diagrams

5.1. Use Case Diagram



5.2. Data Flow Diagram

