University of Science and Technology of Hanoi

ICT Department

Project Report

OpenDOTA Client

Group 5

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Contents

1 Introduction

1.1 Context and Motivation

OpenDOTA is a volunteer-developed, open source platform providing DOTA 2 data. It provides a web interface for casual users to browse through the collected data, as well as an API to allow developers to build their own applications with it.

There are a lot of informations that users can get from OpenDOTA, such as replay parsing, data from every public match, the statistics of heroes, teams or individual player.

Realizing that need, we decided to create an eye-catching, convenient and easy-to-use OpenDOTA Client. Players can view every aspect relating to their performance, also other players in the game. To be able to perform functions relating to their personal statistics, they will have to log in to their Steam account.

1.2 Project Objectives

In this project, we aim at developing an application for managing and viewing DOTA 2 statistics. Our goals include:

- Develop an interface for users to keep track of their own information.
- The UI of the software must be user-friendly for users.

2 Objective

In this session, we will define expected requirements of the project and provide a brief overview of the function of the system.

2.1 Desired Features

The main goal of this project is to develop an application for managing and viewing DOTA 2 statistics.

(1) **GENERAL FEATURE**

(I) **FEATURE 1: Authenticate**

(A) **SUB-FEATURE 1.1: Login** allows users to access into the application by using Steam account

(B) **SUB-FEATURE 1.2: Logout** allows users to log out of the system

(II) **FEATURE 2: Settings**

(A) **SUB-FEATURE 2.1: Change themes** allows users to modify the theme of the app.

(B) **SUB-FEATURE 2.2: Change languages** allows users to choose their preferred language.

(III) **FEATURE 3: Navigation** allows users to visit other functions of the application. There will be the navigation to Home, Search, Heroes, Settings and Log out.

(2) **USER FEATURE**

(I) **FEATURE 4: HOME** allows users to view everything relating to their DOTA 2 performance.

(A) **SUB-FEATURE 4.1: Overview** shows the very basic information of users, which are:

(i) The name and avatar of user

(ii) Number of: winning matches and total game

(iii) Win Rate (in percentage)

(iv) Their position in some ranking table (e.g. Leaderboard Rank, Solo Competitive Rank, Competitive Rank)

(v) Matchmaking Rating

(B) **SUB-FEATURE 4.2: Matches** shows all matches of user. In details:

(i) **SUB-SUB FEATURE 4.2.1: Basic information** shows some very basic information about the match. They are:

(a) Hero using in the match

(b) Playing mode

(c) K/D/A (Kill, Death, Assist) in the game

(d) The length of the match

(e) The ended time (compared to present)

(ii) **SUB-SUB FEATURE 4.2.2: Match Details** shows some detailed information about the match. By clicking on the match showing on Matches, Match Details will appear. There are two viewing options: Overview and Benchmark

(a) **Overview** shows the summary of the match. The given information are:

(1) The victory team

(2) Match ID, Region and Skill

(3) Playing mode

(4) Playing time

(5) Scoreboard

(6) The icon of played heroes, the name of 10 players and their KDAs.

(b) **Benchmark** shows deeply about the match. Users can view:

(1) EPM (Experience per minute)

(2) GPM (Gold per minute)

(3) KPM (Kill per minute)

(4) LHPM (Last hit per minute)

(5) HDPM (Hero damage per minute)

(6) HHPM (Hero healing per minute)

(7) TM (Damage dealt to tower)

(8) SPM (Stun per minute)

(C) **SUB-FEATURE 4.3: Heroes** shows the statistics about every champion they have played. The statistics are:

(i) The name and icon of the hero

(ii) The number of picking for matches

(iii) The win rate (in percentage) when playing that hero

(iv) Last played time (compare to present)

(D) **SUB-FEATURE 4.4: Peers** shows the information about the partner they have played together. The shown information are:

(i) The name of the partner

(ii) The number of the games they have played together

(iii) Win rate (in percentage)

(iv) Last played time (compare to present)

(II) **FEATURE 5: SEARCH** allows user to find other DOTA 2 players. The results will be the name, the avatar and the SteamID of the player.

(III) **FEATURE 6: HEROES** allows user to see every information relating to DOTA 2 heroes. The statistics are divided into three modes: Professional, Turbo and Public.

(A) **Professional** shows the statistics of heroes in professional matches. There will be the icon and name of heroes, with their win rate (in percentage) and the number of bans.

(B) **Public** shows the statistics of heroes in public matches. The information is similar with professional mode. However, heroes' information are divided by public ranks (e.g. Ancient, Divine, Legend, etc.)

(C) **Turbo** shows the statics of heroes in turbo mode. Win rate (in percentage) and the number of picks are shown in this mode.

2.2 Expected Outcome

Our application aims at creating a connection between players and the game for a better experiment when enjoying DOTA 2. The specific goals include:

- Develop an beautiful interface on the application with interaction between DOTA 2 players and the system
- The application should have all the features mentioned in Desired Features
- The application should be able to run in Android OS.

3 Methodology

In this section, we will list all the tools and techniques used in the project, the reasons why they are chosen and the detailed use cases implementation.

3.1 Tools and Techniques

3.1.1 Figma

Figma is a vector graphics editor and prototyping tool which is primarily web- based. It's the industry's leading interface design tool, with robust features which support teams working on every phase of the design. process.

3.1.2 Java

JAVA gives the best option for development of mobile applications that are based on Android, as Android consist of its own APIs and JAVA libraries. So, for Android applications, we use android APIs as well as JAVA to write code for Android apps.

3.1.3 Volley

OpenDota is connected to the internet by using Volley.

Volley is an HTTP library that makes networking for Android apps easier and most importantly, faster. With Async access, Volley has a lot of benefits for building Android apps

3.1.4 OpenDOTA API

In OpenDOTA, we use API from The OpenDOTA API. It offers both free and premium tier for making apps relating to Dota 2 statistics.

OpenDOTA API Documentation: https://docs.opendota.com/section/Introduction

4 Result and Discussion

In this section, we will list all the finished functions in the system.

4.1 Result

In this system, these main functions have implemented completely:

- Home: user can see all information as listed in Desired Features about Home
- Match Details: user can see all statistics as mentioned in Desire Features about Match Details
- Heroes: user can see the heroes' information in professional and public mode

4.2 Discussion

Despite being implemented completely, the main functions in this project have some existing problems:

- The log in and log out are not finished
- The settings can not perform as mentioned in Desired Features
- Users can not search for other players
- Users can not see the heroes' information in Public mode
- The user interface are not yet optimal

4.3 Screenshots of finished functions

4.3.1 General Functions

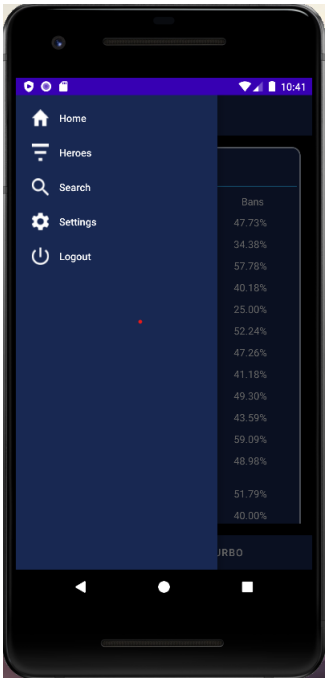

Figure 1: Navigation

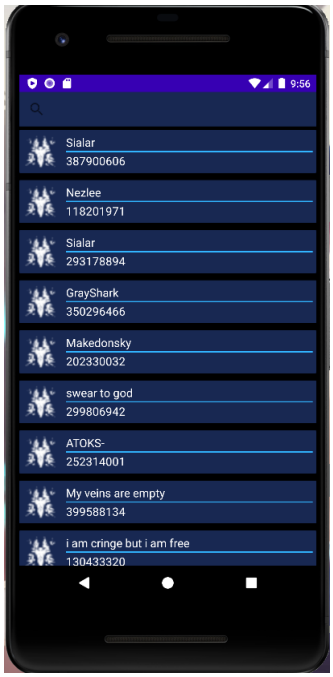

Figure 2: Search

4.3.2 Home

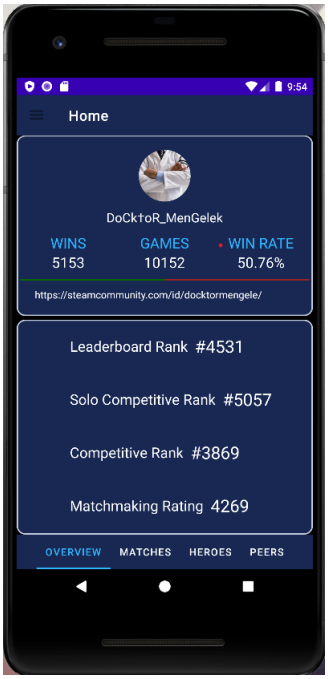

Figure 3: Home - Overview

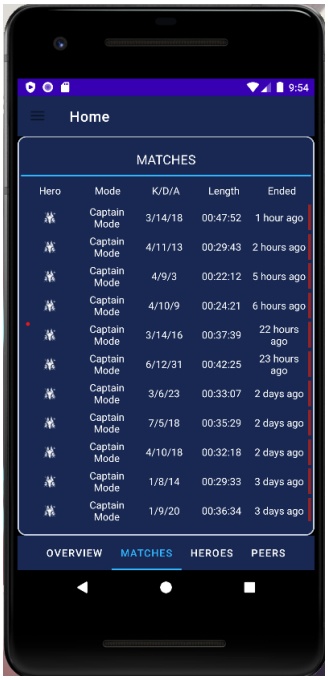

Figure 4: Home - Matches

Figure 5: Home - Heroes

Figure 6: Home - Peers

4.3.3 Match Details

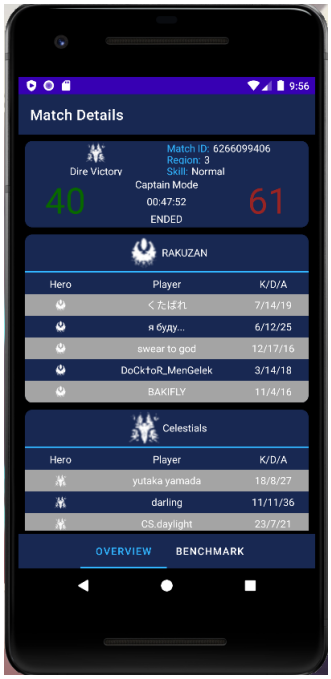

Figure 7: Match Details - Overview

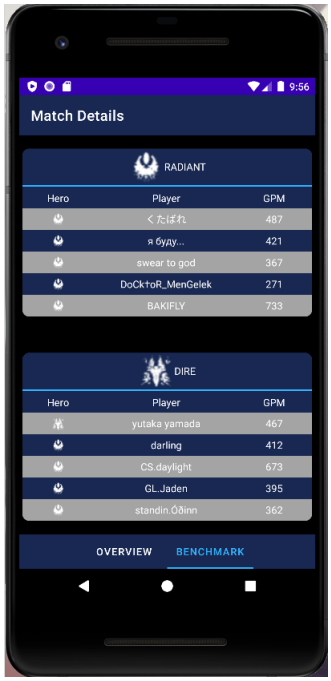

Figure 8: Match Details - Benchmark

4.3.4 Heroes

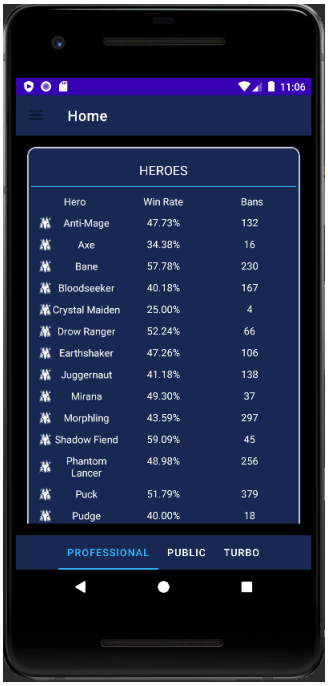

Figure 9: Heroes - Professional

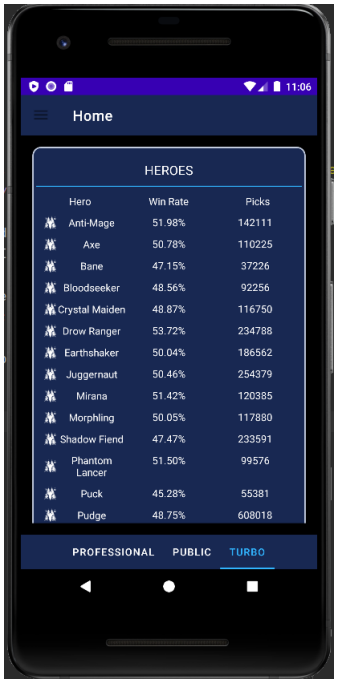

Figure 10: Heroes - Turbo

5 Conclusion and Future Works

5.1 Conclusion

In conclusion, the purposes and objectives of the OpenDOTA Client is achieved. By providing a user-friendly interface, the interaction between players and the game becomes more convenient and effective.

5.2 Future Works

To further improve this application in the future, the following tasks need to be done:

- Fulfill all the function.
- Providing better user interface