DOTA2 Android Assistant Project Plan

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Project Plan

Aims and Objectives

For my project I am setting out to create a Web Application with a connected Android Application that acts as a DOTA2 assistant, it's main feature will be a drafting assistant that collects data from Valve's API and processes that data to output suggested picks and bans during a captains mode draft. Additional included features will be successful item builds, a news feed that will incorporate twitter and reddit feeds and a records page that will include record statistics for heroes.

The main aims of the project are as follows:

Essential Aims:

- To develop an attractive and functional web application that imports data from Valve's API to power a reliable and helpful drafting assistant
- A connected Android Application that extends the websites functions and allows the user to use the drafting assistant on a mobile device

Recommended Aims:

- A personalised log in system that allows you to select certain heroes that you like to play and heroes you don't like to play, so that they are less likely to be suggested in a draft
- A page that shows you your recent games, and analyses how you draft including patterns in your bans/picks and suggests ways to improve your drafts with heroes you should ban/pick more

Optional Aims:

- A twitter/reddit news page that shows updates surrounding the game and personalities
- A hero records page that shows records recorded for each hero, GPM, XPM, KDA, LH, Denies, Hero Damage, Hero Healing, Tower Damage, Rapiers Purchased ect.
- A 'game' inside the android app that allows you to draft against an AI and try and out draft them, victory will depend on statistically you picked correct heroes
- Additional AI in the drafting assistant that looks at your recent games and automatically takes into account the heroes you play when deciding suggestions
- Advanced statistical pages on your games, hero trends, the standard deviation of hero win rates ect.
- Different modes for the drafting assistant, pro only, last week only ect.
- The ability to link up with popular team mates to use their history or favourite heroes in your drafting assistant
- A pro games page, that analyses the drafts of recent pro games and analyses the current meta

The objectives, the ways I plan to achieve these aims are:

- By learning android development and testing my app I can distinguish issues with usability and functionality in order to make it as attractive and useful as possible

- By researching ways to use the data stored on Valve's DOTA2 API I can learn how to gather the data and process it into useful statistics
- Research ways of only storing the data that is necessary and reducing the amount of bulk I store, old data or un-useful data
- By looking up ways to constantly gather new data from the API and 'add' it onto the top of my data in order to keep my data valid, also making sure irrelevant data can be discounted from previous patches and such

The challenges I will face during the project:

- Learning android development
- Understanding how to extract the data from the API and process it
- Figuring out ways to minimise the amount of data I store whilst keeping my system reliable

Whilst many other services use similar methods to my project, gathering data from Valves API, I am not aware of any service that uses the data in the way I plan to by comparing hero vs hero win rates to guide a player through a draft by giving live suggestions. The main problem I am trying to solve is data retention, trying to reduce the amount of data I have to hold whilst keeping the functionality of the product intact.

Structured Requirements

My project requires some technology to implement, some of it I am unfamiliar with. It has a few functional requirements that I will have to program mainly focusing around the drafting assistant.

Functional Requirements

Drafting Assistant

Add Away Hero Pick
The system will allow the user to enter a hero the enemy has picked
The system will be able to check if the hero has already been picked or banned

Alternatives
The system will display an error message if the hero has already been picked or banned

Add Away Hero Ban
The system will allow the user to enter a hero the enemy has banned
The system will be able to check if the hero has already been picked or banned

Alternatives
The system will display an error message if the hero has already been picked or banned

Add Home Hero Pick
The system will allow the user to enter a hero they have picked
The system will be able to check if the hero has already been picked or banned

Alternatives
The system will display an error message if the hero has already been picked or banned

Add Home Hero Ban

The system will allow the user to enter a hero they have banned
The system will be able to check if the hero has already been picked or banned

Alternatives
The system will display an error message if the hero has already been picked or banned

Display Suggested Heroes
Will automatically occur after a user performs any of the above operations
Will display the heroes that are available with the best win rate against the enemy heroes and with the friendly heroes

Alternatives
If the system cannot connect to the database to process the right heroes to display it will display an error message

News Feed

Refresh Feed
The system will search for new items to add to the feed

Alternatives
If no new items are found the system will output an error message
If the system cannot connect to the sources of the news feed it will display an error message

Suggested Builds

Display Suggested Items
After the user has entered a hero the system will display the most successful items for that hero

Alternatives
If the system cannot connect to the source of the data it will display an error message

Records

Display Records
After the user has entered a hero the system will display the highest recorded KDA, GPM, XPM, Last Hits, Denies and Rapiers Purchased.

Alternatives
If the system cannot connect to the source of the data it will display an error message

Resources

As my system will be an android application it will be able to connect to external sources fairly easily, I plan to use some form of database to hold the hero vs hero data that I process from the API. This database will be hosted on some form of server, most probably a tomcat server ran on the Universities network.

Quality Attributes

The *Extensibility* of our system is high as adding a new feature to the system would just require another 'page' on the android app and the development of that feature, making it very easy to add functionality.

The *Modifiability of our system should be fairly high as it will be written in Java the functions of the system should be highly Readable, this making it easy to modify and change how the functions work.*

The *Portability* of the system is very important as its an android application it would be logical to translate it over to IOS and other mobile operating system, I believe there are many systems out there to make the portability of an android app easy.

Planning and Timescales

I will have my Prototype completed by the 1st December, this prototype will have the following functionality:

- A prototype of the drafting assistant that can produce the correct suggested heroes after entering a partial or full draft
- A simple twitter feed that will display the official DOTA2's twitter and a few notable players

The breakdown for how I will complete this is as follows:

Task	Completion Date
Simple web page developed with simple GUI ready to implement functionality	31/10/2014
Designed the system to extract hero vs hero data from the Valve API and input it into a database	14/11/2014
Drafting Assistant implemented to use the database data to produce accurate results	28/11/2014
Android Application prototype produced that extends the web apps functionality	30/11/2014

In my second semester I plan to add the following:

- Log in system with some customisation in your drafting preferences
- Page that analyses your recent games and advises ways to improve your drafting

Risk Assessment

Risk	Preventative Action	Risk Rating	Action Date
Extracting the data from the valve API becomes impossible	Work without the data on things that are possible to complete, twitter feeds, gui ext	Low	28/11/2014
My android device breaks causing testing to become difficult	Run the app on an android emulator until issue is resolved	Low	07/05/2015
I cannot hold the amount of data required on a tomcat server	Look into alternatives and possibly rent a bigger server	Medium	28/11/2014
Android development tools are unusable	Work on other things that are possible, data management ect	Low	28/11/2014

References

Valve API Details - http://dev.dota2.com/showthread.php?t=47115
_DOTA 2 API Details - https://developer.valvesoftware.com/wiki/Dota_2_Workshop_Tools/ Scripting/API_
_Steam API - https://developer.valvesoftware.com/wiki/Steam_Web_API_