CS Capstone Requirements Document

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eBay iOS eSports Application

CS461 Senior Software Engineering Project I

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Prepared for

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Abstract

This document contains the client’s specific requirements for the eBay iOS eSports application. It includes an overall description and perspective of our product, users, and system information. Along with that, the functions and constraints of the product, users, design, software, and hardware are outlined. Specific requirements for the external interface such as the user, hardware, and software, and the performance of the product are included. Also outlined are the features that the application will contain including actions such as browsing, searching,purchasing,and stretch goals.

Contents

1 Introduction

Our project involves the creation of an iOS application by utilizing eBay public buying APIs to help eBay understand the eSports market and provide shopping opportunities. Our challenge is to target millennial gamers and connect to a variety of different APIs. We will utilize event and eSports APIs to display information desired by gamers. The primary purpose of the application is to make it easier for customers to purchase eSports merchandise and find information about eSports events.

1.1 Purpose

The purpose of the iOS mobile application is to provide access to eSports merchandise sold by eBay and display information about upcoming eSports events. The application will provide users a wider range of shopping opportunities by connecting them with products that interest them through a relatively simple, streamlined, easy-to-use browse process.

End users will also be able to view Twitter feeds about upcoming eSports events. This social component has many added benefits, one of which is making the application more personal. It will also help eBay stand out as a more attractive purchasing option and help to consolidate eSports information into one place so that users can receive updates about their favorite games.

Technical goals include building an application outside of eBay that uses its various public APIs and integrates with Google Firebase for authentication. This application will also test the ability to develop on those public APIs.

For us, as developers, this application will demonstrate an ability to adhere to current human interface guidelines detailed in the Apple developer guidelines. We will also gain valuable software development experience to prepare us for larger scale projects that we can expect to see in our careers.

1.2 Scope

Our main goal is to create an application that helps eBay learn more about the eSports market and new shopping opportunities for eBay. The software will allow users to find and purchase eSports merchandise that is being sold on eBay. We also want to create an environment for millennial gamers to learn more about upcoming eSports events around the world.

1.3 Definitions, acronyms, and abbreviations

- **eSports:** Multiplayer gaming event thats played competitively through out the world among professional gamers.
- **Xcode:** IDE provided by Apple to test, compile and develop applications for the iOS and Mac OS X.
- **Swift:** Compile programming language provided by Apple to build application for the iOS and Mac OS X.
- **Firebase:** Real time databases provided by Google which offers many other services such as cloud messaging, storage, and authentication.
- **iOS:** An operating system used on Apple's mobile phones.
- **OS:** Operating system
- **query:** To retrieve specific information from a database.
- **API:** An application programming interface is a set of clearly defined methods of communication between various software components.
- **modal:** A modal window is a graphical element subordinate to an application's main window.

1.4 References

- https://go.developer.ebay.com/
- https://firebase.google.com/
- https://developer.twitter.com/en/docs

1.5 Overview

This document contains the overall description of how the product will be structured, the specific requirements of the system features, performance, user interaction, and details on the software system attributes.

2 Overall description

This application will be created for iOS 11, and use eBay's public buying APIs. User's will be able to view and purchase merchandise associated with upcoming eSports events and games.

2.1 Product perspective

Our product is an independent standalone application separate from eBay that utilizes their public APIs.

2.1.1 System interfaces

- The product will be an independent iOS 11 application that makes use of eBay public buying APIs.
- It will drive traffic to eBay by redirecting to the official eBay application to complete purchase. A stretch goal will be to implement the complete purchasing process within the application.
- Users will be able to search for and purchase eSports merchandise from eBay. Google Firebase will be used for backend databases and authentication. Users will be able to create an account which will store their favorites information by utilizing Firebase.
- The application will utilize Twitter's public API to display tweets from targeted accounts that coincide with eSports events.

A stretch goal will be to utilize Facebook APIs and to display posts from targeted eSports accounts such as Riot Games and Blizzard so that users can stay up to date with ongoing events.

2.1.2 User interfaces

The user interface will have home and browse screens that display information related to eSports events and merchandise. The home screen will display ongoing eSports events, targeted Tweets, and games that the user has favorited. The browse screen will allow users to view merchandise for different games and events. There will be a login form for creating and signing into an account. The interface will give users the ability to favorite and unfavorite different games. Merchandise will have individual product pages and be displayed with a buy button that redirects to the eBay application for purchase.

2.1.3 Hardware interfaces

The application will support iPhone devices running iOS 11.

2.1.4 Software interfaces

The application will utilize the eBay buy APIs which consists of the marketing, browse, and order APIs. The buy APIs are currently publicly available and will require an eBay developers program account. The Twitter APIs are also publicly available and will be used to display Tweets from targeted eSports accounts.

2.1.5 Communications interfaces

The application will require an internet connection for core functionality such as displaying tweets and merchandise information from eBay.

2.1.6 Memory constraints

The application will run within the memory constraints of recent iPhone devices such as the 7, 8 and X.

2.1.7 Operations

Users will be required to sign into their Firebase accounts in order to favorite different games and have them displayed on the home screen.

2.1.8 Site adaptation requirements

The user will require a recent iPhone device that runs iOS 11 such as the iPhone 7, 8, or X to run the application. The application will need to accommodate different screen sizes for both iPhone plus and normal sized models.

2.2 Product functions

The home screen will display featured eSports events, related merchandise, Tweets from targeted accounts, and favorited games. The application will allow users to browse eSports related merchandise from specific events and games. It will have filters for up to three predetermined categories to control which merchandise is displayed on a game or event screen. It will allow users to fetch eSports merchandise related to the game or event selected by the user. It will allow the user to sign in, maintain a personal account, and favorite games. The primary navigation will consist of a home and browse tab.

2.3 User characteristics

The intended user of this application are those looking to purchase eSports related merchandise such as gamers looking to support their favorite games or other individuals looking to purchase this merchandise as a gift. This encompasses a wide range of ages, from middle-aged students all the way to grandparents. There is also a large educational range for our intended users, as those who are into eSports and would be using the application do not need to have a high school or college degree to do so. The intended user has enough technical skills to be able to navigate a mobile application and complete a transaction. They should be able to familiarize themselves with the interface in a short period of time without needing specific instructions for how to navigate.

2.4 Constraints

The application will be dependent on eBay buy APIs in order to display relevant eSports merchandise. We will also be limited to functionalities within Google Firebase for our backend databases and authentication.

2.5 Assumptions and dependencies

The end application will load within a reasonable amount of time. The Twitter API will be used inside the application for the social component mentioned above. The application will meet basic functional/performance requirements as we have defined them. The main source of the application will be implemented in the Swift programming language and will adhere to the Apple Developer Standards. All development will take place outside the eBay domain. The application will use Google Firebase for back end database queries. Xcode will be the development environment. eBay and Twitter APIs will become dependencies.

In order to function, the application must be connected to the Internet. The application will be built to run on Apple iOS 11 and support portrait orientation. The primary language of the application will be English.

2.6 Apportioning of requirements

2.6.1 Stretch goal 1: Cart

- The user will be able to add items to their cart.
- The user will be able to view their cart.
- The user will be able to purchase multiple items from their cart at one time.

2.6.2 Stretch goal 2: Publishing to the iTunes Store

- The application will be published to the iTunes store.
- Users will be able to download the application from the iTunes store.

2.6.3 Stretch goal 3: Teams as a category

- eSports teams will be added as an additional query category.

2.6.4 Stretch goal 4: Peripherals as a category

- Peripherals including mice, headsets, and keyboards will be an additional query category.

2.6.5 Stretch goal 5: Facebook API integration

- The application will utilize Facebook's API.
- The application will allow user's to share upcoming eSports events to their timeline and view posts.

3 SPECIFIC REQUIREMENTS

This section goes into details of the applications functions, the external interface, the software systems attributes, and the constraints.

3.1 External interface requirements

We will be using the eBay public APIs as a starting point for our application. We will also be integrating for Twitter APIs for the social component. We will be also integrating with Google Firebase as a back end for authentication.

3.1.1 User interfaces

- Users will be able to interact with a sign in modal window where they can log in or register on the home page.
- Users will be able to see eSports events and related merchandise.
- Home page will contain favorited eSports games.
- The browse page will contain categories of different events and games where users can select to choose what they are interested in.
- A carousel will be used on the home screen to display the merchandise for the featured event or favorited games.
- They will be given the option to filter based on three categries that are still to be determined (this will only involve changing a query).
- They will be redirected to the eBay application to complete their purchase if interested.
- No merchandise will be displayed if no results are returned by the query sent to the API.
- Users will receive an error message notification if they are not connected to the internet.

3.1.2 Hardware interfaces

- The application will support all of iPhone devices currently running iOS 11 since the whole application will be written with latest version of Xcode and Swift.
- Application will use some of iPhone integrated hardware to interact with the user. Local notifications and many other thing provided by Apple will be integrated.

3.1.3 Software interfaces

- Our application will run all the fetching in the background to retrieve data given by the user to display all on the home page and the browse page.
- The Firebase backend will be used to let users register and log in by using an authentication system on the sign in modal.
- Purchasing an item will make a transition call to open the eBay application to complete users purchase.
- Social APIs will be displayed on event page to share the event.

3.1.4 Communications interfaces

- The application will connect to the internet.
- An error message will be displayed when the application is not connected to the internet.

3.2 System Features

3.2.1 Log in

3.2.1.1 The user will be able to create and log in an account to access their favorited games.

3.2.1.2 Users will log in by selecting the associated button displayed at the top of the home screen.

3.2.1.3 Additional Functional Requirements

- The user will be able to view their previously favorited items each time they log in.
- The user will not be able to favorite games unless they are logged into an account.

3.2.2 Log out

3.2.2.1 The user will be able to log out of their account.

3.2.2.2 The user will be able to log out by selecting the button displayed at the top of the screen.

3.2.3 Home

3.2.3.1 The user will view featured eSports events, related Tweets, and favorited games from the home screen.

3.2.3.2 The home screen will be displayed by default when the application is opened.

3.2.3.3 Additional Functional Requirements

- The user will be able to view a featured eSports event on the home screen that contains the date and location.
- The user will be able to view merchandise associated with the featured event on the home screen.
- The user will be able to navigate to the featured event browse page by tapping on the event card.
- The user will be able to view the most recent tweet from a twitter account associated with the featured event.
- The user will be able to see additional tweets from the associated twitter account.
- The user will be able to view favorited games from the home screen after they have signed in with their account.

3.2.4 Twitter

The user will be able to view Tweets from targeted eSports accounts. Tweets will be viewable from the home screen.

3.2.5 Favorites

3.2.5.1 The user will be able to favorite and unfavorite games which will appear on the home screen.

3.2.5.2 Games will be favorited by toggling the favorite button which will be displayed near a game title.

3.2.6 Browse

3.2.6.1 The user will be able to browse related merchandise for different games and events.

3.2.6.2 Browse will be will be accessed by selecting the browse tab from the home screen.

3.2.6.3 Additional Functional Requirements

- The user will be able to select a game from the from the initial browse screen.
- The interface will display six different games for viewing merchandise.
- When a user selects a specific game, they will be able to view related eBay merchandise.
- The user will be able to select the events category from the initial browse screen.
- The interface will displaye five different events for viewing merchandise.
- The user will not be able to access past events.
- When a user selects a specific event, they will be able to view related eBay merchandise.

3.2.7 Checkout

3.2.7.1 The user will be able to purchase an item by redirected to the eBay application.

3.2.7.2 Users will checkout by selecting the buy button on a product page.

3.3 Performance requirements

The completion of project requirements is more important than raw performance. Therefore, most of our performance metrics will be qualitative requirements. This is because gated networks can make it difficult to measure performance accurately and we will be limited by factors outside of our control. Our performance will be measured by our ability to integrate with eBay APIs and Firebase. Currently, our goal to shoot for a maximum of 2 second page load. Metrics may be tweaked in the future to avoid being overly ambitious on performance.

3.4 Design constraints

We will be designing our UI based on what is achievable with default libraries in Swift and Xcode.

3.4.1 Standards compliance

We will be obtaining proper licensing from Apple to develop this native application since our application will developed specifically for the protected iOS system.

3.5 Software system attributes

This section includes how reliable, available, secure, maintainable, and portable our application will be.

3.5.1 Reliability

This application should be able to display the latest up and coming eSport's events, and not display an event that has passed. The application should also consistently show relevant merchandise when the user selects a specific game or event from the Browse screen.

3.5.2 Availability

The application will only be available to user's who have iPhone devices. These devices must have the latest iOS 11 OS. Those users must also be connected to the internet to use our application.

3.5.3 Security

We will be using Firebase security system that is provided by Firebase. Some of the APIs that we are using also provide HTTPS security calls.

3.5.4 Maintainability

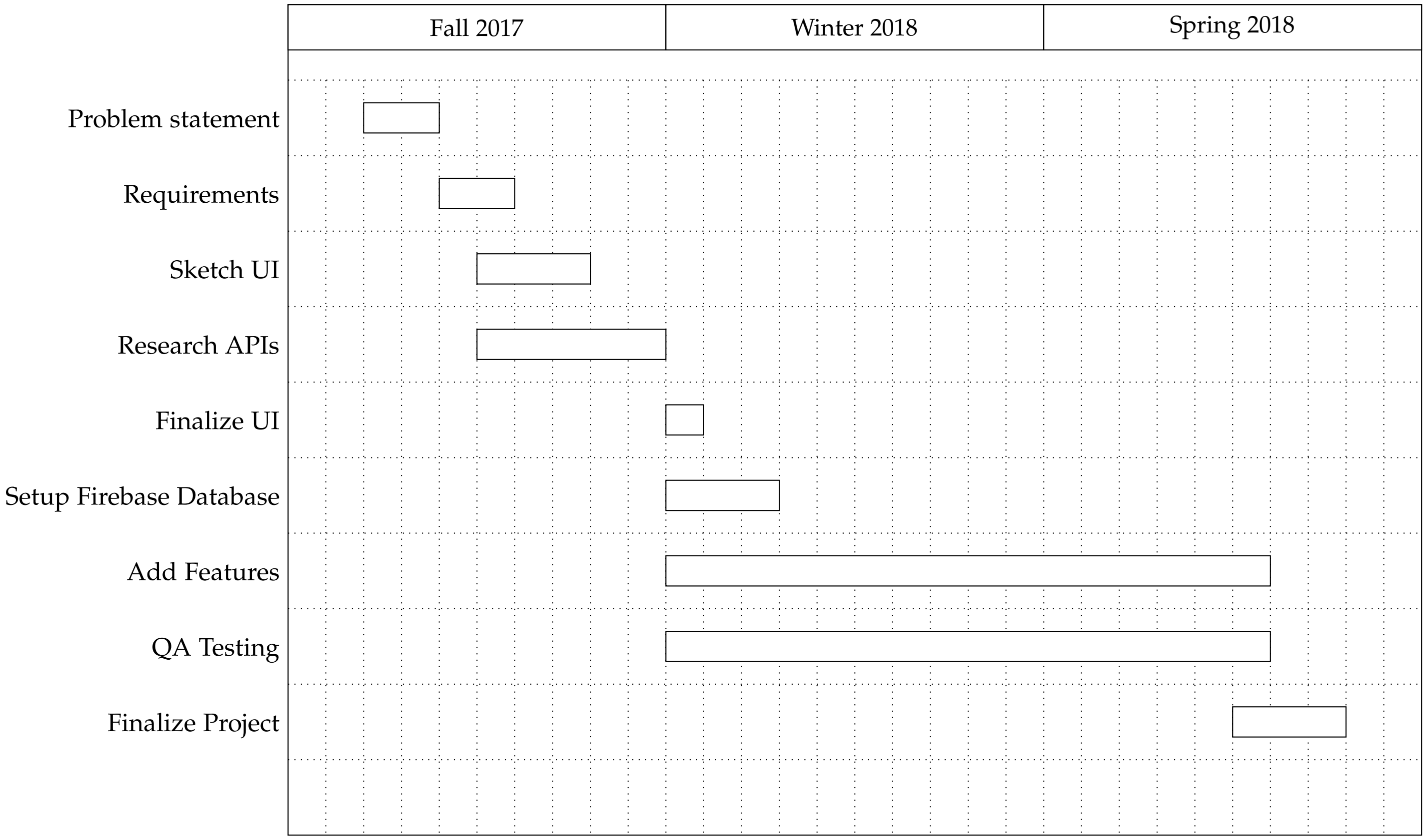
We will be maintaining the software by making sure everything we have is fully functional and optimized. Also, we will make it our priority that our Firebase backend runs pretty smoothly when fetching to avoid delays and high memory usage.

3.5.5 Portability

This application will only be usable on iPhone devices with iOS 11, this means iPhones without the latest OS or other devices will not be able to run the application.

4 APPENDIXES

4.1 Gantt Chart


Fall 2017
Winter 2018
Spring 2018
Problem statement
Requirements
Sketch UI
Research APIs
Finalize UI
Setup Firebase Database
Add Features
QA Testing
Finalize Project