TOBB UNIVERSITY OF ECONOMICS AND TECHNOLOGY

DEPARTMENT OF COMPUTER ENGINEERING

PROJECT TITLE

WIGGLE (ANDROID WORD GAME)

BİL 496 Graduation Project

SRS DOCUMENT

2014-2015 Spring Semester

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Team Members:

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Software Requirements Specification Document

1 Introduction

1.1 Problem Definition

In this project we will implement an android word game. This game can be played single player or multiplayer. Also players can share their score in Facebook and Twitter.

1.2 Purpose

The fundamental aim of this game, user sees a shuffled word and tries to find the actual word. User can read the clues which are bottom of the word. Also in multiplayer games, user can gain experience points if he/she wins the game. Also, with these experience points user can level up. The difficulty of word is directly proportional with user's level.

1.3 Scope

The all words in the game are English. The game will have 60.000 different words. The xml files will include all words and their meaning or meanings in specific format. User can answer the word in two ways. In first way, user will select the first character and then select second character. These chosen characters' change with another one's. In second way, user will press the microphone button which is in our application and says the word. Also this game is not only a single player game, but also is a multiplayer game. Multiplayer games will have three difficulty level. Each level will save different score. Users will match with each other as far as their level. Finally users can share their score in Twitter or Facebook.

1.4 Literature Survey

Finding a dictionary is first step of this project for word database. After that we parsed this dictionary and created three .xml form files that we needed. We used a tool which is created by our project member's internship work with groovy programming language. We changed some areas of this tool and created our .xml files. We didn't create any Android Application so we researched a lot of source such as creating good layout simple and user-friendly, connect to our application to the database, adding visually effect, app engine for multiplayer gaming, xml parsing.

1.5 Definitions, acronyms and abbreviations

Android Studio: is an integrated development environment (IDE) for developing on the Android platform that launched by Google.

Layout: is all screen in the game.

Clue: is the meaning of the word.

Animation: is all transitions between events.

Speech to Text: is that sound is converted word with the aid of the microphone.

Experience: is earned level and point.

API -> Application Programming Interface

AS -> Android Studio

SDK -> Software Development Kit

1.6 Overview

This project is an android game and will be developed with Android Studio. First step is that finding an English dictionary and parse it. After that, we will prepare three xml files in a specific format for each level. Secondly, we will create our layouts. Before creation of these layouts, we must design them. After these steps, we will implement our java (source) files. These files include animations, speech to text property and all other features. Also in these files we need to connect database, Facebook-Twitter API's and server side to our application. In server connection we will use Google App Engine services.

2 Overall Description

2.1 Product Perspective

2.1.1 System Interfaces

For multiplayer gaming, users must have Internet connection.

2.1.2 User Interfaces

After the game started, a screen which is selected single game or multiplayer game. If user selects single game, game screen opens. Users can play single game and only their high score keeping in self phone memory. When the time is up, game screen closes. If users select multiplayer game, they log in or sign in with their username and password. After that game screen opens. Two user can play game each other. When time is up, game screen closes.

2.1.3 Hardware Interfaces

There isn't any hardware interfaces to run this game. Game requires 50MB free hard disk space.

2.1.4 Software Interfaces

This game will be for Android operating system.

2.2 Product Functions

Our first goal is that enjoying the user. If we will have good feedback from users, it will be earned money to us in future.

2.3 User Characteristics

Software Developer: These are people who will want to work on Android platform in the future.

User: These are people who have Android devices.

2.4 Constraints, Assumptions and Dependencies

We will build this game only Android platform. With user feedback, we may build this game for IOS, Windows Phone. Our game language is only English. If user don't know English, unfortunately cannot play this game. Our game has three difficulty level. After some point user will get bored because of the same level. With user feedback, we may increase our level number.

3 Specific Requirements

3.1 Interface Requirements

- **INTERFACE-REG-001:** The game shall be controlled through touch screen.
- **INTERFACE-REG-002:** User shall choose single player or multiplayer game
- **INTERFACE-REG-003:** User shall choose and switch letters through touch screen.

3.2 Functional Requirements

- **FUNCTIONAL-REG-004:** The game shall be stopped by pause button.
- **FUNCTIONAL-REG-005:** User shall want to solve the word that not knowing
- **FUNCTIONAL-REG-006:** The game shall keep users high-score.
- **FUNCTIONAL-REG-007:** The game screen shall be closed when time is up.
- **FUNCTIONAL-REG-008:** User shall play multiplayer games with each other.
- **FUNCTIONAL-REG-009:** The game shall have three levels.
- **FUNCTIONAL-REG-010:** User shall log in with her/his username and password.
- **FUNCTIONAL-REG-011:** When time is up, twitter and facebook sharing screen shall open.
- **FUNCTIONAL-REG-012:**User shall select different difficulty level in single player game.
- **FUNCTIONAL-REG-013:** Device shall have Internet connection for multiplayer gaming·
- **FUNCTIONAL-REG-014:** User shall press microphone button and say the word.

3.3 Non-functional Requirements

3.3.1 Performance Requirements

- **PERFORMANCE-REG-015:** The animations shall last smaller than 1000 ms.

3.3.2 Design Constraints

3.3.2.1 Software System Attributes

3.3.2.1.1 Usability

We will create a user-friendly and easy-to-use game for Android devices.

3.3.2.1.2 Reliability

In this game server sided operations can be risky sometimes (which uses internet). These operations as reliable as Google because we will use Google App Engine in these operations.

3.3.2.1.3 Availability

There is no restriction for single player gaming. Users can play the single player game as long as their device is on. However, for multiplayer gaming, internet connection will be needed.

3.3.2.1.4 Security

There isn't any security constraints for single game platform. In multiplayer games we will need to have user name and password to connect each other. Because of this, our database systems must be secure.

3.3.2.1.5 Maintainability

Our plan is putting the game to Google Play Store. According to the feedback, we may improve the game and add new features. Main game language is English. Also, the words which are used in the game will be English. More languages can be added in the future depends on the user feedback.

3.3.2.1.6 Portability

This game won't be portable. (Game's features cannot be used in another APPs or Systems.)

4 Data Model and Description

4.1 Data Description

4.1.1 Data Objects

Currently, there are two activity classes which are LevelSelect and MainActivity. These two classes extend to Activity class and implements onClickListener for user inputs. Also, there are three separate classes for XML parsing process, timer and listview layout.

4.1.2 Relationships

LevelSelect and MainActivity implements Activity class and onClickListener. Also, timer class which is responsible for countdown extends to CountDownTimer and CustomArrayAdapter class extends to ArrayAdapter.

4.1.3 Complete Data Model

This content is in our Extra's. (Picture 2)

4.1.4 Data Dictionary

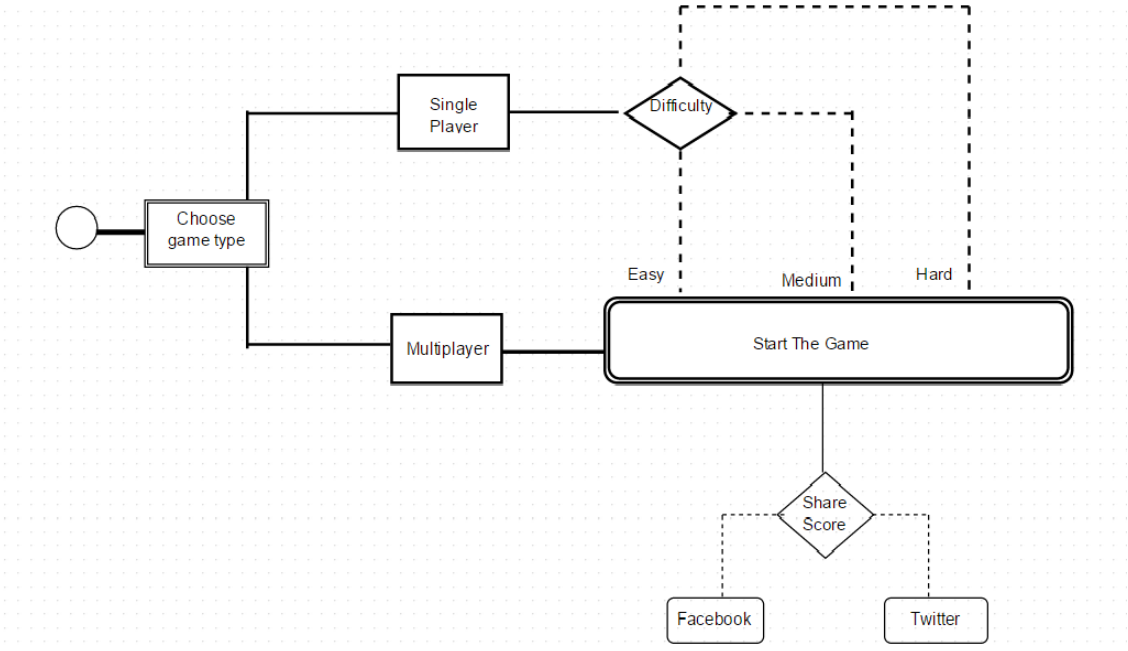
Our English word database mainly bases on three separate xml files. The first xml file consists words which contains three to four letters. Similarly second and third xml files consist words containing five to six and seven to eight letters respectively. As to multiplayer database, we will use App Engine for all of our database needs provided by Google.

5 Behavioral Model and Description

5.1 Description for Software Behavior

This content is in our Extra's. (Picture 1)

5.2 Activity Diagrams



6 Project Plan

6.1 Team Structure

Our team has three member and one advisor. Developers works together when they develop the android game.

6.2 Project Schedule (estimated)

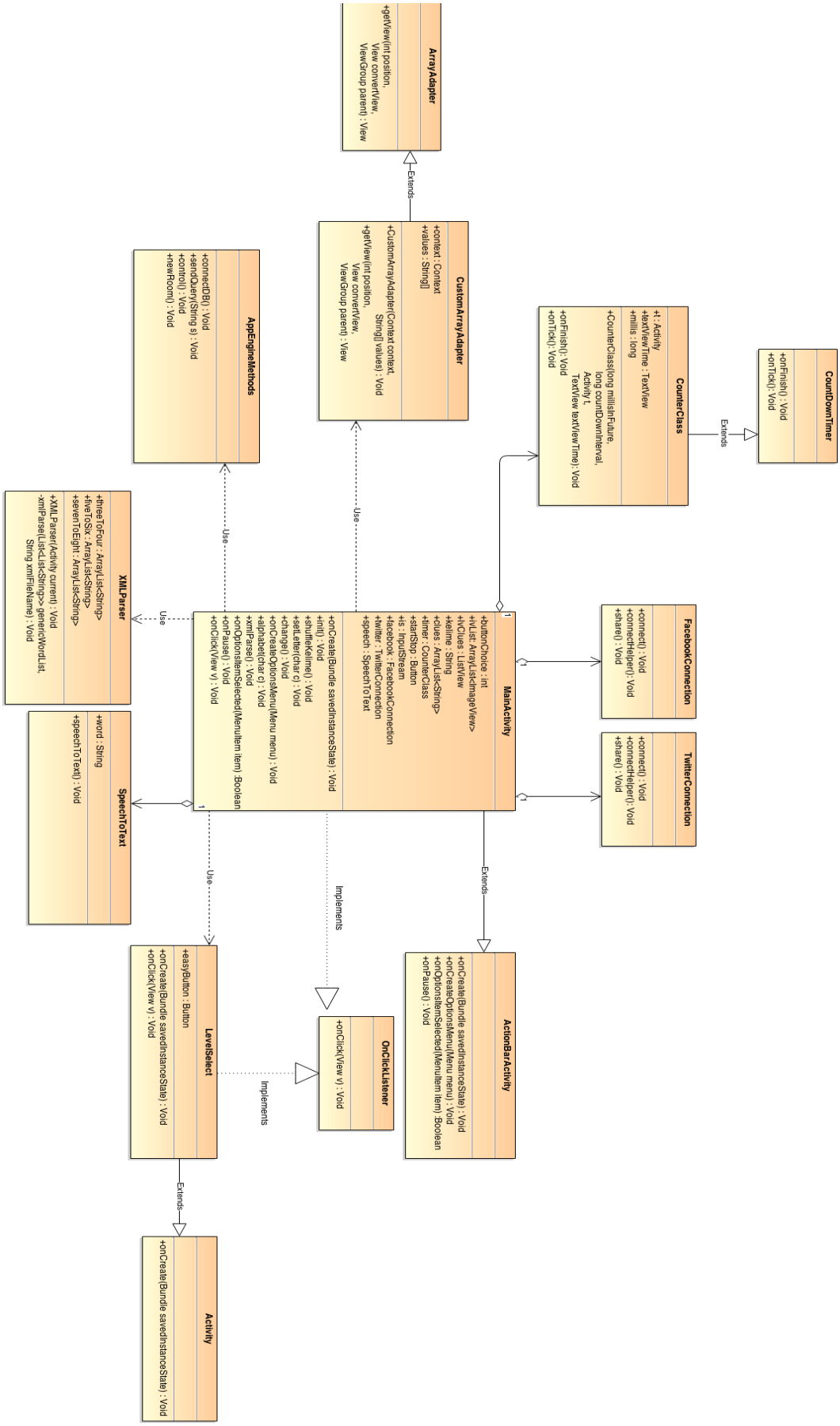
19 January 2015- 31 January 2015
SRS and SDD documents are prepared along with parsing English dictionary and preparing it for further usage.
1 February 2015 - 8 February 2015
Layouts and xml word files will be created.
9 February 2015 - 14 February 2015
Menu Activity and single player's main activity will be added.
14 February 2015 - 28 February 2015
Multiplayer gaming and database will be added.
1 March 2015 – 4 March 2015
Preparation of demo.
4 March 2015 - 11 March 2015
Facebook and Twitter connections will be added.
11 March 2015 - remaining time until demo day
All improvements and missing parts will be developed and game reaches the testing stage. The final report will be prepared.

6.3 Process Model

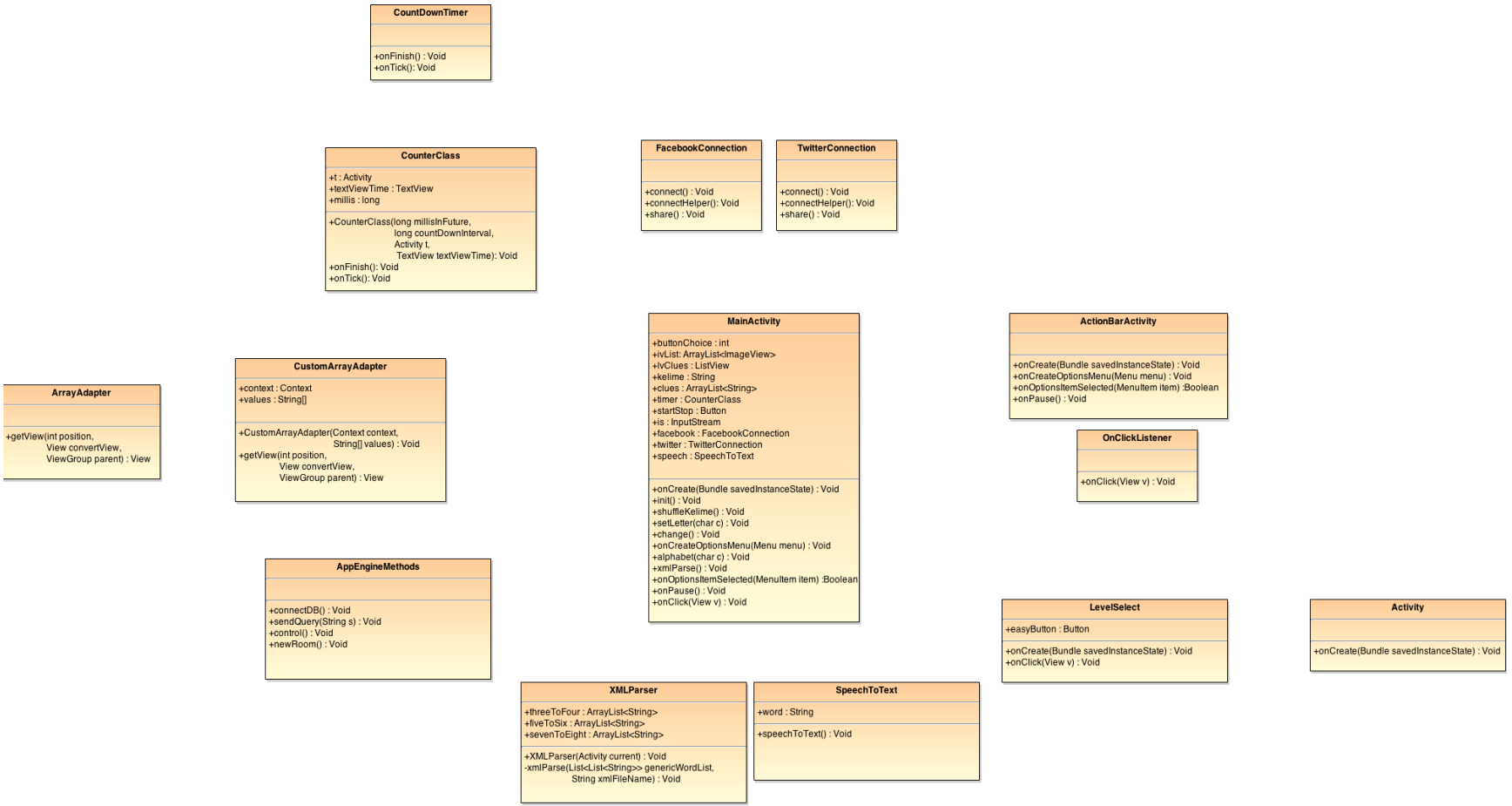
We are going to use "Incremental" model. We split our projects into the pieces. At each iteration, design modifications are made and new function is added.

7 Conclusion

In conclusion, we are implementing an enjoyable game that users guess the words with the meaning of the word. The goal of the user is that to reach the highest level of the game. The level increases, the length of the word increases and earns more point to the user. In Android devices, there are some similar games but they don't support multiplayer gaming. We think that this attribute get us one step forward. Also we will connect our game to the Facebook and Twitter. Thus we will learn Facebook and Twitter API for Android. Furthermore, users who play our game will learn more word and their meaning. They will use synonym words, antonym words and other meaning of the words. They will improve their vocabulary knowledge.



Picture -1: UML Diagram



Picture -2: Complete Data Model