

Cupcake Trivia

Game Application for iOS

Game Design Document Version 1.3

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1. Document History

| Version | Author | Description | Date |
|---------|-----------|--------------------------|--------------------------------|
| 1.0 | Bonnie Vo | Initial Document Release | July 8 th , 2015 |
| 1.1 | Bonnie Vo | Added sections 7-10 | July 24 th , 2015 |
| 1.2 | Bonnie Vo | Updated appendix | August 7 th , 2015 |
| 1.3 | Bonnie Vo | Updates with images | August 19 th , 2015 |

2. Introduction

2.1 Purpose

The intention of this document is to clearly outline the necessary features and functionality of the Cupcake Trivia game application for iOS.

The intended readerships of this document are the design team, software development team, and sponsor for this project.

2.2 Scope

This project is an iOS educational gaming application called Cupcake Trivia. The goal of the application is to provide an educational and adventurous game.

2.3 Definitions, Acronyms and Abbreviations

Please refer to Appendix A for a list of all acronyms and abbreviations.

2.4 References

Please refer to Appendix B for a list of product and tools.

Changes to this document are recorded in the 'Document History' section.

2.5 Overview

The rest of this document contains specifications of the Cupcake Trivia App in detail.

1. Section 1 is the document history.
2. Section 2 is the introduction and includes a scope of the project, applicable and reference documents.
3. Section 3 contains the game overview.
4. Section 4 includes gameplay and mechanics.
5. Section 5 includes the interface overview.
6. Section 6 includes the game art.
7. Section 7 includes the requirement specification.
8. Section 8 includes the implementation overview.
9. Section 9 includes the installation and deployment overview.

3. Game Overview

3.1 Concept

The player is a cupcake character in a Sugar Kingdom who is trying to race against time to go back home to the bakery. The concept is to get to each checkpoint the fastest while collecting coins to receive points. The checkpoint will give the user an opportunity to solve some math questions to receive additional bonus points. The coins and math problems all contribute to the points the player can earn. After a given amount of points, the player can trade in their coins for bonus items, e.g. fly abilities to get to the next checkpoint faster. Players are trying to achieve stars to pass the level (3 stars is the maximum).

3.2 Genre

Cupcake Trivia is best classified under "Educational/Trivia."

3.3 Target Audience & Platforms

6+ year olds with iPhones/iPad

4. Gameplay & Mechanics

4.1 Gameplay

4.1.1 Objectives

1. Reach the checkpoint before the timer is up
2. Collect the coins at each level to earn points
3. Get to the checkpoint and solve the math questions to get bonus points

4.1.2 Gameplay flow

1. Player starts at the beginning.
2. Player must move forward (tap and hold left side of screen).
3. Player can collect coins along the way to earn points
4. Player must jump to avoid hazards and jump to collect coins.
5. When player reaches the checkpoint, they can answer some math questions to get additional points.
6. Player will pass the level if they have earned a minimum of 1+ star (out of 3 stars).

4.2 Mechanics

4.2.1 Movement

1. Tap left and hold to move forward
2. Tap right to jump.

4.3 Audience Characteristics

Cupcake Trivia is geared towards audience who likes to achieve the highest score possible, the feeling of racing against the clock, and to achieve success by leveling up. These are the characteristics I had in mind during the design choices throughout the process of creating Cupcake Trivia. I wanted to create a simple platform game and add features that are common in most games, for example a timer and checkpoints. To make this game educational, I wanted to add trivia questions at the checkpoint for the player to go through a lightning round of questions and receive bonus points for getting the correct answer. The lightning round targets audience who likes trivia.

4.4 Learning Curve

The learning curve to play Cupcake Trivia is relatively simple for the audience to grasp. Most likely, it'll take the audience one or two rounds to play to understand the idea. The player will quickly understand that coins contribute to the score. For this version of the game I decided to have two movements that the player can make (moving forward and jump). I made this decision because I wanted to keep the movement simple and instead of having buttons that may distract the player from the game I decided to use the touchscreen feature. I wanted to have the player move and jump. Because of this decision, I needed to simplify the choices the player can make by only allowing touches from the left and right side. The movements that are critical to this game is to jump and move forward. Moving backward is a choice I didn't implement for this game because having a third side of the screen (top or bottom) for the player to touch isn't the best decision since iPhone users mostly use their left and right thumbs during a landscape screen game. Therefore I made the decision to leave out the feature of moving backward. That decision resulted in an additional feature to the game where the players can't move backward and have the player constantly move forward throughout the game.

4.5 Level Management

As the levels progress, the track will change and get longer and the questions will include a couple difficult questions in combination with the easy-medium questions. I decided to still have easy-medium questions as the level progresses because I don't want to have a lightning round where the questions are so hard that the players give up and don't want to play anymore. Instead of making the level harder by adding gaps to the track or more hazards, I decided to keep that at a minimal level and just make the level longer where the player will have to get to the checkpoints even faster against the timer. As the level progresses, the player will gain skills that they will use to their advantage to race against the clock. For example trading in their coins for the flying ability to get to the checkpoint quicker is an option the player can choose.

5. Interface

5.1 Visual System

1. Character avatar
2. Score
3. Timer

5.2 Control System

1. Tap on screen and hold the left side of the screen to move forward.
2. Tap on the right side for character to jump

6. Game Art

6.1 Scene Background

Scene background is a light blue sky with pink clouds in the background

6.2 Main character

The main character is a cupcake in roller skates.

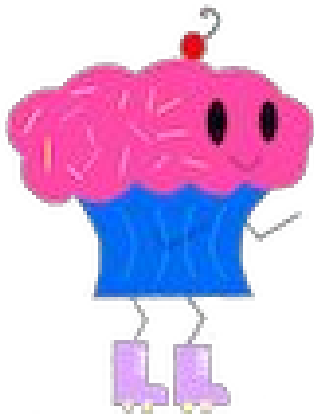


Figure 1: Cupcake Trivia Character

6.3 Scene During Play

Figures 2-7 are example of the scene during play testing.

This version of the game doesn't show the timer (has yet to be implemented yet). This implementation has lollipops as checkpoints and random coins moving throughout the game.

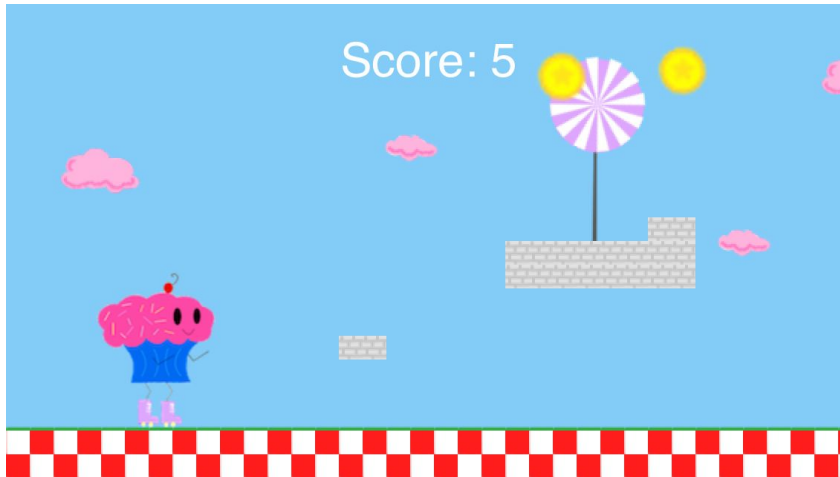


Figure 2: Beginning of the game

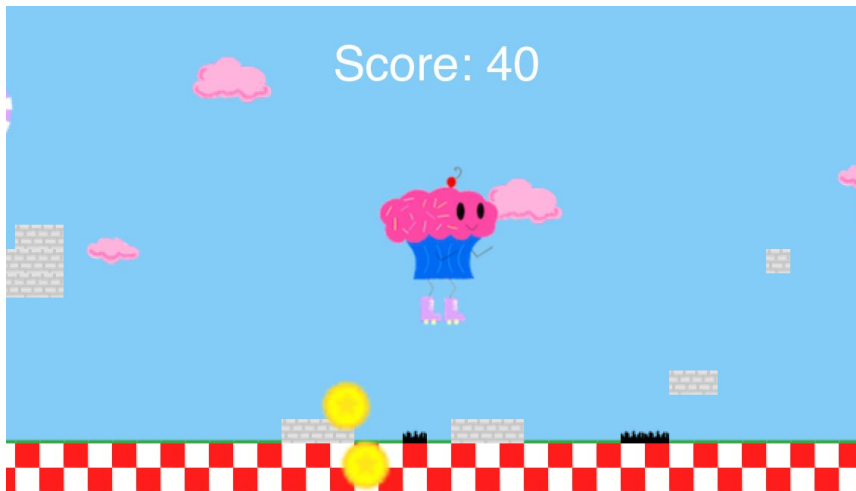


Figure 3: Character is jumping

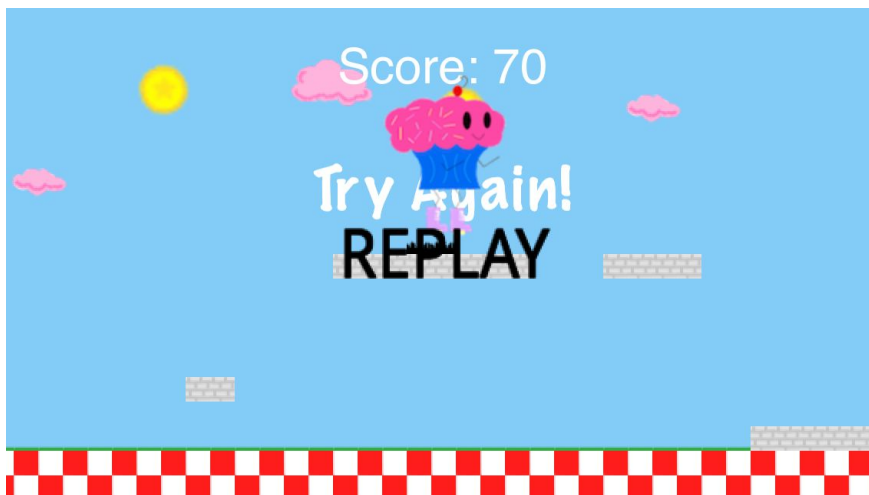


Figure 4: Character stepped on a hazard (spikes)

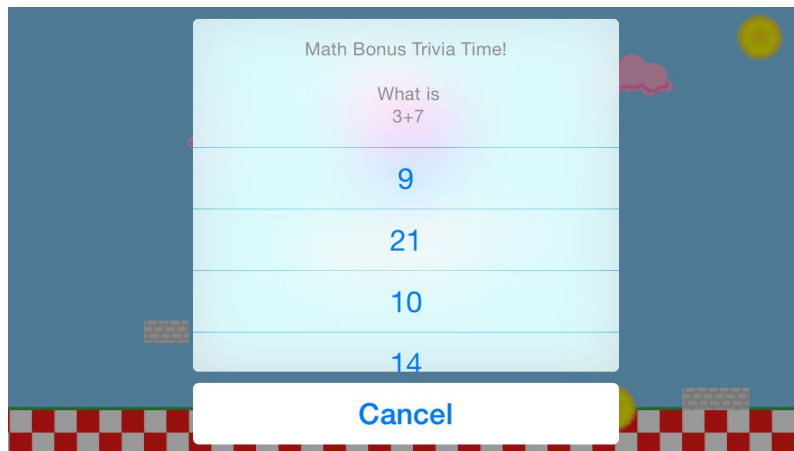


Figure 5: An example of the trivia question the player will see

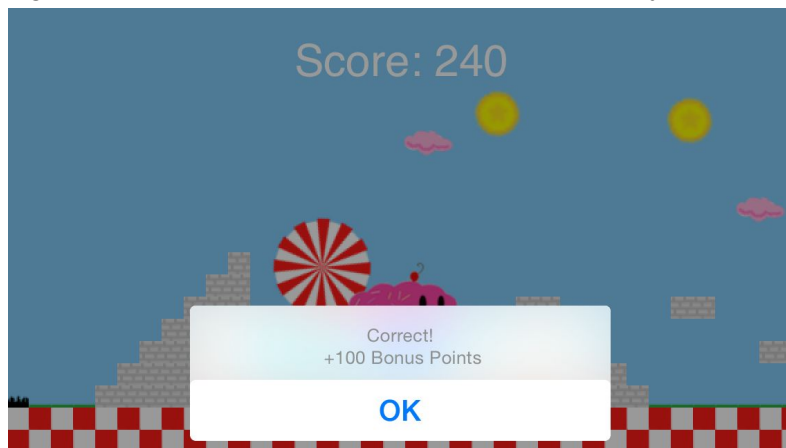


Figure 6: What the screen will show when the player gets the correct answer

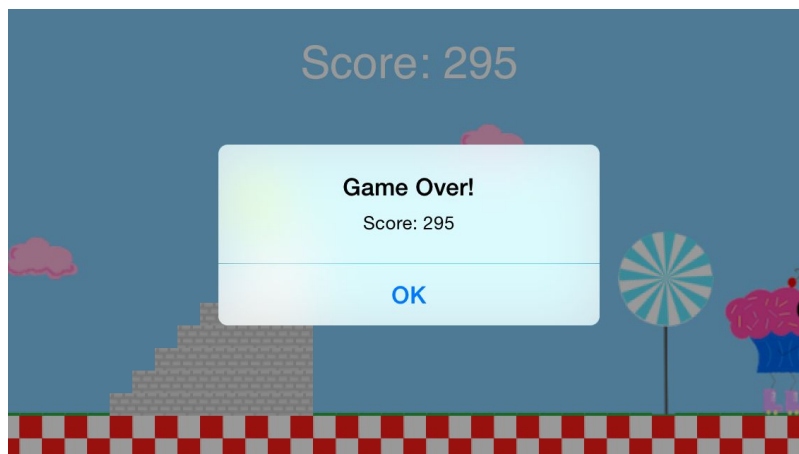


Figure 7: When the player reaches the end of the level

7. Requirement Specification

Application requires Xcode and an iOS device with the latest software update (current software is iOS 8.4).

8. Implementation

Figure 8 and Figure 9 are diagrams of the layout and how the implementation of the game is.

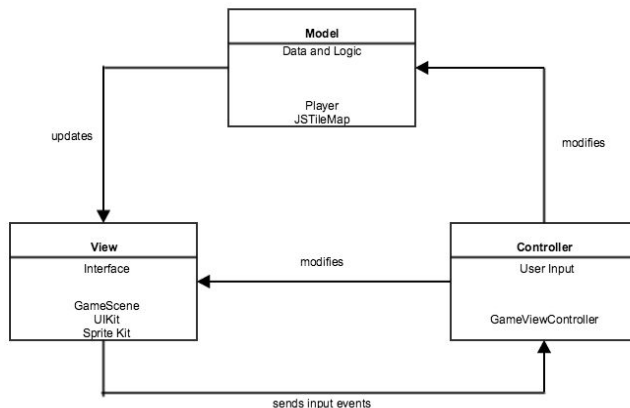


Figure 8: Model View Controller Diagram of the game

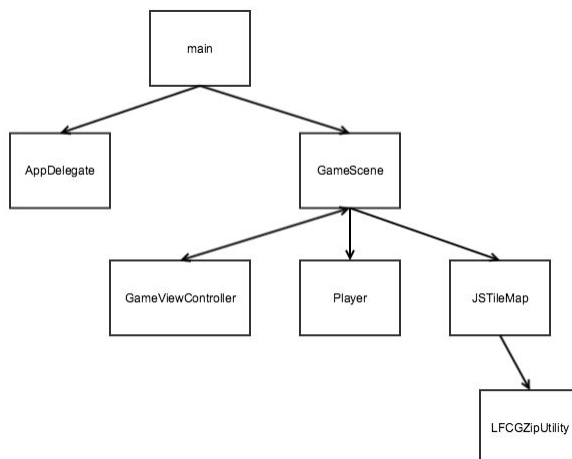


Figure 9: Simple diagram of the layout of the classes of the game

9. Installation and Deployment

Requires Xcode 7 beta 5 to deploy the application onto an iOS device (software update is currently at version 8.4) for testing purposes.

Deployment of the application to the apple store requires apple developer membership.

Appendix A: Definitions, Acronyms and Abbreviations

| <u>Abbreviations/Acronyms</u> | <u>Definitions</u> |
|-------------------------------|-------------------------------|
| API | Application Program Interface |
| iOS | iPhone Operating System |
| OS | Operating System |

Appendix B: Product & Tools

The following software components will be utilized in the Cupcake Trivia application. New versions of software may be released during the development of the system.

| <u>Software/Tool</u> | <u>Version</u> | <u>Source</u> | <u>Description</u> |
|----------------------|-------------------|---|---|
| Atom | 1.0.0 | atom.io | Tool to edit/view code |
| Gliffy Online | n/a | gliffy.com | Online tool to create diagrams |
| iOS Simulator | 8.3 | n/a | Simulator to test the product on computer device |
| Sketchpad | 3.7 | sketch.io | Editing and design tool |
| Tiled | 0.12.3 | mapeditor.org | Map editor |
| Xcode | 6.3.2 7 beta 5 | https://developer.apple.com/xcode/ | Software development tool developed by Apple for developing software for OS X and iOS |