Group 6 SRS

Hungry Penguins Android App

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1. Introduction

1.1. Purpose

The purpose of this document is to detail the functionality and requirements of the Hungry Penguins Game, as well as provide a description of the system and its features. This SRS is intended for users who want a more detailed understanding of the functionality of the Hungry Penguins Game as well as developers. Developers should refer to section 3 for specific functional and software requirements.

1.2. Scope

The Hungry Penguins Game functions as both a portable game app as well as a standalone desktop game for pc. The Android version of the game allows the user to interact through touch gestures, while the desktop version is controlled via the mouse or touchpad. The main purpose of this software is to provide the user with entertainment.

2. Overall Description

2.1. Product Perspective

The Hungry Penguins Game will allow the player to push the penguin up an ice ramp in order to eat fish that will swim in the water below. If the velocity of the penguin is too great or too minute, then the penguin will be projected behind or in front of the fish, thus not eating any fish. However, if the appropriate velocity is applied, the penguin will eat the fish, the upshot of which will cause the fish to disappear from view.

2.2. User Requirements

The following is a list of the function descriptions for the most important features of the Hungry Penguins Game.

2.2.1. Create Account

The account registration function will allow a user to register an account by entering their first name, last name, middle name (if any) and a valid email address. The system will create a 3 letter user ID based on the user's initials.

2.2.2. Delete Account

The delete account function will allow the user to delete their account along all of their account information.

2.2.3. View High Scores

The view high score function will allow the user to view the top ten high scores of the user.

2.2.4. Adjust Slope

The adjust slope function will allow the user to adjust the trajectory of the penguin

2.2.5. Set Velocity

The set velocity function will allow the user to set the velocity of the penguin by pulling the penguin backward by a desired distance and thus generating the velocity.

2.3. User Characteristics

The user must have a fundamental understanding of mechanics. (i.e. the user should have some expectations of the trajectory of the penguin based on slope and velocity)

2.4. Constraints

- If the penguin goes to the end of the game screen, the next round will start automatically.
- If the penguin does not travel to the end of the screen, the next round will start a few seconds after the penguin's forward motion ceases.
- If the penguin does not make it over the ramp, the next round will start automatically.

3. Specific Requirements

3.1. Functional Requirements

3.1.1. Create Account

The system shall prompt the user for the following:

- First Name
- Middle Name
- Last Name
- E-Mail Address

The system shall generate a user ID based on the user's initials and store the user information on a generated data file.

3.1.2. Delete Account

The system shall prompt user to confirm deletion, then delete user data file upon user acceptance.

3.1.3. View High Score

The system shall display the top ten scores in ascending order from the user data file.

3.1.4. Adjust Slope

The system shall dynamically raise and lower the ice slope based on the location in which the user drags the slope.

3.1.5. Set Velocity

The system shall increase the initial velocity of the penguin as the penguin is dragged in the negative 'x' direction by the user. Then apply the velocity in the form of horizontal force to center of mass upon penguin release.

3.1.6. Apply Buoyancy and Drag

The system shall apply a force in the positive 'y' direction as well as a linear velocity dampener when object move below a threshold 'y' value designated to the water level.

3.1.7. Create Fish

The system shall create fish with density equal to that of the water, and apply a force in the 'x' direction until the fish reach the edges of the water, then in the negative 'x' direction.

3.1.8. Create Penguin

The system shall create a penguin at the start of each round. The penguin should have 0 friction, 0 restitution, and a density less than water giving it the ability to reach the floor of the game screen before being pushed to the water level.

3.2. Design Constraints

- The system must support the oldest Android system available by the ADK.
- The system should not lag on neither game startup nor round startup.
- The objects in the system should have smooth, fluid motion, free from lag due to system stress.

3.3. Standards Compliance

The system must adhere to the Google Play Developer Program Policies.

Bibliography

1. Introduction to the Team Software Process, Watts S. Humphrey, Addison Wesley, 2000, page 113
2. Killer Game Programming in Java, Davuds, Andrew, OO'Reilly Media, 2005