CISC 226 - GAME DESIGN

PROJECT PROPOSAL

THE JOURNEY

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1. BRIEF STATEMENT OF GAME CONCEPT

We will create a single level, vertical scrolling platform game in which the objective is to climb as high as you can by repeatedly shooting and landing the main character unto the platform above. The storyline of the game is about an abandoned penguin egg that grows up and travels across the arctic region to find its family while avoiding predators. As the game progresses, new platforms that can move horizontally in both directions (left and right), vertically (up and down) or stay in a constant position, are introduced into the game t to make it more challenging. "The Journey" is a casual game targeted towards PC gamers (both male and females) in the age range: 10-30 years.

2. EXPLANATION OF NOVEL IDEA

In regular platform games like "Doodle Jump" and "Icy Tower", the character controlled by the player maintains the same physical characteristics throughout the game. As the player also progresses through these regular platform games, they aren't presented with the ability to gain additional control over the movements of the main character. However, in our game the character evolves as the player progresses through the game. The game starts with the main character as an egg, with the ability to jump upwards only. As the player reaches a certain checkpoint in the game, the egg hatches into a penguin chick. The player at this point has the ability to move the chick horizontally in any direction (left or right). These new movements are restricted to the platform only i.e. the player still only has the ability to make the character jump upwards. The player is in control of this new character until it reaches another checkpoint where the penguin chick transforms into an adult penguin with new controls unlocked. Finally, the penguin gains wings, finds its family and the game ends.

Another interesting aspect to our game is that the player character is allowed to jump only once unto the next platform. This increases the difficulty level of the game because if the player moves the character upwards but fails to make it land on the platform above, they lose a life point.

3. OUTLINE OF GAMEPLAY

The player is provided with the option of choosing either the single player mode or the multiplayer mode.

3.1. Single Player Mode

Gameplay at the Macro Level

The player starts the game with the main character as an egg on a snowy floor. The player can control this egg only by moving it upwards unto the next platform. As the egg moves upwards, it passes through the platform above and lands on it. This is only achieved if the egg is moved upwards at the exact time the platform is right above the player character. If the player misses, the egg crashes unto the ground and the player loses a life. In other words, the player can only jump once and has to land the egg on the platform.

Fig 1. Image of the player character as an egg

When the player reaches a predetermined checkpoint in the game, the egg hatches into a penguin chick. From this point, the player gains additional controls over the main character. By pressing on the left and right arrow keys, the player can move the character in either direction. However, the penguin chick is allowed to only jump vertically like the former egg character. Now that the player has more controls over the character, they are challenged to overcome more difficult platforms as they progress through the game.

Fig 2. Image of the player character as a penguin chick

As the player progresses further into the game, they reach another checkpoint at which the penguin chick transforms into an adult penguin. At this point, the player gains additional control over the penguin. The player now has the ability to make the penguin jumps upwards in any direction. They can make the penguin jump either upwards to the left, or upwards to the right and they still possess the controls to move the penguin in any direction on the platform as before. Also at this point, the player character acquires the ability to throw ice cubes at its enemy (the arctic fox) and there will be new sets of difficult platforms incorporated into the game.

Fig 3. Image of the player character as an adult penguin

At the end of the game, the penguin gains wings and flies to meet its family.

Gameplay at the Micro Level: The Player's 10-second level of play

The player opens the game, chooses the Single Player Mode and the game starts. The player has to move the main character (an egg) from the snowy floor to the moving platforms located above it. A short tutorial instructing the player on how to control the character appears on the screen. After reading the instructions, the player begins gameplay by

strategically moving the egg upwards onto the moving platforms above. The player continues gameplay by moving the player character from one platform to another whilst avoiding any obstacles that might be in its way.

Player's Life Points

To make the game more interesting, the player has twelve lives (illustrated as eggs) per game. If the player shoots the character unto the platform above and misses, the player resumes gameplay with one less life point. Otherwise, the player advances to the new platform and continues moving the character upwards. The player also loses a life point whenever it collides with any of its enemies in the game. Once the player uses up all life points, the game ends. The player is timed and achieves game points as they progress through the game. These aspects of the game are graphically displayed at the very top of the game screen. This is done in order to challenge the player to beat their highest score and best time achieved so far. The best time for each game is saved only when the player plays the game to the end.

The Game's Platforms

There are three kinds of platforms depending on the stage the penguin is at (i.e. egg, penguin chick or adult penguin).

<u>Standard moving platform</u>: These platforms are seen throughout the game. However, they are mostly seen during the egg stage of the penguin. They are stable and constantly moving horizontally.

<u>Constant non-movable platforms</u>: They appear when the egg hatches into the penguin chick and are strategically placed throughout the game. These platforms are fixed in a constant position.

<u>Breakable platforms</u>: These platforms appear when the penguin chick transforms into an adult penguin. They are not stable and will break apart in a short period of time.

The Penguin's Enemies

The penguin will have to avoid its enemies as best as possible as it advances through its journey to find its family. The descriptions of the enemies are as follows:

<u>Snow owls</u>: They fly horizontally on the screen between platforms. If the penguin collides with a snow owl, the player loses a life point. They will appear randomly throughout the whole game.

<u>Arctic fox</u>: The arctic fox walks on the constant non-movable platforms. It charges towards the penguin once it see it standing on the same platform. Also, if the penguin collides with the fox, the player loses a life point. The penguin can defeat the fox by throwing ice cubes at it. They will appear randomly in the game when the penguin chick transforms into an adult penguin.

<u>Falling ice cubes</u>: Once the penguin becomes a chick, ice cubes will fall randomly from the top of the screen at certain stages in the game. The player has to move the penguin along the platform in order to avoid the ice cubes. If the penguin gets hit by the cubes, the player loses a life point.

Game Instructions

When the player starts the single player game, instructions that explain the first few steps of gameplay will be provided to the player. The short tutorial will explain to the player the controls that are available to move the egg and what the goal of the game is. When the player reaches the checkpoints at which the egg hatches into a penguin chick and the penguin chick transforms into an adult penguin, short tutorials will also be provided on the game screen to inform the player on what new controls over the player character have been unlocked. These short tutorials can be turned on/off in the game settings. We will also provide a skip button at the start of the game so that the player has the option of ignoring the tutorials.

Menu Page

The game menu is the first page the player views once the game is opened. The player has the choice of picking from the following game options: Single Player Mode, MultiPlayer Mode, Game Settings, High Scores Viewing and Credits. Choosing the Single Player Mode or the MultiPlayer Mode initiates the starting of the single player game and multiplayer game respectively. The Game Settings option allows the user to adjust the audio settings and disable the short tutorials provided during the game. The High Scores Viewing displays the user's top five scores and best time. The Credits option displays the names of the creators of the game, as well as the software and tools used.

3.2. Multiplayer mode

The multiplayer mode will allow two players to engage in a fun and competitive manner while playing our game. The screen will be split into two halves with each player being able to see their halve of the game as well as their opponent's. The multiplayer mode is basically a clone of the single player mode with the only difference being that players will be competing with one another. There will be two sets of controls on the keyboard in order to allow the players to play at the same time on the same computer. The goal of the multiplayer mode is to achieve higher game points (i.e. last longer) than the other player.

4. GAME GRAPHICS

For the game's background graphics, we decided to use concepts related to the arctic region. These concepts will revolve around a snowy and icy world similar to that of a penguin's habitat. We will have the game's background graphics change at certain checkpoints in the game. These checkpoints include when the penguin egg hatches into a penguin chick, when the penguin chick transforms into an adult penguin and when the penguin re-unites with its family at the end.

Light blue blocks will be used to represent the constant non-movable platforms, navy blue blocks for the standard movable platforms and light blue blocks with a layer of ice for the breakable platforms.

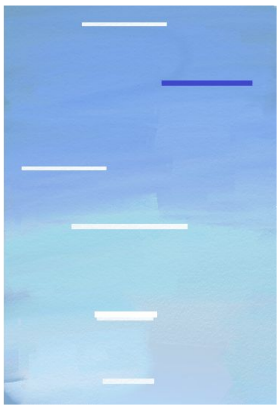


Fig 4. Draft of a background image with platforms in it

5. TARGET PLATFORM

The chosen target platform for our game is a single PC/Mac computer. All input to the game would be obtained via the computer's keyboard. The keyboard controls for both the single player mode and multiplayer mode of the game are as follows:

Action	**Single Player mode**	**MultiPlayer Mode**
Character jumps upwards vertically	Up-arrow key	**Player 1**: Up-arrow key **Player 2**: 'W' key
Move character horizontally on the platform	Left-arrow key to move left, right-arrow key to move right	**Player 1**: Left-arrow key, Right-arrow key **Player 2**: 'A' key to left, 'D' key to the right
Character jumps upwards to the right	Up-arrow key + Right-arrow key	**Player 1**: Up-arrow key + Right-arrow key **Player 2**: 'W' key + 'D' key
Character jumps upwards to the left	Up-arrow key + Left arrow key	**Player 1**: Up-arrow key + Left arrow key **Player 2**: 'W' key + 'A' key
Character shoots ice cubes	'P' key	**Player 1**: 'P' key **Player 2**: 'X' key

6. DEVELOPMENT TOOLS TO BE USED

The game is to be developed using the Unity game engine and the C# programming language. We will be employing the use of Wacom Tablets to draw the game's graphics. After researching tools used for game design, we agreed upon using Artrage Lite, Paint tool Sai and Krita to create the game's 2D sprite animations and Gimp for photoshopping. We will be using sfxr to create the game's audio segments.

Google docs will be used as the group's collaboration tool for writing the project proposal and progress report.

7. GROUP COORDINATION PLAN

The group is to have two regular meetings per week in Goodwin 230, to be attended by all members. The first meeting is on Mondays from 9:30am to 12pm and the second is on Saturdays from 5pm to 7pm. We will also have scrum meetings every other day, in which each group member will discuss what they've done so far, what they aim to do before the next meeting and what is currently preventing them from performing their work as efficiently as possible. In addition to this, each member would work individually as well and we will be using GITLab to coordinate all code written for the game.

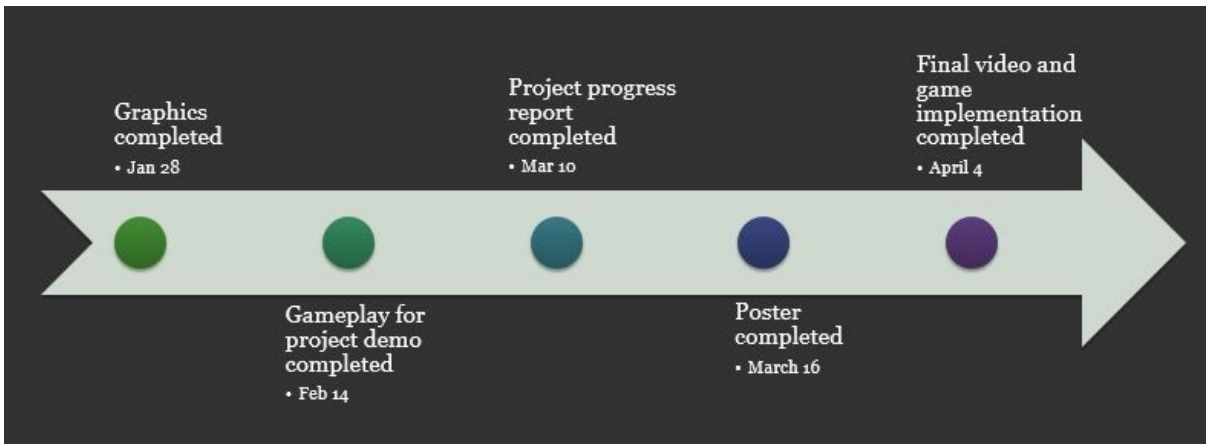
7.1. Member Roles

Project Manager
Enny will be responsible for setting deadlines, scheduling additional meetings, distributing workload amongst team members and keeping track of the project's progress through the given timeline.

Graphics Designers
Selena and Phoebe will be responsible for drawing and editing the game's graphics which include the game's background images, characters and animations.

Programmers
All members are responsible for coding aspect of the game design.

8. PROJECT TIMELINE



9. SUMMARY

The plot of "The Journey" depicts the life of a penguin from conception as an egg into an adult penguin. The game is centered around the penguin's goal as it progresses through the game, which is to achieve a level where it can attain wings to fly in order to meet its family. The penguin attains this goal by moving upwards from one platform to another whilst avoiding all obstacles (its enemies - the snow owl, the arctic fox and falling ice cubes). The game starts of

with the player character as a penguin egg and at specific checkpoints, the egg hatches into a penguin chick and finally the penguin chick transforms into an adult penguin.