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Frogger *a classic arcade game*

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Copyright Information

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# Section I - Game Overview

## Game Concept

The game, provisionally titled "Frogger Adventure," is a classic arcade-style game designed to provide players with an entertaining and challenging experience. In this game, players control a frog that must navigate various obstacles and hazards to reach designated goals, such as lily pads, while accumulating points. The core gameplay involves strategic movement to avoid oncoming traffic, floating hazards, and other environmental challenges.

## Design History

This is a living document and will change as you develop your game. This section maintains a history of any significant changes to your game.

## Feature Set

## Genre

Arcade Action

## Target Audience

**Age Group:**

Suitable for players of all ages, with a focus on a broad audience, including children, teenagers, and adults.

## Game Flow Summary

**Main Menu:**

Players are greeted with a visually appealing main menu showcasing the game's title, accompanied by options to start the game.

**In-Game Interface:**

The player-controlled frog is positioned within the game environment, reacting to user input for movement.

Important information, including the current score, remaining time, and the number of lives, is displayed on the screen, ensuring players are informed and engaged.

**Pause and Menu:**

Players can pause the game at any point, accessing a menu that allows them to resume gameplay, return to the main menu, adjust settings, or exit the game.

Pause functionality ensures flexibility and convenience for players during their gaming sessions.

## Look and Feel

The game embraces a vibrant and playful visual style with colorful and engaging graphics. The overall aesthetic is cartoonish, contributing to a lighthearted and enjoyable atmosphere. Characters and obstacles are well-defined, enhancing clarity and visibility within the game environment.

## Project Scope

A summary of the scope of the game.

### Number of locations

River, Road and sidewalk

### Number of levels

One for this implementation

### Number of NPC’s

None

### Number of weapons

None

### Etc.

# Section II - Gameplay and Mechanics

## Gameplay

### Game Progression

The game follows a progressive structure with multiple levels, each presenting distinct challenges and obstacles. As players successfully navigate through one level, they unlock subsequent, more intricate stages. The difficulty gradually increases, requiring enhanced skills and strategic thinking.

### Mission/challenge Structure

Each level incorporates unique missions and challenges. Missions may include safely navigating the frog across busy roads, crossing rivers on moving platforms, and reaching lily pad goals. Challenges intensify as players advance, introducing faster vehicles, more complex river patterns, and additional hazards.

### Puzzle Structure

The game features puzzle-like elements within certain levels, requiring players to decipher optimal paths, timing, and coordination to overcome obstacles. Puzzle structures may involve strategically avoiding fast-moving vehicles, timing jumps onto floating platforms, and planning routes to reach distant lily pads.

### Objectives – What are the objectives of the game?

The primary objective is for the player-controlled frog to successfully traverse each level, overcoming obstacles and reaching designated lily pad goals. Additional objectives include accumulating points by swiftly reaching goals, avoiding hazards, and potentially discovering bonus items. The ultimate goal is to progress through all levels while maximizing the overall score.

### Play Flow – How does the game flow for the game player

The game flow is designed to be dynamic and engaging. Players start with a specific number of lives and a set time limit. The flow involves the continuous movement of the frog through various terrains, requiring quick reflexes and strategic planning. The seamless integration of challenges, puzzles, and objectives ensures a balanced and enjoyable play experience.

## Mechanics

What are the rules to the game, both implicit and explicit. This is the model of the universe that the game works under. Think of it as a simulation of a world, how do all the pieces interact? This actually can be a very large section.

### Physics

The game's physical universe is governed by realistic physics, incorporating elements like gravity, momentum, and collision detection. These principles influence the movement and interactions of the frog, vehicles, platforms, and other entities within the game environment.

### Movement

#### General Movement

The frog is able to move down, up, left, right at one space time

#### Other Movement

### Objects

#### Picking Up Objects

Not implemented.

#### Moving Objects

Obstacles automatically move. You can only move the frog.

### Actions

#### Switches and Buttons

Not implemented.

#### Picking Up, Carrying and Dropping

Not implemented.

#### Talking

Not implemented.

#### Reading

Not implemented.

### Combat

Not implemented.

### Economy

Not implemented.

## Screen Flow

### Screen Flow Chart

One level was implemented to this game.

### Screen Descriptions

The screen is the entire world of the frogger game. There are a few safe areas, several lanes of traffic, and a river with several lanes of turtles and logs floating by in alternating directions.

#### Main Menu Screen

Not implemented

#### Options Screen

Not implemented

#### Etc.

Not implemented

## Game Options

Not implemented

## Replaying and Saving

## Cheats and Easter Eggs

Not implemented

# Section III – Story, Setting and Character

## Story and Narrative

The frog wants to get to a lily pad, but he has to cross a busy road and a stream to get there.

### Back story

Not Implemented

### Plot Elements

Not Implemented

### Game Progression

Not Implemented

### License Considerations

Not Implemented

### Cut Scenes

#### Cut scene #1

##### Actors

Not Implemented

##### Description

Not Implemented

##### Storyboard

Not Implemented

##### Script

Not Implemented

#### Cut scene #2

etc.

## Game World

### General look and feel of world

The overall aesthetic is designed to be immersive, ensuring players are captivated by the diverse landscapes and challenges presented.

### Area #1

#### General Description

Area 1 is characterized by a urban landscape with busy traffic to serene natural habitats with flowing rivers and obstacles.

#### Physical Characteristics

In Area 1 you can find a road with several vehicles, a river with turtles and logs to be used as supports to the frog, sidewalk where would be the safe zone and lily pads.

#### Levels that use area

The game runs just in this area. No more area levels were implemented

#### Connections to other areas

No Connections

### Area #2

etc.

## Characters

### Character #1.

Frog

#### Back story

The Frog embarks on a perilous journey through diverse environments, overcoming challenges to reach its destination. The backstory reflects the Frog's quest for safety, adventure, or a specific goal.

#### Personality

The Frog embodies determination, resilience, and perhaps a touch of curiosity. Its personality encourages players to connect emotionally with the character, enhancing the gaming experience.

#### Look

##### Physical characteristics

A bright green appearance.

##### Animations

The frog’s movements are jumps and a different jump when it dies.

#### Special Abilities

Not Implemented

#### Relevance to game story

The relevance to game story is to cross the dangerous road and use the logs in the river to reach the lily pads.

#### Relationship to other characters

There is not any additional character.

#### Statistics

Key statistics for the Frog encompass attributes like jump distance. These stats directly influence the Frog's performance and survival in the game.

### Character #2

Not implemented

# Section IV – Levels

## Level #1

### Synopsis

Introduce the player to the initial challenges and setting of the game.

### Introductory Material (Cut scene? Mission briefing?)

Not Implemented

### Objectives

Crossing through the road and River avoiding vehicles and getting in the water

### Physical Description

Busy traffic with cars, the river where you cannot get in the water and turtles that they dive.

### Map

It start at the bottom, with a safe zone in the middle and the lily pads at the top.

### Critical Path

Crossing on its sides should be challenging to finish the game. It’s necessary to try to maintain in the middle of the screen.

### Encounters

Turtles, traffic and logs with different velocities

### Level Walkthrough

In this case, there is no other level.

### Closing Material

Reaching the all lily pads, the game comes back to menu.

## Level #2

Not Implemented.

## Training Level

Not Implemented.

# Section V - Interface

## Visual System

### HUD - What controls

A small frog is used as a counter the frog lives and a simple text is used to the clock and score.

### Menus

A start button to enter the game.

### Rendering System

2D graphics using sprites.

### Camera

The camera maintains a top-down perspective throughout the game to provide a clear and consistent view of the environment.

### Lighting Models

Not Implemented any light effect.

## Control System

The arrow keys are used for precise navigation of the frog throughout the game environment. Players can move the frog in the respective directions to avoid obstacles and reach their goals. When the key is pressed, the sound will appear.

## Audio

Frogger employs an audio system to enrich the gaming experience

## Music

The music in Frogger is carefully selected to complement the game's theme and engage players

## Sound Effects

There are sounds for movements and when the frog dies.

## Help System

Not Implemented.

# Section VI - Artificial Intelligence

## Opponent AI

For each lane of traffic all the vehicles go in the same direction at the same speed. How many and how often is random, but the speed and direction is not.

Same for logs and turtles in the river, each lane is either turtles or logs, not a mix, and the speed and direction of objects in the lane is a fixed constant. How many and how often is random.

## Enemy AI

No smart enemies for this implementation. Future implementations may add enemies like snakes or alligators that will pursue the frog.

## Non-combat Characters

None for this level. Future implementations may add flies that the frog can catch for bonus points.

## Friendly Characters

None for this implementation

## Support AI

### Player and Collision Detection

**Adjustment of Player Position:**

Ensures the player's position remains within the visible bounds of the game view.

**Collision Checking with Scene Objects:**

Iterates through all entities in the scene, including cars, turtles, trees, and goals.

Detects collisions between the player and these entities.

Performs specific actions based on the type of entity encountered.

**Player State Manipulation (resetPlayer and killPlayer):**

resetPlayer: Resets the player's position and state when reaching a goal.

killPlayer: Decreases lives, plays a death sound, and sets the player's state to "dead" on harmful collisions.

**Score Update (updateScore function):**

Updates the player's score based on the current position.

Points are added according to specific criteria.

### Pathfinding

The NPCs (vehicles, turtles, and logs) all travel fixed lanes at fixed speed, there is no path finding. Future implementations may include smarter enemies that chase the frog, their path finding will be determined at that time.

# Section VII – Technical

## Target Hardware and operating system

Windows PC

## Supported game controllers and peripherals

Frogger supports keyboard for Windows.

# Section VIII – Game Art

NA, provided by instructor for this project.

## Concept Art

## Style Guides

## Characters

## Environments

## Equipment

## Cut scenes

## Miscellaneous