Fruit Fall Frenzy

Game Design Document

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GEX SR. NBCC - 2025 Winter Project

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1. Section I - Game Overview

1.1. Game Concept

A magical fruit tree is under attack by mischievous spirits. Players must protect the tree by catching falling fruits to score points and avoid bombs that reduce lives. The gameplay becomes progressively challenging with increasing fruit and bomb speeds.

1.2. Design History

This document will record changes as the game evolves.

1.3. Feature Set

- Fast-paced arcade gameplay.
- Increasing difficulty as the game progresses.
- Power-ups to enhance player abilities.
- High-score tracking for replayability.
- Vivid and cheerful visual theme.

1.4. Genre

Fast-Paced Arcade Action

1.5. Target Audience

Children aged 4 to 10, particularly those who enjoy colorful, engaging games that promote hand-eye coordination and quick reflexes. The game is designed to be easy to pick up yet progressively challenging, helping young players develop their reaction time and decision-making skills in a fun and interactive way.

1.6. Game Flow Summary

Players navigate through a simple interface starting from the Main Menu. Gameplay involves catching fruits while avoiding obstacles, with increasing difficulty over time. The game ends when time runs out, followed by a score summary.

1.7. Look and Feel

The game features a playful hand-drawn art style that resembles a child's sketchbook. The entire visual design is composed of colorful crayon-like illustrations on grid paper, creating a whimsical and approachable atmosphere. Fruits, clouds, and other elements are outlined in black with uneven lines, giving the game a charming, homemade feel.

The use of bright, contrasting colors ensures that falling fruits stand out clearly against the background, helping players—especially young children—quickly identify and react to game elements. The game's visual style supports intuitive play while sparking imagination, making it both engaging and visually accessible for its target audience. This handcrafted look not only adds to the game's uniqueness but also creates a warm and friendly experience that feels like playing inside a drawing.

1.8. Project Scope

A summary of the scope of the game.

1.8.1. Number of locations

1 (orchard backdrop).

1.8.2. Number of levels

Endless with escalating difficulty.

1.8.3. Number of NPC's

2.
1 type of mischievous and a good spirit (background).

1.8.4. Number of weapons

None, but includes power-ups.

1.8.5. Etc.

Additional elements: Power-ups and unique fruits.

2. Section II - Gameplay and Mechanics

2.1. Gameplay

2.1.1. Game Progression

The game progresses through a timed sequence where the challenge increases as time advances:
- Initial Phase (0–5 seconds): Fruits fall slowly without bombs, introducing players to the controls and mechanics.
- Early Stage (5–13 seconds): Bombs are introduced with moderate fruit speed, requiring the player to focus on avoiding them.
- Mid-Stage (13–30 seconds): Falling speed and bomb ratio increase, and power-ups start to appear, requiring the player to make quick decisions.
- Climactic Phase (13–80 seconds): Peak difficulty with maximum object speed and quantity. Power-ups provide brief relief amid intense action.
- Final Phase (80–100 seconds): The pace slows slightly for a smoother conclusion, providing a final chance to score before time runs out.

The ratio of fruits and bombs :
- Earlier stage: fruits 90%, bombs 10%;
- middle stage: fruits 70%, bombs 30%;
- later stage: fruits 60%, bombs 40%, to main the chanllenge ;

2.1.2. Mission/challenge Structure

The player's mission is to:
- Protect the Tree of Abundance by catching fruits and avoiding bombs.
- Maximize their score by catching high-value fruits, golden fruits, and leveraging combo bonuses.
- Catch power-ups to handle increasing difficulty.

Challenges increase progressively through:
- Higher object speeds.
- Increased bomb-to-fruit ratios.
- Limited time to achieve high scores.

2.1.3. Objectives – What are the objectives of the game?

- Achieve the highest possible score by catching fruits and maximizing combo bonuses.
- Survive until the timer runs out by avoiding bombs.
- Leverage power-ups to enhance gameplay and overcome challenging moments.
- Experience the satisfaction of protecting the magical tree and watching it bloom.

2.1.4. Play Flow – How does the game flow for the game player

The player's job is to catch as many fruits as possible and get high scores in 100 seconds for big harvest. If catch a bomb will lose a big amount of points and time of 30 seconds. So player has to avoid catching the bombs.

Penalties:
- Each bomb hit deducts 30 seconds of time and 40 points.
- If time runs out, the game ends.

In-Game Messages:
- Catching fruits prompts messages like "Great catch!"
- Near-misses with bombs display warnings like "Watch out!"

Game Over:
When the timer reaches zero, the game ends and a Game Over screen is displayed. It shows: The player's current score; The all-time highest score; A summary of the player's performance, including how many of each fruit type was successfully collected. This encourages players to track their progress and try again to beat their own high score.

2.2. Mechanics

2.2.1. Physics

Fruits and bombs follow gravity-like mechanics. Objects are caught immediately when overlapping with the basket.

2.2.2. Movement

The player controls a basket, moving left and right with the arrow keys. Movement is smooth and limited to screen boundaries.

2.2.3. Objects

The game features various objects, each contributing to the gameplay experience.

Fruits:
- Apple and Banana: Worth 2 point.
- Mango: A yellow fruit worth 4 points.
- Cherry/stawberry: 6 points
- Watermelon: 20 points.

Bombs:
- Standard Bomb: A black, round object that deducts 40 points and 30 seconds.

There's a kind sprite, will help player by sending some **power-ups**.
- Time Extension Power-Up: Adds 5 extra seconds to the game timer.
- Magnet Power-Up: Automatically attracts all falling fruits to the basket for 5 seconds without the need to move. It does not attract bombs, so the player still needs to move to avoid them.
- Slow Motion Power-Up: Slows down the falling speed of all objects, including fruits and bombs, for 5 seconds.
- Fruit Frenzy Power-Up: Triggers a burst of fruits falling without any bombs. The fruits glow, and exciting text appears on the screen, such as "You are on fire!".

2.2.4. Actions

2.2.4.1. Switches and Buttons

2.2.4.2. Picking Up, Carrying and Dropping

The player can pick up falling fruits by positioning the basket beneath them. Once the fruit overlaps with the basket, it is automatically collected.

2.2.4.3. Reading

The player can read the in-game instructions or notices posted around the level to get additional information about the game rules or upcoming challenges.

Certain power-ups might have descriptions that explain how they work when the player interacts with them.

Scoring:
- Base Score: Each fruit caught grants a different score, depending on the fruit type. When a fruit is collected, its individual point value briefly appears on screen to give instant feedback.

2.2.5. Combat

The game does not feature direct combat. Instead, players must avoid bombs and make split-second decisions to survive as the game increases in difficulty. Bombs represent a form of conflict where the player is in a race against time to dodge and avoid being hit.

If the player catches a bomb, the game timer is reduced, adding pressure to the player.

2.2.6. Economy

The game's economy revolves around the collection and management of resources such as fruits, score, and time.

- Fruits are the primary collectible, generating score when caught.
- Time is a critical resource, and players must maximize their score within the given limit. Time Extension Power-Ups help extend the timer by 5 seconds.
- Power-Ups provide temporary advantages, such as slowing object speed, attracting fruits, making them valuable but rare.
- Bombs serve as a penalty mechanic, reducing the player's score or potentially ending the game if hit.

Balancing the frequency of Power-Up appearances and the proportion of fruits to bombs ensures a fair challenge, creating an engaging yet manageable experience for players.

2.3. Screen Flow

2.3.1. Screen Flow Chart

A graphical description of how each screen is related to every other

2.3.2. Screen Descriptions

2.3.2.1. Main Menu Screen

This is the first screen players see when they launch the game. It serves as the central hub to navigate to other game areas. Players can choose to start a new game, adjust options, or exit the game.

2.3.2.2. Options Screen

To allow players to adjust game settings, such as volume. This screen ensures that the player can customize their gameplay experience to their preferences.

2.3.2.3. Etc.

Gameplay Screen: The core screen where the player engages with the game mechanics. Players control the basket, catch fruits, and avoid bombs to accumulate points and time.

Game Over Screen: To display the results of the game, including the player's score and any special achievements (like fruits collection or high scores). The player can either restart the game or return to the main menu.

Pause Screen: When the player pauses the game during gameplay, this screen provides options for resuming the game or navigating to other parts of the game (Options or Main Menu).

2.4. Replaying and Saving

Replaying: The player can restart the game from the Game Over Screen or after completing a level or challenge. This option allows players to try again, aiming for a higher score or improved performance.

Saving: The game automatically saves the highest score. However, if player quit the game during the game will lose anything.

3. Section III – Story, Setting and Character

3.1. Story and Narrative

3.1.1. Back story

In a magical forest, there is an ancient "Harvest Tree." This tree grows amazing magical fruits that bring happiness to the forest creatures. But naughty wind spirits appear and try to steal the fruits and damage the tree. As the guardian, the player must protect the Harvest Tree, collect fruits, and stop the spirits.

3.1.2. Plot Elements

The Magical Tree: The game begins with the story of the Harvest Tree, a magical source of fruits that keeps the land thriving. Mischievous spirits threaten the tree, creating chaos.
The Player's Mission: The player is chosen as the guardian of the tree, tasked with protecting its fruits and saving the land from the spirits.
Progressive Conflict: As the game progresses, the spirits grow more aggressive, causing fruits to fall faster and bombs to appear more frequently. This mirrors the increasing difficulty in gameplay.
Potential Expansions: Later versions could include seasonal events where the spirits' powers change, introducing new fruit types and challenges for the player to overcome.

3.1.3. Game Progression

Beginning: The game starts with the Harvest Tree under attack by mischievous spirits. Players must protect the tree by catching its falling fruits.
Middle: As time goes on, the spirits become more aggressive. The speed of fruits and bombs increases, and power-ups start appearing to help the player.
End: The game reaches its peak intensity, and players must use all their skills to protect the tree.

3.1.4. Cut Scenes

3.1.4.1. Cut scene #1: Game Start

3.1.4.1.1. Actors

The Harvest Tree, mischievous spirits (represented as floating silhouettes), and the player's basket.

3.1.4.1.2. Description

A short animation introduces the Harvest Tree and the spirits attacking it. The player is shown taking control of the basket to protect the tree.

3.1.4.1.3. Storyboard

A bright, flourishing tree is shown in the center of the screen.
Dark spirits appear, surrounding the tree and shaking its branches.
Fruits begin to fall, and the player's basket appears, ready to catch them.

3.1.4.1.4. Script

Narration text (on-screen):"The magical tree of harvest is in peril! Mischievous spirits are attacking its branches, trying to ruin the harvest. Protect the fruits and save this land!"

3.1.4.2. Cut scene #2: Game End Screen

3.1.4.2.1. Actors

The Harvest Tree, and the player's basket.

3.1.4.2.2. Description

If the player wins, the tree is shown flourishing with vibrant fruits, and the spirits retreat.

3.1.4.2.3. Storyboard

The tree is full of colorful fruits again, and the angel appear in the background.

3.1.4.2.4. Script

On-screen text: "Thank you for protecting the Tree of Harvest! The valley thrives once again!"

3.2. Game World

3.2.1. General look and feel of world

The game features a hand-drawn art style, giving it a fresh and charming aesthetic. The world is primarily illustrated with black-and-white line art, while

key elements such as fruits, bombs, power-ups, and leaves are filled with vibrant colors to create contrast and visual focus.

The background consists of a grid pattern, resembling a sketchbook or graph paper, enhancing the game's lighthearted and playful feel. The combination of clean line work and selectively colored objects makes the game visually engaging while maintaining a minimalist and artistic look.

Overall, the game's atmosphere is bright, cheerful, and whimsical, with a crisp, colorful appearance that draws attention to interactive elements. The hand-drawn style adds a personal and artistic touch, making the game feel warm and inviting.

3.2.2. Area #1

3.2.2.1. General Description

This is the primary gameplay area where fruits, bombs, and power-ups fall from the top.
The background features a gradient blue sky with floating clouds, creating a dynamic and lively scene.

3.2.2.2. Physical Characteristics

- **Gravity-based gameplay**: All objects fall from the top, gradually accelerating over time.
- **Boundaries**: Fruits that are not caught disappear upon reaching the ground.
- **Interactive Elements**:
  - **Fruits**: Collect to gain points.
  - **Bombs**: Avoid them, or they will reduce health.
  - **Power-ups**: Temporary effects like slowing down falling speed, gaining extra lives, or activating a shield.

3.3. Characters

3.3.1. Character #1

Player Character

3.3.1.1. Back story

The Fruit Basket is the main character of the game. It is a magical basket that loves catching delicious fruits while avoiding dangerous bombs. It has been given life through an ancient spell, granting it a cheerful personality and the ability to move around.

3.3.1.2. Personality

The Fruit Basket is cute, energetic, and always happy. It enjoys collecting fruits and helping the player achieve high scores. It reacts with joy when catching fruits and looks sad when catch bombs.

3.3.1.3. Look

3.3.1.3.1. Physical characteristics

The Fruit Basket is a 2D hand-drawn character with a cute aesthetic. It has a round, woven structure. The basket features a cute, smiling face, making it expressive and lively.

3.3.1.3.2. Animations

Idle: The basket slightly bounces in place.
Move Left/Right: The basket tilts slightly in the direction of movement.
Catch Fruit: The basket smiles and shows excitement.
Catch Bomb: The basket looks shocked or scared.

3.3.1.4. Special Abilities

Can catch and store fruits for points, use power-ups to slow time, gain extra life, or activate a shield, move left and right smoothly to avoid bombs.

3.3.1.5. Relevance to game story

The Fruit Basket is the main playable character. It is the key element for collecting points and progressing through the game.

4. Section V - Interface

4.1. Visual System

4.1.1. HUD - What controls

Score Counter: Displays the player's current score and history highest score at the left of the screen.
Timer: A countdown timer (2-minutes game mode) displayed in the top-left corner.
Power-up Indicator – If the player collects a power-up, a small icon appears, showing its effect.

4.1.2. Menus

- Main menu: Start Game, Hints, Settings,Exit.
- Pause menu: Resume, Restart, Exit to Main Menu.
- Game Over Screen: Score Display, Play Again, Exit.

4.1.3. Camera

Static Top-Down 2D View: The camera remains fixed, showing the entire game screen.

No Scrolling or Zooming: Everything is visible from the start.

4.2. Control System

Keyboard Controls
← (Left Arrow) – Move basket left
→ (Right Arrow) – Move basket right

4.3. Audio

SFX and Background Music are simple and upbeat, matching the game's casual style.

4.4. Music

Background Music: Lighthearted, playful tunes that change as the game progresses.

4.5. Sound Effects

Fruit Catching: A soft 'pop' or 'ding' sound.
Bomb Explosion : A short, muffled 'boom' sound and a child say no sound.
Power-up Activation: A small 'sparkle' or 'whoosh' sound.
Game Over: An ending sound.

4.6. Help System

Main menu-Hints: Gameplay tips.
In game Tips: Short gameplay tips displayed when player choose Hint button.

5. Section VII – Technical

5.1. Target Hardware and operating system

Primary Platform: PC (Windows & Mac).
The game is lightweight and optimized to run smoothly on most modern desktop systems.

5.2. Game Engine and Framework

The game is developed in C++, using the SFML (Simple and Fast Multimedia Library) as the core framework for:
● 2D graphics rendering
● Audio playback (sound effects & background music)
● Input handling (keyboard and mouse)
● Window management and timing functions

6. Section VIII – Game Art

6.1. Concept Art

Fruit Fall Frenzy Game Design Document

The game is inspired by childhood doodles on scratch paper, bringing simple sketches to life. The world has a grid background, resembling a notebook, while most elements are black-and-white line drawings. Key objects like fruits, bombs, power-ups, and leaves are in vibrant colors to stand out. Movements have a hand-drawn, frame-by-frame animation feel, making it look like the sketches are jumping off the page.