

# **Snack game**

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# Table of Contents

## 1 Introduction

## 2 Purpose

## 3 Scope

3.1 product prespective

3.2 Function

3.3 User Characteristic

3.4Constraints

3.5 Assumptions and Dependencies

## 4 Product Perspective

4.1 Product Function

4.2 User Classes and Characteristics

4.3 Design and Implementation Constraints

4.4 Assumptions and Dependencies

5

### Overview

## 6 Overall Description

6.1 Product perspective

6.2 Production Function

6.3 User Characteristics

6.4 General Constraints

6.5 Assumption and Dependencies

## 7 External Interface Requirments

7.1 User Interfaces

7.2 Hardware Interface

7.3

Software Interface

7.4 Communication Interface

8

## Functional Requirments

8.1 User login

## 9 Performance Requirments

9.1 Response Time

9.2 Scalibility

9.3 Availability

**10 Design Constraints****11 Feasibility Study**

## 11.1 Project Description

## 11.2 Technical Feasibility

## 11.3 Market Feasibility

## 11.4 Financial Feasibility

## 11.5 Legal and Ethical Feasibility

## 11.6 Operational Feasibility

**11.7 Risk Assessment****12 Case Diagram****13 Class Diagram****14 Different Models**

## 14.1 Incremental Model

## 14.2 Waterfall Model

## 14.3 Spiral Model

## 14.4 Agile Model

## 14.5 V-Model

**15 Future Scope****16 Conclusion****17 References****1. Introduction**

Snake is a classic mobile game that was first introduced in 1997 on the Nokia 6110. It was developed by Taneli Armanto and quickly became a phenomenon due to its addictive gameplay. The objective of the game is to control a snake and help it eat food that appears on the screen while avoiding crashing into walls or the snake's own body. As the snake eats more food, it grows longer, making the game increasingly challenging. Snake has inspired numerous iterations and has left a lasting legacy in the world of mobile gaming.

The game's origins can be traced back to 1976, with the release of a monochromatic two-player arcade game called Blockage. Similar concepts were

developed by various companies in the following years, including Bigfoot Bonkers, Worm, and Nibbler. Snake was the first of these games to be published by Nokia and was designed to take advantage of the infrared link that was about to be included in its product.

## 2.Purpose

The purpose of the Snake game is to provide a simple yet addictive and challenging experience for players. The game's objective is to control a snake and help it eat food that appears on the screen while avoiding crashing into walls or the snake's own body. As the snake eats more food, it grows longer, making the game increasingly difficult.

The game's design is minimalistic, with a focus on gameplay rather than graphics. The simplicity of the game makes it accessible to players of all ages and skill levels, making it a popular choice for mobile devices. The game's addictive nature keeps players engaged for extended periods, providing a sense of satisfaction and accomplishment as they progress through the levels.

Snake is also a game that can be played in short bursts, making it an ideal time-killer for those waiting in line, commuting, or taking a break from work. The game's simple controls and straightforward objective make it easy for players to pick up and play, even if they only have a few minutes to spare.

## 3.Scope

The scope of a snack game can vary widely depending on factors like the target audience, platform, complexity, and objectives of the game. However, here's a general outline of what the scope of a snack game might entail:

1. **Concept and Theme:** Define the concept and theme of the game. This could range from simple ideas like collecting snacks or serving customers to more complex themes like cooking or managing a snack business.
2. **Game Mechanics:** Determine the core gameplay mechanics. This includes how players interact with the game, such as tapping, swiping, dragging, etc. Decide

on the rules and objectives of the game, such as reaching a high score, completing levels, or fulfilling customer orders.

3. **Features and Gameplay:** Identify the key features that will make the game engaging and enjoyable. This might include various levels or stages, power-ups, different types of snacks, challenges, upgrades, achievements, and social features like leaderboards or multiplayer modes.
4. **Art and Design:** Create the visual style and art direction for the game. This includes character design, environment design, UI elements, animations, and special effects. The art should be appealing and cohesive with the theme of the game.
5. **Sound and Music:** Develop the audio elements of the game, including background music, sound effects for actions like collecting snacks or completing tasks, and voiceovers if necessary. The audio should enhance the overall experience and contribute to immersion.
6. **Platforms and Technology:** Decide on the platforms where the game will be available, such as mobile devices, web browsers, or gaming consoles. Choose the appropriate technology and tools for development, considering factors like performance, compatibility, and ease of deployment.
7. **Monetization:** Determine the monetization strategy for the game. This could involve selling the game as a premium app, offering it for free with ads or in-app purchases, or using a subscription model. Balance the monetization with the player experience to avoid alienating users.

## 4. Product Perspective

The product perspective of a snack game involves considering how the game fits within the broader context of the gaming market and its potential appeal to players. Here's an overview of the product perspective for a snack game:

1. **Target Audience:** Identify the target demographic for the game. This could include casual gamers, children, families, or anyone looking for a light and entertaining gaming experience. Understanding the preferences and behaviors of the target audience will inform decisions about gameplay mechanics, art style, and monetization strategies.
2. **Competitive Analysis:** Conduct a thorough analysis of similar games in the market. Identify their strengths and weaknesses, as well as any gaps or opportunities for differentiation. This will help position the snack game effectively and ensure it offers something unique and compelling to players.
3. **Unique Selling Proposition (USP):** Define the unique selling proposition of the snack game. What sets it apart from other games in the same genre or category? Whether it's innovative gameplay mechanics, charming art style, or

addictive progression systems, clearly articulating the USP will help attract players and generate interest in the game.

4. **Platform Considerations:** Consider the platform(s) where the game will be available. Different platforms have different user demographics, technical capabilities, and distribution channels. Determine the optimal platforms based on the target audience and development resources, whether it's mobile devices, PCs, consoles, or a combination of platforms.
5. **Market Trends and Demands:** Stay informed about current trends and demands in the gaming market. This includes emerging genres, popular themes, and player preferences. Adapting the snack game to align with market trends can increase its relevance and appeal to players.
6. **Longevity and Sustainability:** Consider the long-term sustainability of the snack game. Will it have enough depth and replay value to keep players engaged over time? Plan for post-launch updates and content additions to ensure the game remains fresh and enjoyable for existing players while attracting new ones.
7. **Community and Engagement:** Foster a strong community around the snack game. Engage with players through social media, forums, and other channels to build a dedicated fan base. Encourage user-generated content, such as fan art or custom levels, to further enrich the game experience and strengthen player loyalty.

## 5. Overview

**Concept:** Snack Dash is a casual arcade game where players take on the role of a snack-loving character on a quest to collect as many delicious treats as possible. Set in a vibrant and lively world filled with colorful environments and charming characters, the game offers simple yet addictive gameplay that appeals to players of all ages.

**Gameplay:** Players control their character as they navigate through various levels filled with obstacles and opportunities to collect snacks. Using intuitive touch controls, they must dodge obstacles, jump over pitfalls, and strategically time their movements to grab snacks while avoiding hazards. Each level presents new challenges and rewards, encouraging players to hone their skills and strive for higher scores.

## 6. Overall Description

### 6.1 Product Perspective:

From a product perspective, a snack game offers a light-hearted and engaging experience tailored for casual gamers. It focuses on intuitive gameplay mechanics, colorful visuals, and a wide variety of snacks to collect. With a free-to-play model supported by optional in-app purchases and ads, it aims to attract a broad audience while providing opportunities for customization and competition through leaderboards and achievements. .

## **6.2 Product Functions:**

The product functions of a snack game include intuitive touch controls for navigating through levels, collecting a variety of snacks, avoiding obstacles, and utilizing power-ups for temporary advantages. Players can customize their characters with outfits and accessories, compete with friends on leaderboards, and complete daily challenges for extra rewards. The game follows a free-to-play model with optional in-app purchases for cosmetic items and power-ups, supported by ads displayed between levels.

## **6.3 User Characteristics:**

The user characteristics of a snack game typically revolve around casual gamers of all ages who enjoy light-hearted and entertaining experiences. These users seek accessible gameplay with intuitive controls, colorful visuals, and a variety of snack-themed content. They may have limited time for gaming and prefer short, satisfying gameplay sessions. Additionally, they may enjoy social features like competing with friends on leaderboards and sharing achievements.

## **6.4 General Constraints:**

General constraints of a snack game include:

- Limited complexity to maintain accessibility for casual gamers.
- Restricted development resources and time, leading to streamlined features.
- Platform limitations, such as mobile devices, influencing design and performance.
- Monetization strategies balancing player enjoyment with revenue generation.

- Compliance with regulations, especially concerning in-app purchases and advertisements.

## 6.5 Assumptions and Dependencies:

Assumptions and dependencies of a snack game include:

- Assuming players will engage with the game's casual and snack-themed concept.
- Dependence on stable and reliable internet connections for online features like ads and leaderboards.
- Assuming availability of app store platforms for distribution.
- Depending on third-party services for advertisements, analytics, and social features.
- Assuming player interest in optional in-app purchases for monetization.
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## 7. External Interface Requirements:

The Snack game has the following external interface requirements:

### 7.1 User Interfaces:

The user interfaces (UI) of a snack game typically include:

- Main Menu: Provides access to game modes, settings, and customization options.
- Gameplay Screen: Displays the game environment, character, and snacks to collect.
- Controls: Intuitive touch controls for navigating the character and interacting with the game.
- HUD (Heads-Up Display): Shows essential information like score, collected snacks, and power-up status.



- Pause Menu: Allows players to pause the game, adjust settings, or resume gameplay.
- End Screen: Displays the final score, achievements, and options to replay or share results.

## **7.2 Hardware Interface:**

The hardware interface of a snack game typically involves interaction via touchscreens, gyroscopes, and accelerometers found in mobile devices. These sensors allow players to control the game character's movement and actions by swiping, tapping, or tilting the device. The game is optimized to work seamlessly with various screen sizes and resolutions commonly found in smartphones and tablets. Additionally, the game may utilize audio output for sound effects and music, with options for adjusting volume levels within the game settings.

## **7.3 Software Interface:**

Rendering graphics and animations on the screen.  
Processing user input from touch controls and gestures.  
Managing game states such as menus, levels, and achievements.  
Integrating with platform-specific features like notifications and social sharing.  
Communicating with external services for advertisements, analytics, and online multiplayer functionality.  
Ensuring compatibility with different devices and operating system versions to provide a consistent experience for players

## **7.4 Communication Interface:**

The communication interface of a snack game facilitates interactions between the game application and external services or platforms. This includes:

- Communicating with ad networks to display advertisements within the game.
- Sending and receiving data to online servers for features like leaderboards, achievements, and multiplayer.
- Integrating with social media platforms for sharing achievements, inviting friends, or connecting with other players.
- Handling in-app purchases and transactions securely through payment gateways.

- Ensuring data privacy and security by encrypting sensitive information transmitted over the network.
- Providing error handling and feedback to users in case of connectivity issues or server errors to maintain a smooth gaming experience.

## 8. Functional Requirements:

The Snack game shall provide the following functional requirements:

### 8.1 User Registration and Login:

User registration and login for a snack game involve:

- **Registration:** Users create accounts by providing basic information like username, email, and password.
- **Login:** Registered users access their accounts by entering their credentials.
- **Authentication:** The game verifies user identity to ensure secure access to personalized features like saved progress, achievements, and social interactions.
- **Account Management:** Users can update their profile information, change passwords, or recover forgotten credentials if needed.
- **Social Login:** Optionally, users may have the choice to log in using their social media accounts for convenience.
- **Guest Mode:** Allow users to play without registration, though limited access to features may apply.

## 9. Performance Requirements:

The Snack game shall meet the following performance requirements:

### 9.1 Response Time:

The response time of a snack game refers to the delay between a player's input and the game's reaction. It should be minimal to ensure smooth and responsive gameplay, typically aiming for milliseconds to a few hundred milliseconds at most. This ensures that players feel in control and immersed in the game experience without noticeable lag or delay, contributing to an enjoyable gaming experience.

### 10.1 Scalability:

The scalability of a snack game refers to its ability to handle an increasing number of players, content, or features without sacrificing performance or user experience. This includes adapting to fluctuations in player demand, supporting growth in user base, and accommodating updates or expansions. Scalability ensures that the game remains responsive and stable, even as the player base and content complexity grow, thereby maintaining player satisfaction and engagement.

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### 11.1 Availability:

The availability of a snack game refers to its accessibility to players at all times without interruption. This includes ensuring that the game servers, platforms, and services are operational and accessible 24/7. It involves implementing robust infrastructure, redundancy measures, and monitoring systems to minimize downtime and quickly address any issues that may arise. This ensures that players can enjoy the game whenever they want, contributing to a positive user experience and player retention.

## 12. Design Constraints:

Design constraints of a snack game include limitations on:

- Complexity to maintain accessibility for casual gamers.
- Development resources such as time, budget, and team size.
- Platform restrictions influencing design and performance.
- Artistic and thematic coherence within the snack-themed concept.
- Monetization strategies balancing revenue and player experience.
- Compliance with regulations, especially regarding in-app purchases and advertisements.

## 11. Feasibility Study

### 11.1 Project Description:

"Snack Muncher" is a casual mobile game where players embark on a delicious adventure to collect an assortment of snacks while navigating through various colorful environments. With intuitive touch controls, players dodge obstacles, grab power-ups, and compete with friends for the highest scores on global leaderboards. With charming graphics, addictive gameplay, and a wide selection of snacks to discover, "Snack Muncher" offers an irresistible gaming experience for players of all ages..

### 11.2 Technical Feasibility:

The technical feasibility of a snack game involves assessing whether its development is achievable given available resources and technology. This includes evaluating:

- Compatibility with target platforms (mobile, PC, etc.).
- Suitability of chosen game engine or development tools.
- Complexity of required features and functionality.
- Availability of skilled developers and necessary infrastructure.
- Integration with third-party services (ad networks, analytics, etc.).
- Potential scalability and performance considerations. By addressing these factors, developers can determine the viability of creating the snack game within given constraints and technical capabilities.
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- **Availability:**
- The availability of a snack game refers to its accessibility and presence on various platforms, ensuring players can easily find and play it. This includes distribution through app stores, online platforms, and promotional channels. Maximizing availability helps reach a wider audience and increase player engagement, contributing to the game's success and longevity.
- **Scalability, Performance, and Security:**

Scalability, performance, and security are crucial aspects of a snack game:

1. **Scalability:** The game should efficiently handle increases in player numbers, content updates, and feature expansions without compromising performance. Scalability ensures a smooth and enjoyable experience for players, even as the game grows in popularity and complexity.
2. **Performance:** Optimizing the game's performance ensures smooth gameplay, quick loading times, and minimal latency. This involves efficient resource management, optimizing code and assets, and leveraging appropriate technologies to deliver a responsive and immersive gaming experience.
3. **Security:** Implementing robust security measures protects player data, prevents cheating, and safeguards against unauthorized access or attacks. This includes encryption, secure authentication methods, regular security audits, and compliance with relevant regulations to maintain player trust and confidence in the game.

### 11.3 Market Feasibility:

- **Demand:**
- The demand for a snack game is driven by its appeal to casual gamers seeking quick, enjoyable experiences. With busy lifestyles, players gravitate towards games that offer light-hearted entertainment and are easy to pick up and play. The snack game's accessibility, engaging gameplay, and vibrant visuals cater to this demand, attracting a broad audience across different age groups and gaming preferences. Additionally, the snack theme adds a fun and relatable element, further enhancing its appeal and contributing to its popularity among players..

### 11.4 Financial Feasibility:

- **Cost Estimation:**
- Cost estimation for a snack game involves budgeting for various aspects such as development, art and design, marketing, and ongoing maintenance. Factors affecting cost include complexity, platform(s), team size, and desired quality. By considering these factors, developers can estimate

costs for each phase of development, including production, testing, and post-launch support.

- **Cost-Benefit Analysis:**
- A cost-benefit analysis of a snack game involves weighing the costs of development, marketing, and ongoing maintenance against the potential benefits, such as revenue, player engagement, and brand visibility. By estimating costs and projecting potential returns, developers can assess the viability and profitability of the project..

## 11.5 Legal and Ethical Feasibility:

- **Regulatory Compliance:**

Regulatory compliance for a snack game involves adhering to laws and regulations related to gaming, privacy, and consumer protection. This includes:

Ensuring age-appropriate content and compliance with rating systems like ESRB or PEGI.  
Adhering to guidelines for in-app purchases, ads, and monetization strategies

## 11.6 Operational Feasibility:

- **Usability:**

The usability of a snack game refers to its ease of use and intuitiveness for players. It involves:

Simple and intuitive controls that are easy to learn and master.  
Clear and informative user interface elements, such as menus and icons.  
Consistent and predictable behavior throughout the game.  
Accessibility features to accommodate diverse player needs, such as adjustable difficulty levels or customizable controls.

- **Scalability and Reliability:**

Scalability and reliability are crucial for a snack game:

- Scalability ensures the game can handle increasing player numbers and content expansions without performance issues.
- Reliability ensures the game remains accessible and operational, minimizing downtime and disruptions for players. By prioritizing both scalability and reliability, developers can maintain a positive player experience and sustain long-term engagement with the snack game.

## 11.7 Risk Assessment:

- **Risk Identification:**

Identifying risks for a snack game involves:

- Recognizing potential challenges such as technical issues, market competition, or regulatory hurdles.
- Assessing their likelihood and potential impact on project timelines, budget, and success.
- Planning mitigation strategies to address or minimize risks, such as contingency plans, diversification of resources, or adjusting development priorities.

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- **Risk Analysis:**

Risk analysis for a snack game involves:

Identifying potential risks such as technical constraints, market competition, or regulatory changes.  
 Assessing the probability and impact of each risk on project objectives, timelines, and budget.  
 Prioritizing risks based on severity and likelihood to focus mitigation efforts effectively.  
 Developing contingency plans and mitigation strategies to address identified risks and minimize their impact on the project.

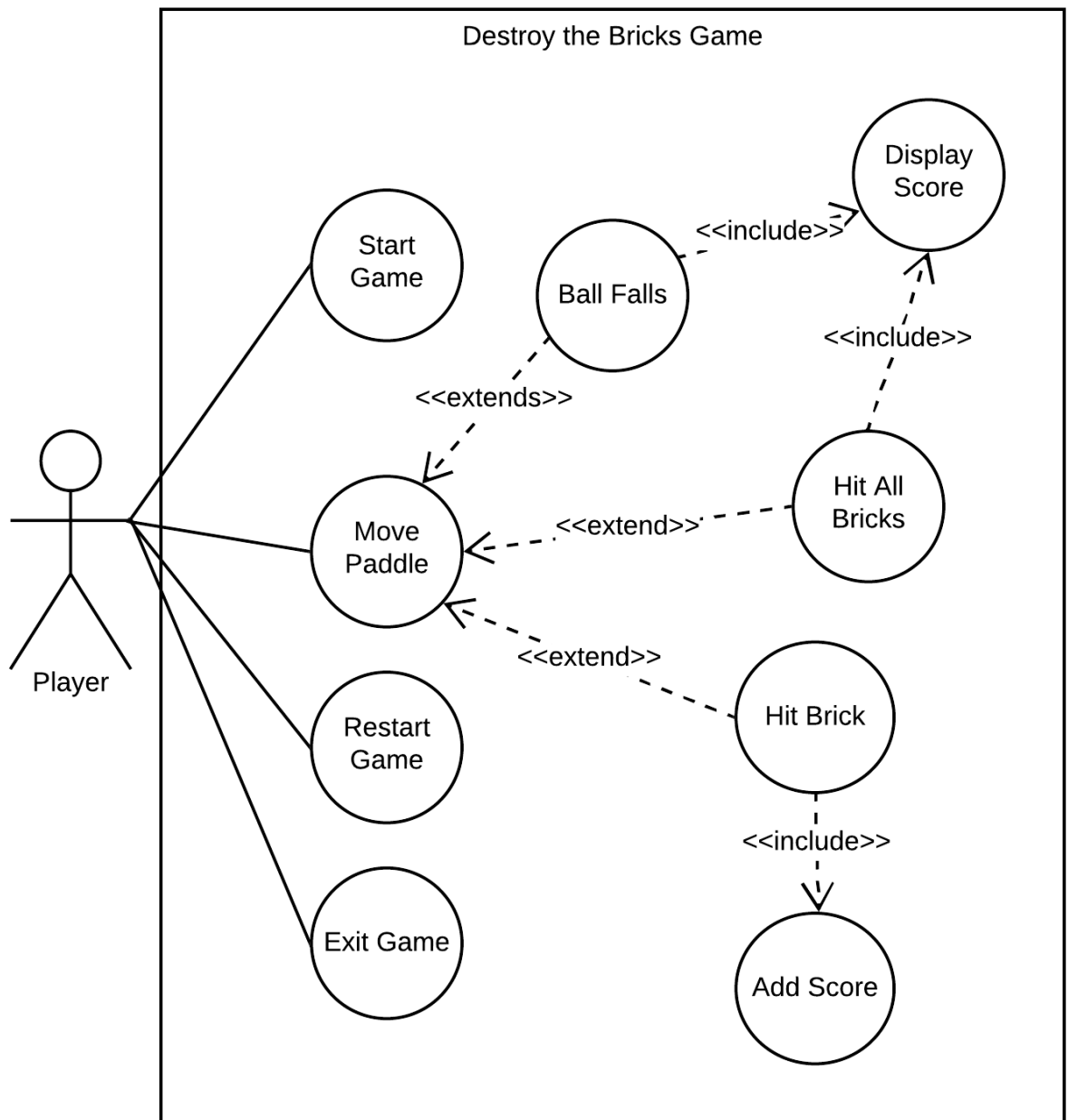
- **Risk Mitigation:**

Risk mitigation for a snack game involves:

- Identifying potential risks and their potential impact on the project.
- Developing strategies to reduce the likelihood of risks occurring.
- Creating contingency plans to address risks if they do materialize.
- Monitoring and evaluating risks throughout the project lifecycle. By implementing effective risk mitigation measures, developers can minimize the

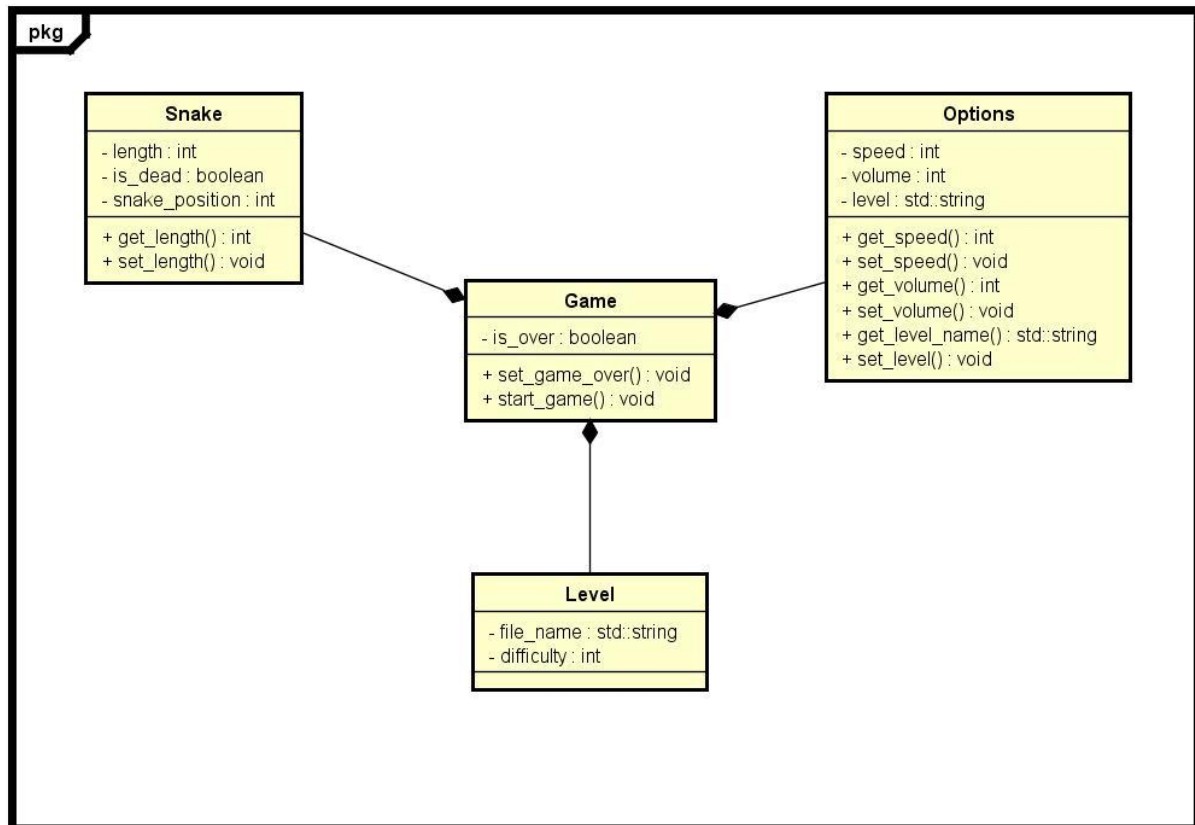
impact of potential challenges and increase the chances of a successful outcome for the snack game project.

## 12.Case Diagram



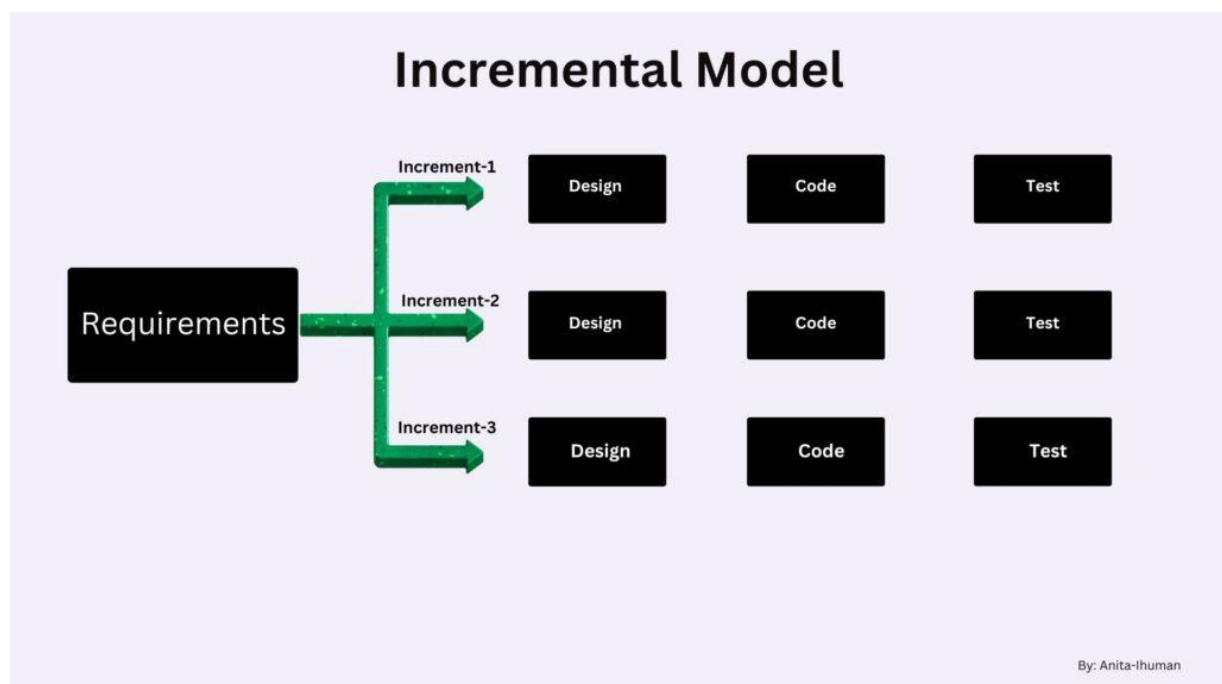


## 15. Class Diagram

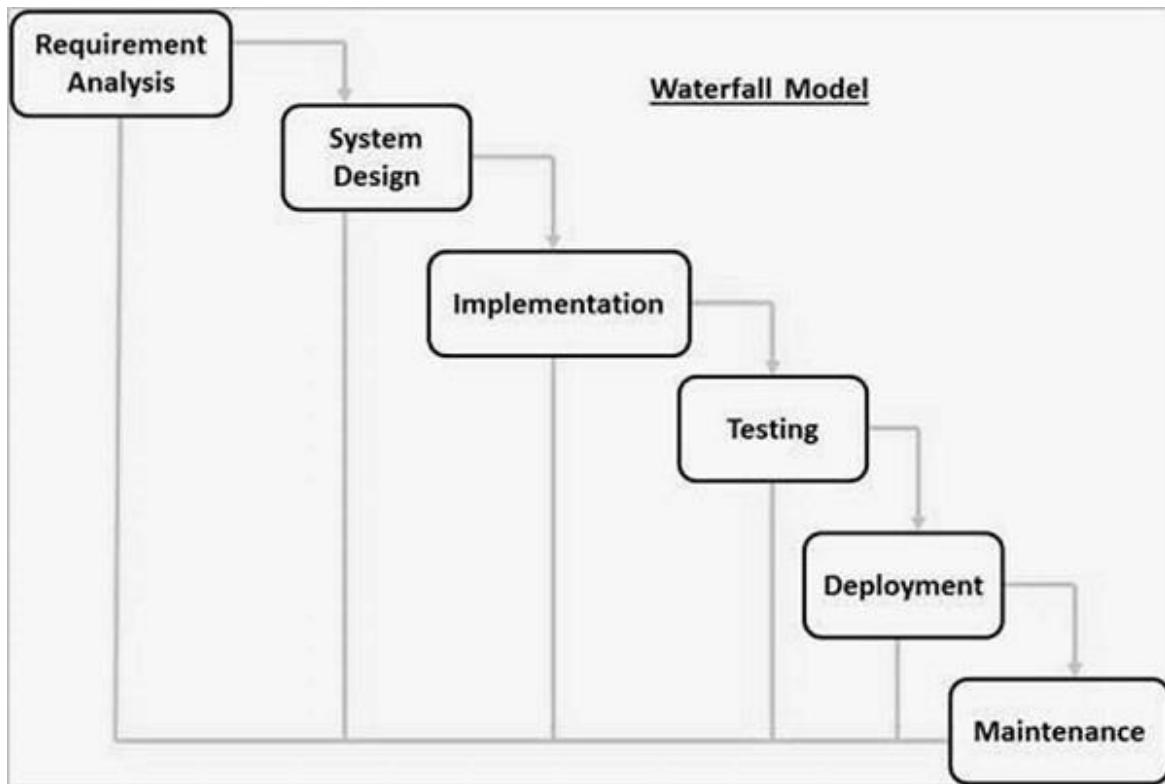


## 19. Different Models

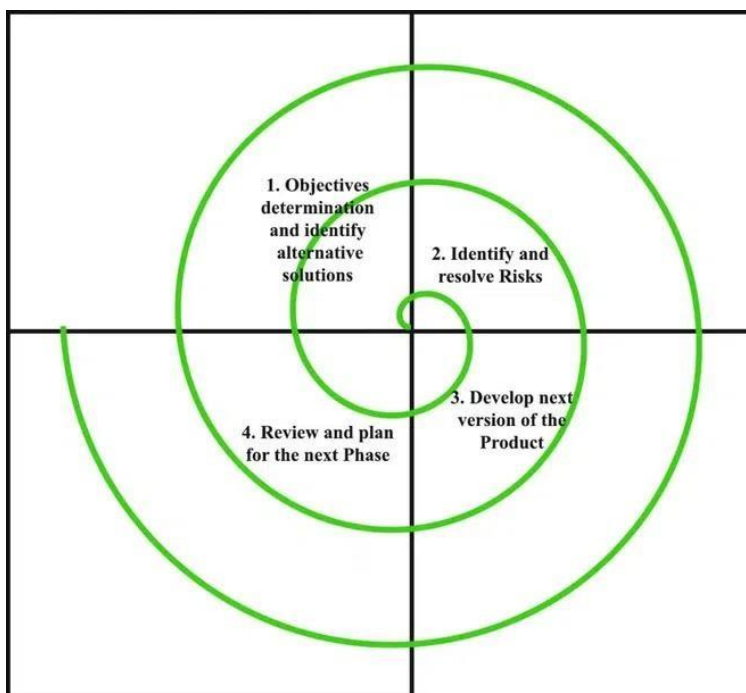
### 19.1 Incremental Model



## 19.2 Waterfall Model



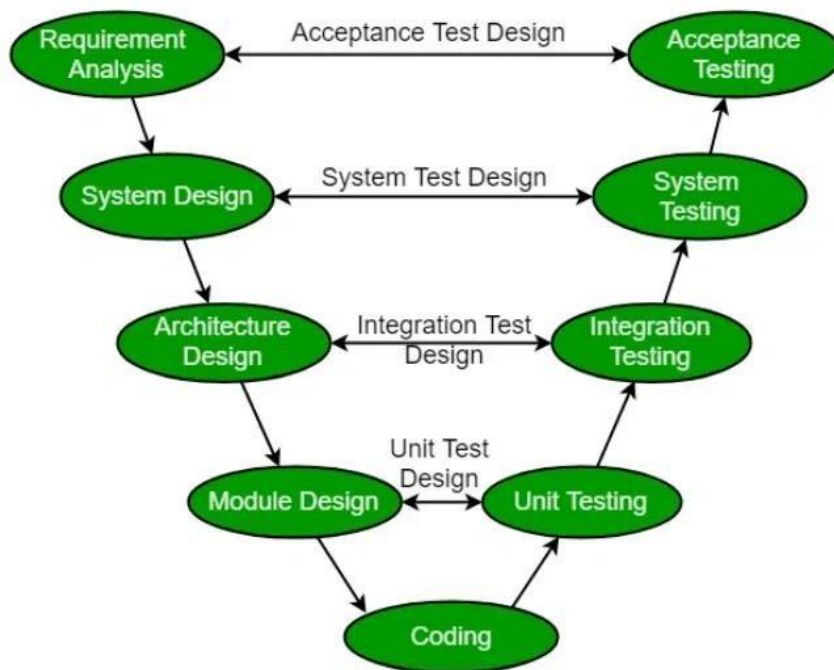
## 19.3 Spiral Model



## 19.4 Agile Model



## 19.5 V-Model



## 20. Future Scope

The future scope of a snack game involves:

- Expanding gameplay with new levels, challenges, and features to keep players engaged.

- Introducing seasonal events, themed updates, and special promotions to maintain interest.
- Enhancing social features like multiplayer modes, leaderboards, and community events for increased interaction.
- Exploring opportunities for cross-platform compatibility and integration with emerging technologies like augmented reality or virtual reality.
- Collaborating with brands or sponsors for co-promotional opportunities and tie-in content.
- Iterating based on player feedback and market trends to continually improve the game experience and adapt to evolving player preferences. By embracing innovation and responding to player needs, the snack game can evolve and thrive in the dynamic gaming landscape, offering enduring entertainment and value to its audience.

## 21. Conclusion

In conclusion, the snack game offers a delightful and engaging experience for players of all ages. With its intuitive gameplay mechanics, colorful visuals, and charming snack-themed content, it provides a light-hearted escape for casual gamers looking for quick and enjoyable entertainment. Through careful consideration of factors such as usability, scalability, and regulatory compliance, developers can create a game that not only captivates players but also meets industry standards and legal requirements. By continuously evolving with new updates, features, and community engagement initiatives, the snack game has the potential to foster long-term player loyalty and establish itself as a beloved staple in the gaming world.

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