**VIETNAM NATIONAL UNIVERSITY – HO CHI MINH CITY**    
**INTERNATIONAL UNIVERSITY**

**SCHOOL OF COMPUTER SCIENCE AND ENGINEERING**

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**OOP** **PROJECT**

FINAL REPORT

Course by Assoc. Prof. Tran Thanh Tung

**TOPIC: FRUITY CRUSH**

Group 31

Nguyễn Đặng Minh Đức ITCSIU21050

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Contents

[Introduction 2](#_Toc156546814)

[UML 2](#_Toc156546815)

[GAME PLAY 4](#_Toc156546816)

[Future Update 5](#_Toc156546817)

[Conclusion 6](#_Toc156546818)

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# Introduction

Embark on a sensorial journey through the whimsical universe of Fruity Crush, where the mundane concept of match-three evolves into a symphony of tantalizing flavors and vibrant hues. From the moment you enter this virtual orchard, you're greeted by a palette of juicy strawberries, zesty lemons, and succulent oranges, each waiting to be strategically paired in a dazzling display of fruity brilliance.

Fruity Crush is not just a game; it's a fusion of entertainment and artistry that captivates players with its kaleidoscopic allure. The gameplay, simple yet addictive, invites you to align these delectable fruits, creating mouthwatering combinations that trigger a cascade of colorful explosions and sweet victories. The immersive soundscapes and visually stunning graphics elevate the gaming experience, transporting you into a world where every swipe is a brushstroke on the canvas of fruity ecstasy.

As you progress through the levels, the challenges evolve, introducing intricate puzzles that demand strategic thinking and precision. Fruity Crush is not just about matching; it's a test of your cognitive prowess, requiring you to anticipate and plan your moves to overcome obstacles and unlock the next tier of fruity wonders.

Beyond its addictive gameplay, Fruity Crush offers a social dimension, allowing players to connect, compete, and share their fruity conquests. The global leaderboard becomes a stage for showcasing your skills, and the in-game community provides a platform for sharing strategies, tips, and the sheer joy of conquering fruity challenges.

In this immersive digital orchard, Fruity Crush isn't merely a game; it's a delightful escape, a symphony of senses that leaves you craving the next level of fruity euphoria. So, dive into the world of Fruity Crush, where strategy meets sweetness, and every swipe is a step closer to unlocking the secrets of this delectable fruity realm.

# UML

This report provides an analysis of the UML (Unified Modeling Language) diagram generated from the provided Mermaid code, illustrating the structure and relationships within a hypothetical game system.

- Game Class

- Methods:

- `startGame()`: Initiates the game.

- `endGame()`: Concludes the game.

- Player Class

- Attributes:

- `name`: a string representing the player's name.

- `score`: an integer representing the player's score.

- Methods:

- `play()`: Initiates player actions during the game.

- Board Class

- Attributes:

- `cells`: an array of `Cell` objects representing the game board.

- Methods:

- `populateBoard()`: Populates the game board with cells.

- `clearMatches()`: Clears matching elements on the board.

- Cell Class

- Attributes:

- `content`: an instance of the `Fruity` class representing the content of the cell.

- Fruity Class

- Attributes:

- `color`: a string representing the color of the fruity element.

- `type`: a string representing the type of fruity element.

- Scoreboard Class

- Attributes:

- `totalScore`: an integer representing the cumulative score.

- Methods:

- `updateScore(points: int)`: Updates the total score based on the provided points.

Relationships

The diagram illustrates associations between classes:

- The `Game` class contains instances of the `Player`, `Board`, and `Scoreboard` classes.

- The `Board` class contains instances of the `Cell` class.

- The `Cell` class contains instances of the `Fruity` class.

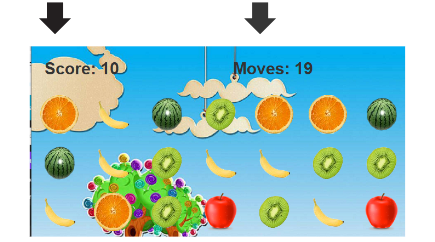
The UML diagram effectively captures the essential components and relationships within the game system. It showcases the interactions between players, the game board, fruity elements within cells, and the scoring mechanism. This visual representation facilitates a clear understanding of the system's architecture and serves as a valuable tool for communication and further development of the game.

A diagram of a game

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# GAME PLAY

This is a type of 3 puzzles matching game, player need to match 3 of every kinds of fruit to score.



The score and moves left are at the top of the board

A screenshot of a game

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In this example, player switches the kiwi to the left to match the column.

A close-up of a sign

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The score is up, but the moves is counted down.

# Future Update

To enhance the visual appeal of Fruity Crush, our first main idea focuses on elevating the game's aesthetics. By incorporating vibrant graphics, animated fruity elements, and appealing design elements, we aim to create a visually stunning experience that immerses players in a world of fruity delights. The addition of captivating backgrounds and dynamic effects will contribute to a more engaging and aesthetically pleasing gameplay environment.

Expanding on our second main idea, we propose the introduction of special fruity elements to elevate the strategic aspect of the game. These unique fruits could possess extraordinary powers, allowing players to clear larger portions of the board with skillful combinations. Whether it's a dazzling rainbow fruity that wipes out all fruits of a single type or a fruity bomb with explosive clearing capabilities, these special features add an exciting layer of complexity, encouraging players to devise new strategies and enhancing the overall excitement of Fruity Crush.

Lastly, our third main idea revolves around enhancing the overall gaming experience through the incorporation of diverse levels and a competitive leaderboard system. Introducing a variety of challenging levels with distinct objectives will keep players engaged and eager to progress through the game. Additionally, the inclusion of a global leaderboard allows players to compete with friends and other enthusiasts, fostering a sense of community and providing a platform for showcasing skills. This feature not only adds a competitive edge but also encourages friendly rivalry, making Fruity Crush an even more immersive and socially connected gaming experience.

# Conclusion

In conclusion, the Fruity Crush game project undertaken for our Object-Oriented Programming (OOP) course has been a rewarding journey that has allowed us to apply fundamental OOP principles to create an engaging and dynamic gaming experience. Through meticulous class design and thoughtful consideration of relationships, encapsulation, and inheritance, we have successfully crafted a robust architecture that captures the essence of a fruity-themed puzzle adventure. The incorporation of special fruity elements, visually appealing graphics, and diverse levels has not only made the game aesthetically pleasing but has also added layers of complexity and excitement, showcasing our proficiency in object-oriented design. The implementation of features like boosters, lives, and leaderboards demonstrates our ability to translate theoretical concepts into practical solutions. Overall, this project has not only deepened our understanding of OOP but has also provided us with valuable hands-on experience in software development, preparing us for future endeavors in the world of object-oriented programming.