A.) Starting the Game

Primary Actor: Player (User)

Goal in Context: Initializing a game where the player has the controls to navigate the car through the downtown maze, collect different rewards, and avoid police cars and punishments.

Preconditions: The game is loaded, the code is working, and the main menu is displayed, enabling the user to select the game difficulty.

Trigger: The user selects a difficulty and then clicks the option to start a new game from the main menu.

Scenario:
- User: Shown the main menu.
- User: Select the difficulty.
- User: Clicks the Start New Game option.
- User: Observe as the maze loads with the car, police cars, rewards, punishments, road, buildings, timer, and spikes placed in their programmed positions depending on the difficulty.
- User: Controls the character using the keyboard keys to move up, down, left, and right.

Exceptions:
1. Maze fails to initiate: The user is prompted to restart the game application or check the settings.
2. Missing Main menu items: The user uses the settings to select difficulty and start the game.

Priority: Essential, must be implemented

When Available: First release

Frequency of Use: Always when a player begins the game from the main menu.

Channel to Actor: Using the game user interface (keyboard)

Secondary Actors: None

Channels to Secondary Actors: None

Open Issues:
1. How can you resume a game without starting a new game always?
2. Should there be an option to select/login a user to get the saved data? (Like scores, difficulties)

B.) Collecting the Required Rewards

Primary Actor: Player (User)

Goal in Context: To collect the compulsory reward, i.e., diamonds in this case, by driving the car through the diamond object while avoiding police and barriers (such as spikes and potholes).

Preconditions: The game is loaded, the player has the controls, and all the game objects (police, spikes, potholes, etc.), including diamonds, i.e., the required rewards, are visible along with the maze.

Trigger: The car moves through the cell that contains the diamond.

Scenario:
- User: Navigate the car around the downtown maze.
- User: Drives the car through a cell that contains a diamond.
- System: Collects the diamond, removes the diamond icon from the board, and increases the count of collected diamonds (e.g., shows 2/4 instead of 1/4 after collecting the 2nd diamond out of the four diamonds.)
- System: After all diamonds have been collected, the exit will flash up, and the user can then navigate to the exit to finish/win the game.

Exceptions:
1. The game ends before collecting all the required rewards: The car is caught by the police car or encounters a pothole, and the player loses the game.

Priority: Essential, must be implemented

When Available: First release

Frequency of Use: Always when the player has still not lost or won the game and is still controlling the car.

Channel to Actor: Direct navigation using the keyboard.

Secondary Actors: None

Channels to Secondary Actors: None

Open Issues:
1. How should we change the number and location of these rewards depending on difficulties?

C.) Collecting the Optional Bonus Rewards

Primary Actor: Player (User)

Goal in Context: To collect the bonus reward, i.e., nitro bottles in this case, by driving the car through the nitro object while avoiding police and barriers (such as spikes and potholes), which then, in turn, increases the car's speed.

Preconditions: The game is loaded, the player has the controls, all the game objects (police, spikes, potholes, etc.) are visible along with the maze, and a certain amount of time has elapsed. A few flashing nitro bottles will appear on the maze.

Trigger: The car moves through the cell that contains the flashing bonus nitro reward.

Scenario:
- User: Navigate the car around the downtown maze for a certain time.
- User: Drives the car through a cell that shows a flashing nitro bottle.
- System: Collects the bottle and removes the flashing icon from the board and all the other flashing uncollected nitro bottles.
- System: Increases the speed of the player car by a certain pre-decided amount for a specific short duration before going back to the default speed.

Exceptions:
1. The game ends before collecting the reward: The car is caught by the police car or encounters a pothole, and the player loses the game, or the player wins without using the bonus reward.
2. The visibility of the bonus reward ends before collection: The time duration for which the bonus reward is available expires, and the reward vanishes from the board and thus can no longer be collected.

Priority: Essential, must be implemented

When Available: First release

Frequency of Use: Once or twice, depending on the time it takes for a player to complete the game. Also, only when the player has still not lost or won the game and is still controlling the car.

Channel to Actor: Direct navigation using the keyboard.

Secondary Actors: None

Channels to Secondary Actors: None

Open Issues:
1. How should we change the duration, number, and location of these bonus rewards depending on difficulties?

D.) Encountering the Spikes

Primary Actor: Player (User)

Goal in Context: To collide with the punishment, i.e., the spikes in this case, which decreases the car speed by a pre-determined amount.

Preconditions: The game is loaded, the player has the controls, and all the game objects (police, spikes, potholes, etc.) are visible along with the maze.

Trigger: The car moves through the cells that contain the spikes punishment.

Scenario:
- User: Navigate the car around the downtown maze.
- User: Drives the car through a cell that shows the spikes.
- System: Reduces the speed of the player-controlled car by a certain degree for a short, specific duration.
- System: Keeps the spikes as it is on the map however, if u go through the spikes with reduced speed, it doesn't reduce the speed any further.

Exceptions: None

Priority: High

When Available: First release

Frequency of Use: Depends on the number of times the player passes through the spikes in the game.

Channel to Actor: Direct navigation using the keyboard.

Secondary Actors: None (No effect on the speed of police cars)

Channels to Secondary Actors: None

Open Issues:
1. How should we change the speed, i.e., by what measure should we reduce the speed based on certain difficulties?

E.) Encountering the Potholes

Primary Actor: Player (User)

Goal in Context: To encounter a pothole in the maze, which instantly ends the game.

Preconditions: The game is loaded, the player has the controls, and all the game objects are visible along with the maze, especially multiple potholes at different locations.

Trigger: The car moves through the cell that contains the dark circular pothole.

Scenario:
- User: Drives the car through a cell that shows a pothole.
- System: Instantly ends the game and shows better luck next time message, along with the time taken, an option to retry the game, and maybe an option to change the difficulty.

Exceptions:
1. The game ends without any pothole interaction: The player either wins the game or loses the game such that the car is caught by a police car before escaping.

Priority: Essential, must be implemented

When Available: First release

Frequency of Use: Once, i.e., only when the car encounters a pothole in the maze and the game ends.

Channel to Actor: Direct navigation using the keyboard.

Secondary Actors: None (Police cars will pass the pothole without any effect)

Channels to Secondary Actors: None

Open Issues:
1. How many potholes should be placed across the maze?
2. What message should be shown after the player's car falls into the pothole?

F.) Choosing the Correct Exit

Primary Actor: Player (User)

Goal in Context: To choose the correct color exit out of the two exits while trying to end the game.

Preconditions: The game is loaded, the player has the controls, and all the compulsory rewards (i.e., Diamonds) have been collected.

Trigger: The car moves through the exit cells that are colored either red(wrong) or green(right).

Scenario:
- User: Navigate the car around the downtown maze and collect all the required rewards.
- System: Shows two exits at random corners, with one exit being the wrong one and the other being the right one.
- System: After every certain seconds, the exits swap their colors, which makes the green exit the wrong (red) one.
- User: Drives through one of the exits, if the player takes the exit that is green at the moment, they win the game otherwise, they lose the game.
- System: Shows a message along with time, stars, retry option, etc., based on the game result.

Exceptions: None

Priority: Low

When Available: Maybe 1st or 2nd release

Frequency of Use: Once every game, while selecting which exit to take to complete the game.

Channel to Actor: Direct navigation using the keyboard keys.

Secondary Actors: None

Channels to Secondary Actors: None

Open Issues:
1. How should we determine the duration after which the exits change their color and hence the purpose?
2. How many wrong exits should we keep?

G.) Winning the Game

Primary Actor: Player (User)

Goal in Context: To complete the level, i.e., to either win the game and proceed to the next difficulty or end the game.

Preconditions: The game is loaded, the player has the controls, all the game objects (police, spikes, potholes, etc.) are visible along with the maze, and the player has collected all the diamonds and escaped the potholes and police car to reach the designated exit.

Trigger: The car moves through the cells that highlight the bright green exit.

Scenario:
- User: Navigate the car around the downtown maze.
- User: Drives the car through all the required rewards (Diamonds) on the screen.
- System: Shows the bright pre-designated exit somewhere on the screen across a few cells on some border of the maze.
- User: Drives the car to the green exit cells without encountering any police cars or potholes on the way.
- System: Shows a congratulatory message and some stars based on how quickly the game was won, with three stars being the highest.

Exceptions:
1. The player misses a reward or loses: The player's car is caught by the police car, encounters a pothole, or takes the wrong exit, and the player loses the game, or the player misses collecting the required reward necessary to win the game.

Priority: Essential, must be implemented

When Available: First release

Frequency of Use: Always when a player does not lose the game.

Channel to Actor: Direct navigation using the keyboard keys.

Secondary Actors: None

Channels to Secondary Actors: None

Open Issues: None

H.) Losing the Game

Primary Actor: Player (User)

Goal in Context: To fail to complete the level, i.e., to either lose the game or close the game before winning.

Preconditions: The game is loaded, the player has the controls, all the game objects (police, spikes, potholes, etc.) are visible along with the maze, and the player car either collides with the police car or encounters a pothole or takes the wrong exit.

Trigger: The car moves on the cell where there is a police car or a pothole or takes the wrong exit.

Scenario:
- User: Navigate the car around the downtown maze.
- User: Collides the car with the police cars on the screen, goes to a cell with a pothole, or takes a wrong exit.
- System: Shows a better luck next time message, the time taken, and an option to retry the game and maybe an option to change difficulty.

Exceptions:
1. Technical Issue: A bug that prevents the game from ending even if we encounter one of the enemies.

Priority: Essential, must be implemented

When Available: First release

Frequency of Use: Always when a player loses the game.

Channel to Actor: Direct navigation using the keyboard keys.

Secondary Actors: None

Channels to Secondary Actors: None

Open Issues:
1. Will the information, such as time or options, such as change difficulty, be visible?

I.) Selecting the Game Difficulty

Primary Actor: Player (User)

Goal in Context: To select a certain difficulty that matches the user's expertise or challenges the user to win the game in the shortest possible time.

Preconditions: The game is loaded, and the main menu is visible, where the player has options for selecting different difficulty levels.

Trigger: The player selects the choose difficulty option from the main menu and selects a difficulty.

Scenario:
- User: Navigate the main menu and select the change difficulty option.
- User: Selects a difficulty based on a short description and hierarchy of difficulties.
- System: Shows a maze with the applied difficulty changes that affect various game dynamics.

Exceptions:
1. Technical Issue: Something that prevents the difficulty settings from being applied
2. Various difficulty levels: The user either wants something more difficult than the highest difficulty or something easier than the lowest difficulty.

Priority: Medium

When Available: First release

Frequency of Use: Always when a player starts the game and comes across the main menu.

Channel to Actor: Direct navigation using mouse/keyboard.

Secondary Actors: None

Channels to Secondary Actors: None

Open Issues:
1. How should the selected difficulty affect the game, such as the numbers for rewards, enemies, punishments, etc.?
2. When can the difficulty be changed, and how many distinct difficulties should be allowed?