

Use cases

Use case	Start game (1.0.0)
Primary actor	Player
Goal in context	Initiate maze, rewards, enemies, barrier, main character with correct attribute and location
Preconditions	Read mouse input
Trigger	Player press enter to start game
Scenario	<ol style="list-style-type: none"> 1. Game: load map and all essential components, set main character to starting point 2. (optional) player choose level of difficulty
Exceptions	<ol style="list-style-type: none"> 1. The player map did not load correctly: check which attribute is wrong try to reload the game
Priority	Essential, must be implemented
When available	First Increment
Frequency to use	Once per game
Channel to actor	Screen and mouse
Secondary actors	map
Channels to secondary actor	Function call of map
Open issues:	<ol style="list-style-type: none"> 1. What happen if client click on start game multiple times/click on another button 2. Is there a way to return to main menu after starting game? 3. Should there be additional story/log showing when the client click start game

Use case	Make move (1.1.0)
Primary actor	Player
Goal in context	Player move the character in the game according to input from keyboard
Precondition	Start game
trigger	Use select w, a, s, d on keyboard
Scenario	<ol style="list-style-type: none"> 1. Player: move character left, right, up or down by one cell 2. Enemy: call enemy move and move toward player by one cell 3. Player: have special reward, attack enemy and enemy dies 4. Player: don't have special reward, enemy attacks player, player loss one health or die 5. Player: step on trap and loss one health or loss the game 6. Player: collect reward and gain points 7. Player: reach exit and win the game
Exception	Enemy/barrier at the cell main character moving to: main character stays at the same location and loss health if there is an enemy at the direction
Priority	Essential, must be implemented
When available	Second increment
Frequency of use	Multiple time throughout the game play
Channel to actor	keyboard(w, a, s, d)
Secondary actor	Services in service function
Channels to secondary actor	Internal calls
Open issues	<ol style="list-style-type: none"> 1. What happen if the player did not move to the expected location/steps? 2. Is it possible for main character to move outside the maze(out of bound error)

Use case	Enemy move (1.2.0)
Primary actor	Enemy
Goal in context	When the player moves, enemy move toward main character location by one cell
Preconditions	Start game
Trigger	When player move main character
Scenario	<ol style="list-style-type: none"> 1. Enemies move left, right, down, or up according to the location of player 2. Enemy touch player and attack or die depending on if player have special reward
Exceptions	N/A
Priority	Essential
When available	Second increment
Frequency of use	enemy# x make move#
Channel to actor	Via make move in game
Secondary actor	update
Channels to secondary actor	Method call in server Extend to function
Open issues	<ol style="list-style-type: none"> 1. What happen if the enemy is moving away from the user

Use case	Collect reward(1.3.0)
Primary actor	client/main character
Goal in context	User use space key on keyboard to collect reward
precondition	Rewards exist in maze
Trigger	User step on reward and collect reward
Scenario	<ol style="list-style-type: none"> 1. User step on regular reward 2. User step on special reward
Exceptions	<ol style="list-style-type: none"> 1. Multiple reward on a single cell 2. Enemies approach u when u collect reward
Priority	Essential
When available	Second increment
Frequency of use	5 to10 times per game(5 regular reward, 5 special reward)
Channel to actor	Via keyboard input
Secondary actor	server/validate reward
Channels to secondary actor	Method call
Open issues	<ol style="list-style-type: none"> 1. What happen if reward did not get collected 2. What happen special reward did not work

Use case	Verify win(1.4.0)
Primary actor	Player
Goal in context	Check if the main character meets the win/loss condition
Preconditions	Start game
Trigger	When the main character start to move
Scenario	<ol style="list-style-type: none"> 1. Main character gets all regular reward before time and health run out 2. Main character did not get all regular reward before time run out 3. Main character lost all health before time run out 4. Main character gets special and regular reward and finish the game
Exception	N/A
Priority	Essential
When available	Second increment
Frequency of use	Throughout the whole game after start game
Channels to actor	Function count down
Secondary actor	N/A
Channels to secondary actor	N/A
Open issues	<ol style="list-style-type: none"> 1. What happen if client can keep playing after time runs out/health run out 2. What happen if winning condition not met but the player still won the game

Use case	attack(1.5.0)
Primary actor	Player, zombie
Goal in context	Depending on Player's number of special reward decide if player take damage or zombie take damage
Preconditions	Start game/move
Trigger	When player and zombie is on the same grid/next to each other
Scenario	<ol style="list-style-type: none"> 1. Players have special reward, zombie dies and player loss one special reward 2. Player don't have special reward, player take damage
Exception	N/A
Priority	Essential
When available	Second increment
Frequency of use	0 to 9 times per game
Channels to actor	Service call in main function
Secondary actor	N/A
Channels to secondary actor	N/A
Open issues	<ol style="list-style-type: none"> 1. What happen if zombie and player is right next to each other 2. What happen if player just got a special reward and zombie attack at the same time

Use case	Step on Trap(1.6.0)
Primary actor	Player, trap
Goal in context	Player loss one health when step on the cell with a trap
Preconditions	Start game/ player move
Trigger	Players move
Scenario	Player loss one health after stepping on cell
Exception	When player have no health left
Priority	Essential
When available	Second increment
Frequency of use	0 to 3 per game
Channels to actor	Service call in main function
Secondary actor	N/A
Channels to secondary actor	N/A
Open issues	1. What happen if zombie attack when player step on a trap

Use case	Update map(1.7.0)
Primary actor	Game map
Goal in context	Update map and everything on the map
Preconditions	Start game/move
Trigger	Player move
Scenario	<ol style="list-style-type: none"> 1. Player, zombie move one cell 2. Player, zombie attack 3. Player step on trap, zombie move one cell 4. Players collect reward, zombie move one cell 5. Player win/loss 6. Optional: player pause game
Exception	<ol style="list-style-type: none"> 1. Players pause game 2. Player finish game
Priority	Essential
When available	First increment
Frequency of use	Throughout the whole game
Channels to actor	After move by player
Secondary actor	N/A
Channels to secondary actor	N/A
Open issues	<ol style="list-style-type: none"> 1. What happen if service did not function correctly(thing appeared in wrong places)

Use case	Calculate point(1.8.0)
Primary actor	player
Goal in context	Calculate the point player got after winning or losing the game
Preconditions	Make move
Trigger	win/loss return true
Scenario	<ol style="list-style-type: none"> 1. Players get no point due to losing 2. Players get point for winning 3. Players get extra point for killing zombie and collecting special reward
Exception	<ol style="list-style-type: none"> 1. Players exit game before winning or losing
Priority	Essential
When available	Second increment
Frequency of use	Once per game
Channels to user	Function call in main
Secondary actor	Map
Channels to secondary actor	Function call in service
Open issues	<ol style="list-style-type: none"> 1. What happen if point did not get correctly calculated

Use case	Choose difficulty(1.0.1)
Primary actor	player
Goal in context	Player choose the level of difficulty after clicking start game
Preconditions	Start game
Trigger	player click start game
Scenario	<ol style="list-style-type: none"> 1. Players choose easy, interact with map and create a list of 3 zombies, 2 trap, 2 special reward,5 regular reward, time limit 5 min 2. Players choose Medium, interact with map and create a list of 5 zombies, 3 trap, 3 special reward, 5 regular reward, time limit of 5 min 3. Players choose Hard, interact with map and create a list of 5 zombies, 4 trap, 3 special reward, 5 regular reward, time limit of 3 min
Exception	<ol style="list-style-type: none"> 1. Player did not choose a difficulty
Priority	Optional
When available	Final increment
Frequency of use	Once per game
Channels to user	Keyboard/mouse input
Secondary actor	Map
Channels to secondary actor	Function call in service
Open issues	<ol style="list-style-type: none"> 1. What happen if player exit the game 2. What happen if user somehow start the game without choosing the difficulty