

Use cases

Overview



As you can see, there are arrows everywhere, since the use cases are quite entangled, which is normal for a platform game. Please read the text to get a better idea

Use case: *PlayLevel*

This is the main use case of the game consisting of several sub-use cases. The player moves starts at one point in the level and has the goal of reaching another point. To achieve this the player has to pass different obstacles.

Priority: *n/a, some parts of this use case has higher priorities than others*

Extends or Include: *Jumping, MoveDenty, CollectingBlocks, PlacingBlocks, ThrowingBlocks, TakingDamage, DamagingEnemy*

Participating actors

- Keyboard player
- Mouse player

Normal flow of events

1. Keyboard player moves forward
2. Keyboard player jumps from one platform to another
3. Mouse player takes a moveable block.
4. Mouse player places block to help keyboard player get forward in the level.
5. Mouse player throws block to defeat enemies.
6. Keyboard player reaches the goal and completes the level.
7. The game moves to the next level or if it was the last level shows the ending sequence.

Exceptional flow a)

1. Keyboard player loses the game by taking too much damage or falling out of the level.
2. Denty loses a life
3. Depending on amount of lives either the level restarts or the game is returned to the menu state.

Use case: *Jumping*

By pressing space the keyboard player makes Denty leap into the air.

Priority: *high*

Extends or Include: *TakingDamage, DamagingEnemy*

Participating actors

- Keyboard player

Normal flow of events

1. Player presses space on keyboard
2. Denty jumps and the keyboard player can control where he lands with the arrow keys
3. Denty lands on solid ground. Now he can jump again.

Exceptional flow a)

- 3a. Denty falls off the level
- 4a. Denty loses a life and the level restarts

Exceptional flow b)

- 3b. Denty lands on an enemy (see use case DamagingEnemy).

Use case: *DefeatingEnemy*

Denty, or a block travelling with high speed, hits an enemy and defeats it.

Priority: *medium*

Extends or Include: *DamagingEnemy*

Participating actors

- Enemy character
- Denty character
- Block in free fall

Normal flow

1. Denty character lands on top of enemy or collides with a block travelling with high speed.
2. The enemy can take damage from the collision.
3. The enemy is defeated and removed from the level.

Use case: *MoveDenty*

Denty is visually, and logically, moved one length unit up, right, left, or down if there isn't any obstacle in that area. The direction is determined by Denty's current direction in a present movement.

Can only be invoked by other use cases.

Priority: high

Includes: *CollideWithEnemy*, *LoseLife*, *StartLevel*, *CompletingALevel*

Participating actors

- Application

Normal flow of events

1. Application gives input of moving Denty in a certain direction.
2. Application moves Denty, visually and logically, one length unit in the direction specified in the use case which invoked the movement.
3. Depending on the type of camera it might follow Denty.

Exceptional flow a) There is a tile in the area Denty would otherwise move to, and Denty is moving either left, right, or downwards.

- 2a. Denty does not move visually nor logically.

Exceptional flow b) There is a tile in the area Denty would otherwise move to, and Denty is moving upwards.

- 2b. Denty does not move visually nor logically, and his direction is set to downwards.
- 3b. *MoveDenty* (the current use case) is invoked.

Exceptional flow c) There is an enemy in the area Denty would otherwise move to.

2c. Denty collides with the enemy (use case *CollideWithEnemy*).

Exceptional flow d) Due to a move downwards, Denty is given a position outside of the map area

2d. Denty loses a life (use case *LoseLife*)

3d. The level restarts (use case *StartLevel*).

Exceptional flow e) Due to a move upwards or right, Denty is given a position near the right or upper edge of the screen area, but not outside of the map area.

3e. The application adjusts the screen area according to Denty's position (use case *MoveCamera*).

Exceptional flow f) Due to the move, Denty reaches the goal of the level.

3f. The players complete the level (use case *CompletingALevel*).

Use case: *StartLevel*

Invoked by either *StartLevelFromMenu* or *ChangeLevel*

Priority: *high*

1. The level loads its tilemap
2. The level places Denty
3. The level places the enemies

Use case: *CollideWithEnemy*

Invoked either by use case *MoveDenty* or by an enemy moving into Denty.

Priority: *medium*

Extends or Include: *MoveDenty*, *TakingDamage*, *DamagingEnemy*

Normal flow of events

1. Denty's bottom hits an Enemy
2. Use case *DamagingEnemy* is invoked

Exceptional flow

- 1a). Denty's bottom hits a *SpikeyEnemy*
- 1b). Denty's top collides with an Enemy
2. Use case *TakingDamage* is invoked

Use case: *DamagingEnemy*

Invoked by use case *CollideWithEnemy* or use case *ThrowingBlocks*.

Priority: *medium*

Extends or Include: *CollideWithEnemy*, *ThrowingBlocks*, *DefeatingEnemy*, *ReleaseBlocks*

Normal flow of events

1. The enemy in question loses hit points according to what it collided with

Exceptional flow

2. The enemy's hit points reaches zero or lower

3. Invoke use case DefeatingEnemy

Use case: *LoseLife*

Invoked by either use case TakingDamage, or by falling outside the cameras viewport.

Priority: *medium*

Extends or include: *TakingDamage, StartLevel*

Normal flow of events

1. Denty's life counter decreases by one.
2. The Level is restarted (use case StartLevel)

Exceptional flow

2. Denty's life counter becomes less than zero
3. The game is restarted (use case StartLevel, with first level)

Use case: *TakingDamage*

By colliding with an enemy or a block, travelling with high speed, coming straight at Denty, Denty's health points are decreased.

Priority: *medium*

Extends or Include: *CollideWithEnemy, LoseLife, StartLevel*

Participating actors

- Keyboard player
- Enemy character

Normal flow of events

1. Denty collides with an enemy, which is either at the same altitude as Denty, or coming down from above.
2. Denty loses health points as defined by the participating enemy and game difficulty..
3. Denty starts twinkling and is invincible for two seconds
4. Denty goes back to normal (but, of course, with decreased amount of health points)

Exceptional flow a)

- 5a. Denty's health points reach a total of 0 or lower
- 5b. Denty loses one life (use case *LoseLife*)
- 5c. The level restarts (use case *StartLevel*)

Use case: *Placing blocks*

Priority: *high*

Participating actors

- Mouse player

Normal flow of events

1. The mouse player moves the mouse pointer to the desired location of the block.
2. The mouse player clicks.
3. The block snaps into position in the grid.
4. Now the Denty can jump on the block and advance in the level.

Exceptional flow a)

- 1a. The mouse player hovers at a location where block placement isn't allowed.
- 2a. The mouse pointer turns into a red icon.
- 3a. The mouse player clicks the location anyway.
- 4a. The system indicates failure to place the block with a sound.

Use case: *ThrowingBlocks*

Priority: *mid*

Participating actors

- Mouse player

Normal flow of events

1. The mouse player clicks the position from where the block is to be thrown, and keeps holding the button
2. The mouse player "draws" (it can only be a straight line) a force vector for applying on the block and then releases the mouse button
3. The released block follows a somewhat physically correct parabola, according to the drawn vector
4. The block continues its somewhat physically correct parabola until its speed reaches 0.
5. The block lands on the ground and can be collected.

Exceptional flow a) The block cannot be thrown from the chosen position.

- 1a. The mouse player clicks on a position from which a block cannot be thrown, and keeps holding the button.
- 2a. A red force vector is drawn to indicate that the block cannot be thrown from the position.
- 3a. The mouse player clicks anyway.
- 4a. The system indicates failure to throw the block with a sound.

Exceptional flow b) The block collides with an enemy

- 5b. Use case *DamagingEnemy*
- 6b. Return to normal flow 5

Exceptional flow c) The block collides with Denty while travelling in a high speed.

- 5b. Use case *TakingDamage*.
- 6b. Return to normal flow 5

Use case: *StartingGameFromMenu*

Priority: *low*

Participating actors

- Mouse player

- Keyboard player

Normal flow of events

1. The game is started and the menu is displayed
2. The mouse user clicks “Start game” or the keyboard player presses enter.
3. The first level starts.

Use case: *AdjustingControls*

Priority: *low*

Participating actors

- Mouse player
- Keyboard player

Normal flow of events

1. In the menu the mouse user clicks “Options” or the keyboard player tabs to it and presses return.
2. A new screen with options for the controls is shown.
3. The mouse clicks a label such as “Jump”
4. The keyboard user is prompted to press the button he wishes to use to jump.
5. The keyboard user presses space.
6. The change of controls is indicated by updating the label.
7. The mouse player clicks an “OK” button.
8. The main menu is shown again.

Use case: *CompletingALevel*

Priority: *medium*

Participating actors

- Keyboard player

Normal flow of events

1. The keyboard player has moved Denty through the level and is now at the end.
2. The keyboard player moves Denty forward and enters the goal.
3. Music is played and a simple animation is shown.
4. The game moves to the next level (use case StartLevel) .

Use case: *CollectingBlocks*

Priority: *med*

Participating actors

- Keyboard player

Normal flow of events

1. Denty collides with a moving block (with low velocity)
2. Block disappears from level
3. HUD indicates increased number of throwable/placeable blocks

Exceptional flow of events a)

- 2a. Maximum number of throwable/placeable blocks has previously been reached
- 3a. Denty collides with a moving block
- 4a. Block does not disappear from level

Exceptional flow of events b)

- 1b. Denty collides with a moving block (with high velocity)
- 2b. Denty takes damage from the collision (use case *TakingDamage*) (the moving block poses as enemy character)

Use case: *ReleaseBlocks*

Priority: *med*

Participating actors

- Mouse player

Normal flow of events

- 1. The mouse player clicks a placed block
- 2. The block transforms into a moveable block
- 3. The block falls down and lands on the ground

Exceptional flow a)

- 3a. The block falls down, gains a high velocity, and collides with an enemy (use case *DamagingEnemy*).

Exceptional flow b)

- 3a. The block falls down, gains a high velocity, and collides with Denty (use case *TakingDamage*).

Use case: *MoveCamera*

Priority: *medium*

Extends or include: *Move, jump*

Participating actors

- Keyboard player

Normal flow of events

- 1. The keyboard player moves Denty.
- 2. The camera is static until Denty has moved a certain distance. Imagine he is surrounded by a box that is quite small.
- 3. When Denty reaches the edges of this “box” the camera moves.

Exceptional flow a)

- 1a. The level has a different kind of camera where it starts moving forward independently of Denty at the start of the level.

- 2a. Now the keyboard player has to keep up with the camera.
- 3a. If the player gets outside the edges of the viewport Denty dies.