Software Requirements Specifications

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April 18, 2012

Contents

Functional requirements

1 System

1.1 The user starts the application

ID	1.1
Use case/Scenario	The user starts the application
Trigger	The user launches the application
Precondition	The user is able to start the application (Req 10.1)

Basic path
The application starts.

Exception path
-

Post condition
The application is running.

Authors	Christoffer, Andreas & Gustav

1.2 The user exits the application

ID	1.2
Use case/Scenario	The user exits the application
Trigger	The user exits the application
Precondition	The user is able to exit the application (Req 10.2)

Basic path
The application stops.

Exception path
-

Post condition
The application is not running.

Authors	Christoffer, Andreas & Gustav

1.3 Show main menu on startup

ID	1.3
Use case/Scenario	Show menu on startup
Trigger	-
Precondition	The application is started (Req 1.1)

The main menu activity exists (Req 5.1)

Basic path

The main menu activity starts.

Exception path

-

Post condition

The main menu activity is started.

Authors	Christoffer, Andreas & Gustav

2 Initiation

2.1 Add a ball

ID	2.1
Use case/Scenario	Add a ball
Trigger	The player starts a new game
Precondition	-

Basic path
The ball is rendered on the screen.

Exception path
-

Post condition
The ball is visible to the player.

Authors	Christoffer, Andreas & Gustav

2.2 Add virtual arrows

ID	2.2
Use case/Scenario	Add virtual arrows
Trigger	The player starts a new game
Precondition	Debugging mode for development stage is activated

Basic path
Four arrows, one for each direction the ball is meant to move in, are rendered in the bottom-right corner.

Exception path
-

Post condition
The arrows are visible to the player.

Authors	Christoffer, Andreas & Gustav

2.3   Add a playing board

ID	2.3
Use case/Scenario	Add a playing board
Trigger	The player starts a new game
Preconditions	-

Basic path
A playing board is rendered and shown.

Exception path
The board might render in front of other rendered objects.

Post condition
The playing board is visible to the player.

Author	Christoffer, Andreas & Gustav

2.4   Add one wall

ID	2.4
Use case/Scenario	Add one wall
Trigger	The player starts a new game
Preconditions	Debugging mode for development stage is activated
	The board is rendered (Req 2.3)

Basic path
A wall is rendered and shown.

Exception path
The wall is rendered behind the playing board.

Post condition
A wall is visible to the player.

Author	Christoffer, Andreas & Gustav

2.5 Add walls shaped like a maze

ID	2.5
Use case/Scenario	Add walls shaped like a maze
Trigger	The player starts a new game
Preconditions	The board is rendered (Req 2.3)

Basic path
Walls are rendered around the playing field and inside the playing field shaped as a maze.

Exception path
The walls are rendered behind the playing board.

Post condition
Walls are visible to the player and a track shaped as a maze has been created.

Author	Christoffer, Andreas & Gustav

2.6 Add sink holes

ID	2.6
Use case/Scenario	Add sink holes
Trigger	The player starts a new game
Preconditions	The board is rendered (Req 2.3)

Basic path
Sink holes are added to the playing field.

Exception path
The holes are created at the same place as a wall, behind the playing field or on another hole.

Post condition
The sink holes is visible to the player.

Author	Christoffer, Andreas & Gustav

2.7   Add a final hole

ID	2.7
Use case/Scenario	Add a final hole
Trigger	The player starts a new game
Preconditions	The board is rendered (Req 2.3)

Basic path
A hole is added to the playing field.

Exception path
The hole is created at the same place as a wall, behind the playing field or on another hole.

Post condition
The final hole is visible to the player.

Author	Christoffer, Andreas & Gustav

3 Steering

3.1 Steer the ball using keys

ID	3.1
Use case/Scenario	Steer the ball using keys
Trigger	The player wants to move the ball
Precondition	The ball is added (Req 2.1)

Basic path

The ball moves upwards when volume up is pressed, downwards when volume down is pressed.

Exception path

-

Post condition

The ball is moved in the chosen direction.

Authors	Christoffer, Andreas & Gustav

3.2 Steer the ball using virtual keys

ID	3.2
Use case/Scenario	Steer the ball using virtual keys
Trigger	The player wants to move the ball
Precondition	The ball is added (Req 2.1)
	The virtual arrows are added (Req 2.2)

Basic path

The player press the appropriate key.

Exception path

-

Post condition

The ball is moved in the direction implied by the arrow used.

Authors	Christoffer, Andreas & Gustav

3.3 Steer the ball using the accelerometer

ID	3.3
Use case/Scenario	Steer the ball using the accelerometer
Trigger	The player wants to move the ball
Precondition	The ball is added (Req 2.1)

Basic path
The player tilt the phone in a chosen direction.

Exception path
-

Post condition
The ball is moved in the chosed direction.

Authors	Christoffer, Andreas & Gustav

4 Interaction

4.1 Have ball interact with tilt of device

ID	4.1
Use case/Scenario	Have ball interact with tilt of device
Trigger	The player tilts the device
Precondition	The ball is added (Req 2.1)
	The ball can be steered with the accelerometer (Req 3.3)

Basic path
The device is tilted in either direction.

Exception path
-

Post condition
The ball moves in the direction and speed decided by the tilt of the device.

Authors	Christoffer, Andreas & Gustav

4.2 Have ball interact with wall

ID	4.2
Use case/Scenario	Have ball interact with wall
Trigger	The ball is moved towards the wall
Precondition	The ball is added (Req 2.1)
	A wall is added (Req 2.4 or 2.5)

Basic path
The ball hits the wall.

Exception path
-

Post condition
The ball is stopped by the wall.

Authors	Christoffer, Andreas & Gustav

4.3 Have ball interact with a sink hole

ID	4.3
Use case/Scenario	Have ball interact with a hole
Trigger	The ball is moved on top of the hole
Precondition	The ball is added (Req 2.1)
	A hole is added (Req 2.6)

Basic path
The ball ends up on top of the hole.

Exception path
-

Post condition
The ball is eaten up by an invincible invisible monster!

Authors	Christoffer, Andreas & Gustav

4.4 Have ball interact with the final hole

ID	4.4
Use case/Scenario	Have ball interact with the final hole
Trigger	The ball is moved on top of the hole
Precondition	The ball is added (Req 2.1)
	The finish hole is added (Req 2.7)

Basic path
The ball ends up on top of the hole.

Exception path
-

Post condition
The current game ends.

Authors	Christoffer, Andreas & Gustav

4.5   No sleep mode while active game

ID	4.5
Use case/Scenario	The device screen shall never go into sleep mode while playing
Trigger	A new game is started
Precondition	-

Basic path
-

Exception path
-

Post condition
The game is run without interrupts from sleep mode.

Authors	Christoffer, Andreas & Gustav

4.6   Landscape view while in active game

ID	4.6
Use case/Scenario	The application will only make use of landscape view while in playing mode
Trigger	A game is started
Precondition	-

Basic path
The screen initiates landscape mode.

Exception path
-

Post condition
The current game is run in landscape mode.

Authors	Christoffer, Andreas & Gustav

5 Activities

5.1 Main menu

ID	5.1
Use case/Scenario	Show main menu
Trigger	The main menu is requested
Precondition	-

Basic path
The main menu activity starts.

Exception path

Post condition
The main menu is shown for the user, containing (Req 5.1.1), (Req 5.1.2),
(Req 5.1.3) and (Req 5.1.4).

Authors	Christoffer, Andreas & Gustav

5.1.1 New game

ID	5.1.1
Use case/Scenario	The main menu shall be able to start a new game
Trigger	The "New Game" button in the main menu is pressed
Precondition	The main menu is shown (Req 5.1)

Basic path
A new game is initiated.

Exception path
-

Post condition
A new game is started.

Authors	Christoffer, Andreas & Gustav

5.1.2 Highscore

ID	5.1.2
Use case/Scenario	The main menu shall be able to show the highscores
Trigger	The "Highscore" button in the main menu is pressed
Precondition	The main menu is shown (Req 5.1)

The high score activity exists (Req 5.3)

Basic path
The highscore activity is initiated.

Exception path
-

Post condition
The highscore activity is started.

Authors	Christoffer, Andreas & Gustav

5.1.3 Settings

ID	5.1.3
Use case/Scenario	The main menu shall be able to show the settings
Trigger	The "Settings" button in the main menu is pressed
Precondition	The main menu is shown (Req 5.1)

The high score activity exists (Req 5.2)

Basic path
The settings activity is initiated.

Exception path
-

Post condition
The settings activity is started.

Authors	Christoffer, Andreas & Gustav

5.1.4 Exit

ID	5.1.4
Use case/Scenario	The main menu shall be able to exit the application
Trigger	The "Exit" button in the main menu is pressed
Precondition	The main menu is shown (Req 5.1)

The user is able to exit the application (Req 10.2)

Basic path
The application stops.

Exception path
-

Post condition
The application is not running.

Authors	Christoffer, Andreas & Gustav

5.2 Settings menu

ID	5.2
Use case/Scenario	Show the settings menu
Trigger	The settings menu is requested
Precondition	-

Basic path
The settings menu activity starts.

Exception path

Post condition
The settings menu is shown for the user, containing (Req 5.2), (Req 5.2.2) and (Req 5.2.3).

Authors	Christoffer, Andreas & Gustav

5.2.1 Sound

ID	5.2.1
Use case/Scenario	The user shall be able to turn the sound on and off
Trigger	The sound switch state is changed
Precondition	The settings menu is shown (Req 5.2)

Basic path
The sound changes to the state of the switch.

Exception path
-

Post condition
The sound is changed to the state of the switch.

Authors	Christoffer, Andreas & Gustav

5.2.2 Ball

ID	5.2.2
Use case/Scenario	The user shall be able to change the color of the ball
Trigger	A different color is chosen for the ball
Precondition	The settings menu is shown (Req 5.2)

Basic path
The ball color changes to the chosen color.

Exception path
-

Post condition
The ball has the color of choice.

Authors	Christoffer, Andreas & Gustav

5.2.3 Texture

ID	5.2.3
Use case/Scenario	The user shall be able to change the texture of the map
Trigger	A different texture is chosen for the map
Precondition	The settings menu is shown (Req 5.2)

Basic path
The map texture changes to the texture of choice.

Exception path
-

Post condition
The map has the texture of choice.

Authors	Christoffer, Andreas & Gustav

5.3   High score

ID	5.3
Use case/Scenario	Show the high score list
Trigger	The high score list is requested
Precondition	-

Basic path
The high score activity starts.

Exception path
-

Post condition
A high score list is shown, containing (Req: 5.3.1) for each track and a (Req: 5.3.2).

Authors	Christoffer, Andreas & Gustav

5.3.1 Lowest time on track

ID	5.3.1
Use case/Scenario	Show the fastest time on the track
Trigger	-
Precondition	The high score list is shown (Req 5.3)

Basic path
The fastest time for the track is loaded from the database.

Exception path
The database cannot be accessed.
There is no record for the track.

Post condition
The fastest time for the track is shown.

Authors	Christoffer, Andreas & Gustav

5.3.2 Reset highscores

ID	5.3.2
Use case/Scenario	The user wants to reset all highscores
Trigger	The reset button is clicked
Precondition	The high score list is shown (Req 5.3)

Basic path
A confirmation dialog for reset appears. The high score list resets if the user clicks yes.

Exception path
The database cannot be accessed.

Post condition
The high score list is empty.

Authors	Christoffer, Andreas & Gustav

6 Menus

6.1 In-game

ID	6.1
Use case/Scenario	The in-game menu is accessible within an active game
Trigger	The device menu button is pressed while in an active game
Precondition	A game is active

Basic path
The game pauses.
The in-game menu is shown.

Exception path
-

Post condition
The game is paused.
The in-game menu is visible, containing (Req: 6.1.1), (Req: 6.1.2) and (Req: 6.1.3).

Authors	Christoffer, Andreas & Gustav

6.1.1 Resume

ID	6.1.1
Use case/Scenario	The current game is resumed via the in-game menu
Trigger	The user presses the "Resume" button
Precondition	The in-game menu is shown (Req 6.1.2)

Basic path
The in-game menu is removed.
A specified delay is counted down visibly on the screen.

Exception path
-

Post condition
The in-game menu is no longer shown.
The current game is resumed.

Authors	Christoffer, Andreas & Gustav

6.1.2 Sound

ID	6.1.2
Use case/Scenario	The user shall be able to turn the sound on and off
Trigger	The sound switch state is changed
Precondition	The in-game menu is shown (Req 6.1.2)

Basic path
The sound changes to the state of the switch.

Exception path
-

Post condition
The sound is changed to the state of the switch.

Authors	Christoffer, Andreas & Gustav

6.1.3 End game

ID	6.1.3
Use case/Scenario	The current game can be exited via the in-game menu
Trigger	The "End Game" button is pressed
Precondition	The in-game menu is shown (Req 6.1.2)

Basic path
The current game is turned off.
The main menu activity is requested.

Exception path
-

Post condition
The main menu is shown.

Authors	Christoffer, Andreas & Gustav

6.2   Finished game

ID	6.2.0
Use case/Scenario	A "Finished Game Menu" will be shown on completion of a map
Trigger	The current game is finished
Precondition	-

Basic path
The finished game menu is shown.

Exception path
-

Post condition
The finished game menu is visible, containing (Req: 6.2.1), (Req: 6.2.2), (Req: 6.2.3) and (Req: 6.2.4).

Authors	Christoffer, Andreas & Gustav

6.2.1   Completion time

ID	6.2.1
Use case/Scenario	The user will be shown the completion time of the map
Trigger	-
Precondition	The finished game menu is shown (Req 6.2)

Basic path
If completion time is faster than current high score time for the finished map, the completion time is registered as the new high score time.
The completion time of the map is shown.

Exception path
-

Post condition
If completion time is faster than current high score time for the finished map, the completion time is stored as the new high score time.
The completion time of the map is visible.

Authors	Christoffer, Andreas & Gustav

6.2.2   Next map

ID	6.2.2
Use case/Scenario	The next map can be started from the finished game menu
Trigger	The "Next Map" button is pressed
Precondition	The finished game menu is shown (Req 6.2)

Basic path
A new game with the next map is initated.

Exception path
There is no next map.

Post condition
The new game with the next map is started.

Authors	Christoffer, Andreas & Gustav

6.2.3   Retry

ID	6.2.3
Use case/Scenario	The previous game can be retried from the "Finished Game Menu"
Trigger	The "Retry" button is pressed
Precondition	The finished game menu is shown (Req 6.2)

Basic path
The previous game is re-initiated.

Exception path
-

Post condition
The new game is started.

Authors	Christoffer, Andreas & Gustav

6.2.4 Main menu

ID	6.2.4
Use case/Scenario	The main menu can be reached from the finished game menu
Trigger	The "Main Menu" button is pressed
Precondition	The finished game menu is shown (Req 6.2)

Basic path

The current game is turned off.
The main menu activity is requested.

Exception path

-

Post condition

The main menu is shown.

Authors	Christoffer, Andreas & Gustav

7 Sound

7.1 Collision

ID	7.1
Use case/Scenario	Play sound on collision between ball and wall
Trigger	The ball collides with the wall (Req: 4.2)
Precondition	The sound is turned on

Basic path
The collision sound starts playing.

Exception path
-

Post condition
The collision sound is played.

Authors	Christoffer, Andreas & Gustav

7.2 Sink hole

ID	7.2
Use case/Scenario	Play sound when ball falls into sink hole
Trigger	The ball falls into a sink hole (Req: 4.3)
Precondition	The sound is turned on

Basic path
The sink hole sound starts playing.

Exception path
-

Post condition
The sink hole sound is played.

Authors	Christoffer, Andreas & Gustav

7.3 Final hole

ID	7.3
Use case/Scenario	Play sound when ball falls into final hole
Trigger	The ball falls into the final hole (Req: 4.4)
Precondition	The sound is turned on

Basic path
The final hole sound starts playing.

Exception path
-

Post condition
The final hole sound is played.

Authors	Christoffer, Andreas & Gustav

7.4 New high score

ID	7.4
Use case/Scenario	Play sound when new high score is set
Trigger	A new high score is set
Precondition	The sound is turned on

Basic path
The new high score sound starts playing.

Exception path
-

Post condition
The new high score sound is played.

Authors	Christoffer, Andreas & Gustav

8 Vibration

8.1 Collision

ID	8.1
Use case/Scenario	Vibrate on collision between ball and wall
Trigger	The ball collides with the wall (Req: 4.2)
Precondition	The device shall have a vibrator (Req: 9.3)

The device vibration is turned on

Basic path
The device starts vibrate.

Exception path
-

Post condition
The device is vibrating.

Authors	Christoffer, Andreas & Gustav

8.2 Sink hole

ID	8.2
Use case/Scenario	Vibrate when ball falls into sink hole
Trigger	The ball falls into a sink hole (Req: 4.3)
Precondition	The device shall have a vibrator (Req: 9.3)

The device vibration is turned on

Basic path
The device starts vibrate.

Exception path
-

Post condition
The device is vibrating.

Authors	Christoffer, Andreas & Gustav

8.3   Final hole

ID	8.3
Use case/Scenario	Vibrate when ball falls into final hole
Trigger	The ball falls into the final hole (Req: 4.4)
Precondition	The device shall have a vibrator (Req: 9.3)

The device vibration is turned on

Basic path
The device starts vibrate.

Exception path
-

Post condition
The device is vibrating.

Authors	Christoffer, Andreas & Gustav

8.4   New high score

ID	8.4
Use case/Scenario	Vibrate when new high score is set
Trigger	A new high score is set
Precondition	The device shall have a vibrator (Req: 9.3)

The device vibration is turned on

Basic path
The device starts vibrate.

Exception path
-

Post condition
The device is vibrating.

Authors	Christoffer, Andreas & Gustav

Non-functional requirements

9 Device

9.1 The device shall support Android 2.1

ID	9.1
Use case/Scenario	The device shall support Android 2.1
Trigger	-
Precondition	The device is running Android 2.1 or later

Basic path

-

Exception path

-

Post condition

-

Authors	Christoffer, Andreas & Gustav

9.2 The device shall have an accelerometer

ID	9.2
Use case/Scenario	The device shall have an accelerometer
Trigger	-
Precondition	-

Basic path

-

Exception path

-

Post condition

-

Authors	Christoffer, Andreas & Gustav

9.3 The device shall have a vibrator

ID	9.3
Use case/Scenario	The device shall have a vibrator
Trigger	-
Precondition	-

Basic path

-

Exception path

-

Post condition

-

Authors	Christoffer, Andreas & Gustav

9.4 The device shall have a touchscreen

ID	9.4
Use case/Scenario	The device shall have a touchscreen
Trigger	-
Precondition	-

Basic path

-

Exception path

-

Post condition

-

Authors	Christoffer, Andreas & Gustav

10 Application

10.1 The user shall be able to start the application

ID	10.1
Use case/Scenario	The user shall be able to start the application
Trigger	-
Precondition	-

Basic path

-

Exception path

-

Post condition

The user is able to start the application.

Authors	Christoffer, Andreas & Gustav

10.2 The user shall be able to exit the application

ID	10.2
Use case/Scenario	The user shall be able to exit the application
Trigger	-
Precondition	-

Basic path

-

Exception path

-

Post condition

The user is able to exit the application.

Authors	Christoffer, Andreas & Gustav

10.3 The application shall have access to the devices accelerometer

ID	10.3
Use case/Scenario	The application shall have access to the devices accelerometer
Trigger	-
Precondition	The device shall have an accelerometer (Req 9.2)

Basic path
The application requires access to the accelerometer.

Exception path
Access to the accelerometer is not granted.

Post condition
The application can make use of the accelerometer.

Authors	Christoffer, Andreas & Gustav

10.4 The application shall only make use of the English language

ID	10.4
Use case/Scenario	The application shall only make use of the English language
Trigger	-
Precondition	-

Basic path
-

Exception path
The wrong language is used.

Post condition
The English language is used consistently throughout the interface of the application.

Authors	Christoffer, Andreas & Gustav