



Requirements and Analysis Document for Qwalk

Version 1.2

1 Introduction

This project aims to create the game *Qwalk* as an android application. The users will be able to play alone, against friends or a computer opponent.

The idea of the game originates from the concept of a classic quiz walk, but in a digital interpretation. In the application the users can go premade digital quiz walks or create their own to share with their friends.

The quiz walks takes place on a digital map generated by Google Maps in the phone. The application is GPS-based which lets the player navigate on the digital map by walking around in reality.

Some general characteristics:

- To create a quiz, the user chooses a name and description and adds questions.
- The questions can have between 2-4 options and must have a location.
- When a quiz is created, it can be shared with friends.
- When a user walks a qwalk, he/she must be within a predetermined area around the question to be able to answer it. As soon it is answered, a new question will be shown on the map. This sequence of events will iterate until all questions in the quiz are answered.
- When a qwalk is finished, the user will get points for each right answered question.
- The user can play against a computer opponent and choose to play on three different levels.

The application is aimed to be used mostly for social gatherings, but may also be used for example for educational purposes. It is meant to be used by people of various ages in the range 10-70.

1.2 Definitions, acronyms and abbreviations

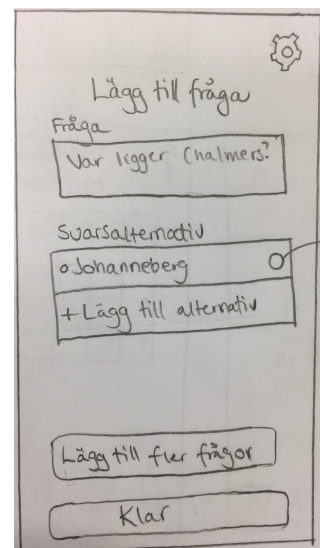
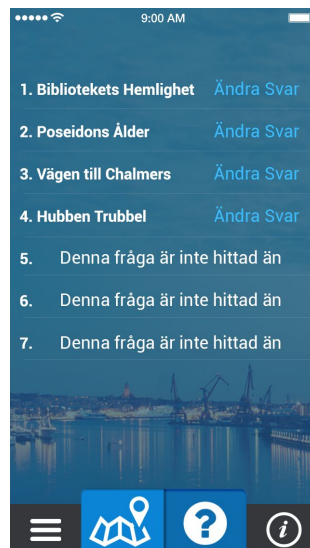
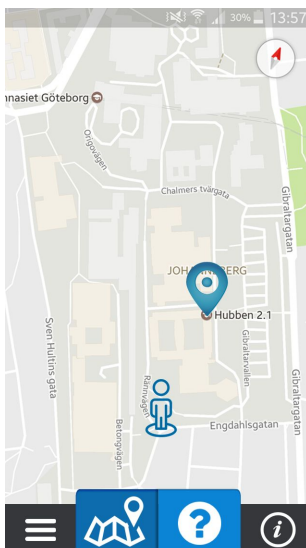
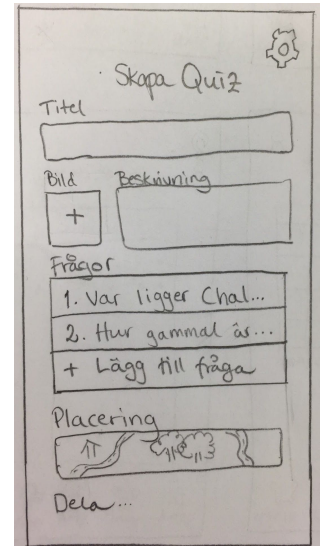
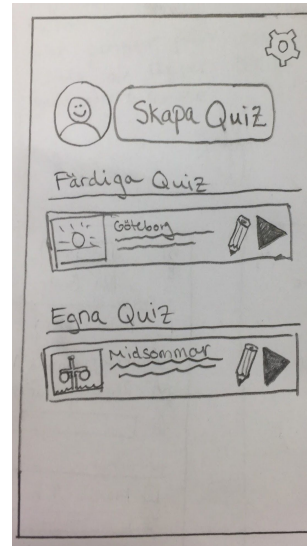
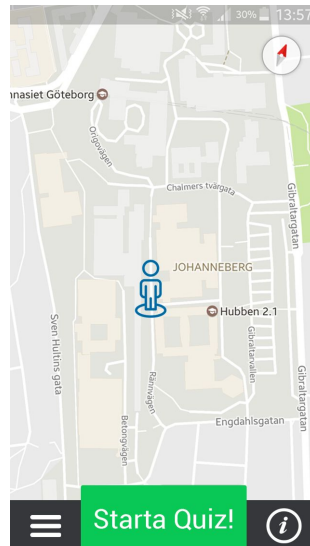
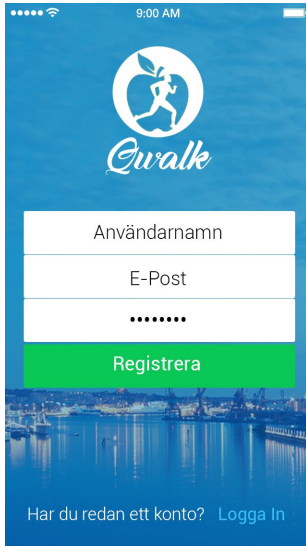
Qwalk - is the actual application but also another name for a quiz walk

Play - is walking and answering the questions in a quiz walk



2 Requirements

2.1 User Interface





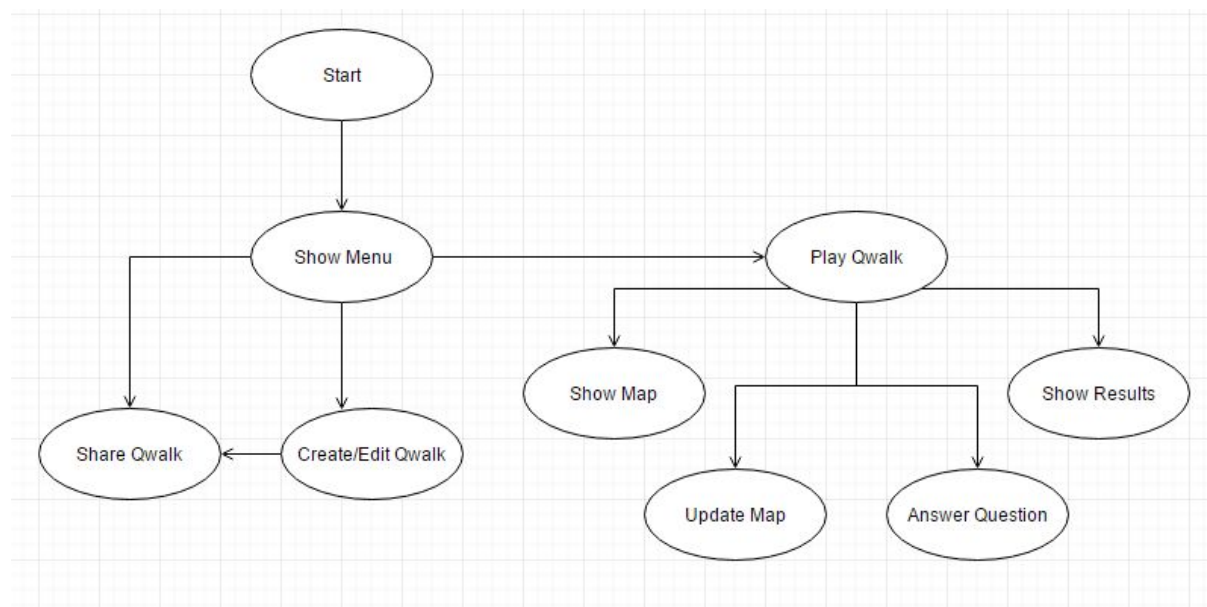
2.2 Functional Requirements

- Start the application. UC 1
- Show a menu. UC 2
- Take an existing quiz walk. UC 3
- Create a new quiz and place the questions on the map. UC 8
- Share quizzes with others so that you can take them together. UC 9
- Create a user account. UC: 1
- Indicator of where the next question is. UC 5
- Show player's current location and the next question on the map. UC 5

2.3 Non-Functional Requirements

- Testable
- Simple
- Free from clutter

3 Use Cases



3.1 Use case listing

3.1.1 Use Case 1: Start

Summary: Starts the application, prepares player for playing or creating Qwalks.

Priority: Medium to high



Extends: None

Includes: UC 2 Show Menu

Participators: Actual player

Normal Flow

User has already signed in during a previous session.

	User	System
1	Starts the application Qwalk.	
2		See <i>UC 2 Show Menu</i>

Alternative flow 1 - Sign In

User is not signed in and has an account.

	User	System
1	Starts the application Qwalk.	
2		Shows fields for entering email/username, password, as well as a register button and a button for “Spela som gäst”.
3	Types in email and password, clicks on “Logga in”.	
4		See <i>UC 2 Show Menu</i>

Alternative flow 2 - Register

User is not signed in and does not have an account.

	User	System
1	Starts the application Qwalk.	
2		Shows fields for entering email/username, password, as well as a register button and a button for “Spela som gäst”.



3	Clicks on “Registrera”.	
4		Shows text fields for email, username, password, an icon for adding a profile image and a button “Registrera”.
5	Types in user information and clicks “Registrera”.	
6		See <i>UC 2 Show Menu</i>

Alternative flow 3 - Play as Guest

User is not signed in and does not want to create an account, plays as guest.

	User	System
1	Starts the application Qwalk.	
2		Shows fields for entering email/username, password, as well as a register button and a button for “Spela som gäst”.
3	Clicks on “Spela som gäst”.	
4		See <i>UC 2 Show Menu</i>



3.1.2 Use Case 2 Show Menu

Summary: The main screen where the user navigates to everywhere else.

Priority: Medium to high

Extends: UC 1 Start

Includes: UC 3 Play Qwalk, UC 8 Create/Edit Qwalk, UC 9 Share Qwalk

Participants: Actual player

Normal Flow - Start a Qwalk

	User	System
1		Shows a scrollable screen with lists of featured Qwalks and a button for creating new Qwalks.
2	Selects a Qwalk	
3		Shows a detailed view of the selected Qwalk, with title, description and image. Also shows buttons for playing qwalk, sharing qwalk and if allowed, editing qwalk.
4	Presses Play Qwalk	
5		See UC 3 Play Qwalk

Alternative flow 1 - Edit a Qwalk

	User	System
1		Shows a scrollable screen with lists of featured Qwalks and a button for creating new Qwalks.
2	Selects a Qwalk	
3		Shows a detailed view of the selected Qwalk, with title, description and image. Also shows buttons for playing qwalk,



		sharing qwalk and if allowed, editing qwalk.
4	Presses Edit Qwalk	
5		See <i>UC 8 Create/Edit Qwalk</i>

Alternative flow 2 - Share a Qwalk

	User	System
1		Shows a scrollable screen with lists of featured Qwalks and a button for creating new Qwalks.
2	Selects a Qwalk	
3		Shows a detailed view of the selected Qwalk, with title, description and image. Also shows buttons for playing qwalk, sharing qwalk and if allowed, editing qwalk.
4	Presses Share Qwalk	
5		See <i>UC 9 Share Qwalk</i>

Alternative flow 3 - Create a Qwalk

	User	System
1		Shows a scrollable screen with lists of featured Qwalks and a button for creating new Qwalks.
2	Presses New Qwalk	
3		See <i>UC 8: Create/Edit Qwalk</i>



3.1.3 Use Case 3: Play Qwalk

Summary: The player has chosen a qwalk to play and wants to start the quiz walk.

Priority: High

Extends: UC 2 Show Menu

Includes: UC 4 Show Map, UC 5 Update Map, UC 6 Answer Question, UC 7 Show Results

Participators: Actual player

Normal Flow

	User	System
1		See UC 4 Show Map
2		See UC 5 Update Map
3	Walks around on the map.	
4		Repeat from step 2 until the player is in range of a question.
5		Changes the question pin to a clickable bigger visible pin.
6	Presses the Question pin.	
7		See UC 6 Answer Question
8		Repeat from step 1, until there are no more available questions or the user ends the game.
9		See UC 7 Show Results



3.1.4 Use Case 4: Show Map

Summary: The system shows the map and the avatar, as well as pins and buttons and timers etc.

Priority: High

Extends: UC 3 Play Qwalk

Includes: None

Participators: System

Normal Flow

	System
1	Show Mapview, available question pins and avatar and zoom in on current position.

Alternative flow 1 - Hidden Questions Challenge

If Hidden Questions challenge is enabled, do the following.

	System
1	Show Mapview, geographical bounds and avatar and zoom in on current position. Shows text "Keep on searching until you find a question symbol".

Alternative flow 2 - Speed Challenge

If Speed Challenge is enabled, do the following.

	System
1	Show Mapview, pins of all enabled questions, avatar and zoom in on current position and a timer.

Alternative flow 3 - Monkey Challenge

If Monkey Challenge is enabled, do the following.

	System
1	Show Mapview, pins of all enabled questions, avatar and zoom in on current position and the monkey.



3.1.5 Use Case 5: Update Map

Summary: The system updates the map and the location of both the avatar and the monkey, as well as shows pins, buttons and timers etc.

Priority: High

Extends: UC 3 Play Qwalk

Includes: None

Participants: System

Normal flow

	System
1	Update the direction of the arrow that points to the next question, move the avatar to the player's current position and center the view on the avatar.

Alternative flow 1 - Hidden Questions Challenge

If Hidden Questions is enabled, do the following.

	System
1	Move the avatar to the player's current position and center the view on the avatar.

Alternative flow 2 - Speed Challenge

If Speed Challenge is enabled, do the following.

	System
1	Update the direction of the arrow that points to the next question, move the avatar to the player's current position and center the view on the avatar. Update the timer.

Alternative flow 3 - Monkey Challenge

If Monkey Challenge is enabled, do the following.

	System
1	Update the direction of the arrow that points to the next question, move the avatar to the player's current position and center the view on the avatar.
2	Move the monkey towards its next question or sometimes, make the monkey



	eat a banana, slip on a banana peel or juggle coconuts.
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Combined flows are also possible, but too numerous.

3.1.6 Use Case 6: Answer Question

Summary: The user has found and clicked on a question pin, and is now about to answer a question.

Priority: High

Extends: UC 3 Play Qwalk

Includes:

Participators: Actual player

Normal Flow

	User	System
1		Shows the question view, the title of the question, the question and the answer options. There is a button "Svara" in the lower part of the screen.
2	Clicks on the chosen answer.	
3		Change color on the button for the chosen answer and enable "Svara"-button.
4	Clicks on "Svara".	

Alternative flow 1 - Time Challenge

If Time Challenge is enabled, do the following.

	User	System
1		Shows the question view, the title of the question,



		the question, the answer options and a timer in the upper right corner.
2	Clicks on the chosen answer.	
3		Timer stops.
4	Clicks on “Stäng”.	

Alternative flow 2 - Monkey Challenge

If Monkey Challenge is enabled, do the following.

	User	System
1		Shows the question view, the title of the question, the question and the answer options. There is a button “Svara” in the lower part of the screen.
2	Clicks on the chosen answer.	
3		Change color on the button for the chosen answer and enable “Svara”-button.
4	Clicks on “Svara”.	
5		Show a text “Apans svar” on the monkey’s answer choice. Also show a “Stäng” button.
6	Clicks on “Stäng”	



3.1.7 Use Case 7: Show Results

Summary: The user has finished the quiz walk and is now presented with the results

Priority: low

Extends: UC 6: Answer Question

Includes: none

Participants: User

Normal Flow

	User	System
1		Shows all questions, what answer the user chose, whether it was the right one, how close they were to the tiebreaker. If playing with the bot/monkey, show comparison.
2	Presses "Done"	



3.1.8 Use Case 8: Create/Edit Qwalk

Summary: Create or edit new quiz.

Priority: High

Extends: UC 2: Show Menu

Includes: UC 9: Share Qwalk

Participants: Actual Player

	User	System
1		Shows page for “Skapa nytt quiz/qwalk”. There are fields for: <ul style="list-style-type: none">- Title- Description- Image- New question- Set positions- Share- ...
2	Fills in title, description, adds an image. Clicks on “+Ny fråga”.	
3		Shows form for “Skapa ny fråga”. The title in the form is “Fråga x”, where x is the number of the question. There is an icon for adding an image under the title. There is a text field for filling in the question and text fields for filling in the answer options. A button for “Nästa” and “Föregående” is shown in the lower corners and a button for “Klar med frågorna” between them.
4	Fills in question, answer options and adds an image. Clicks on “Nästa”.	



5		Iterate from step 3 until “Klar med frågorna” is clicked.
6	Clicks on “Klar med frågorna”.	
7		Go back to page for creating the quiz/qwalk.
8	Clicks on “Placera ut frågorna”.	
9		A map is shown in full screen and focuses on the current position. A button “Klar med placering” is shown on the screen.
10		A pin is located in the lower right corner next to the number of the question that the user is placing and the text “Välj placering på frågan”.
11	Clicks on preferred position for the question on the map.	
12		The pin “falls down” on chosen position on the map. Iterate from step 10 until all questions are placed.
13	Clicks on “Klar med placering”.	
14		Go back to the form for creating the quiz/qwalk.
15	Clicks on “Dela med vänner”.	
16		See <i>UC 5: Share Qwalk</i>
17	Clicks on “Skapa quiz”	
18		Shows lists over all quizzes with the recently created quiz at the top of the list under “Egna quiz/qwalks”.



3.1.9 Use Case 9: Share Qwalk

Summary: Share Qwalks to enable other users to play the Qwalk.

Priority: Low

Extends: UC 2: Home page, UC 4: Create/Edit Qwalk

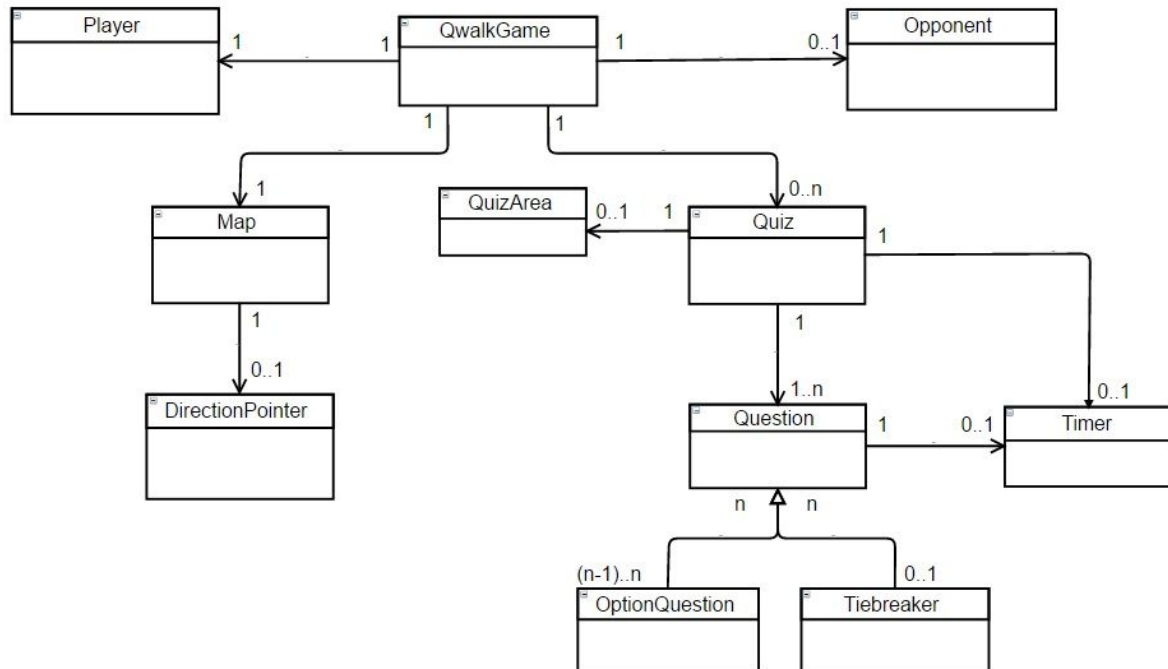
Includes: None

Participants: Actual player

	User	System
1		New page with title "Share with friends". Shows a search field.
2	Types in username to find that user's quizzes.	
3		Shows lists of searchresult.
4	Clicks on preferred user.	
5		Shows a list of that user's quizzes.
	...	



4 Domain Model



4.1 Class Responsibilities

QwalkGame is responsible for the game flow, initializing and keeps track of which challenges are enabled.

Monkey keeps track of its own functionality as well as its answers to questions, and its own score.

Player keeps track of its answers to the questions.

Quiz has question objects, a title, a description, a picture. Keeps track of all available questions.

Question and its subclasses has a question, alternatives, the right answer, a position and eventually a QuestionTimer if certain settings are set.

Map checks distances and oversees how its related classes work together. Might have player location.

DirectionPointer will point in the direction of the closest available visible question.



GeoBounds keeps track of the bounds in which a Hidden Questions Challenge game takes place

5 References