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**NAVIGATION ON A SKI SLOPE
TECHNICAL DOCUMENTATION FOR SOFTWARE ANALYSIS AND
DEVELOPMENT PROJECT**

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PROJECT DOCUMENTATION FOR SOFTWARE ANALYSIS AND
DEVELOPMENT PROJECT

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1 Introduction

1.1 Purpose of this document

The purpose of this document is to give a detailed description of the requirements for the navigation on a ski slope software, called “EvoSki”. This document will explain the purpose and features of the application, interfaces of the application, what the application will do, the constraints under which it must operate and how the system will react to external stimuli. This document is intended for both the stakeholders and the developers of the application and will be proposed to the Evolaris company.

1.2 Intended Audience

The intended audiences are:

- Course mentors, to analyse the design and implementation of EvoSki app
- Evolaris mentors, to analyse the design and implementation of EvoSki app
- Authors of this document
- Eventual further developers

1.3 Scope

This application will be a mobile application developed for the Evolaris GmbH company. The application will be designed for use on ski goggles to notify the user when he deviates from ski slope and to point in which direction he should turn, so he can enjoy skiing and be safe at same time.

1.4 Definitions and acronyms

1.1.1 Definitions

Keyword	Definition
Recon Snow2	Ski goggles with integrated head-up display.

1.1.2 Acronyms and abbreviations

Acronym or abbreviation	Definition
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API	Application Programming Interface.
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2 General overview

2.1 Technologies used

EvoSki app is mobile application which is using Evolaris' webserver for fetching data about ski routes. While working on this application we used various technologies and tools for different activities.

Modelling tools (conceptual model, activity and class diagram, system architecture)

Visual Paradigm for activity diagrams

Version control system:

Github repository available at:

<https://github.com/rskuljev/Navigation-on-a-ski-slope/>

Web service and database:

Used for testing purposes: FileZilla Client and MySQL database

Used for application: web service given to us by Evolaris

Application development tools:

Android Studio ver 1.4, Genymotion

Microsoft Visual Studio 2010 (used for algorithm development)

2.2 General functioning

EvoSki application has the following functions:

Obtaining user GPS coordinates

Showing user's location on a map

Getting track coordinates

Recognizing where user should turn next and how sharp the turn is

Notifying the user where he should turn before approaching junction

Notifying the user if he deviates from track

2.3 Error handling

Application currently has no error handling.

3 User requirements specification

3.1 Introduction

3.1.1 Objectives

This is the User Requirements Specification for Navigation on a ski slope project, for use by Evolaris GmbH, team members and project mentors. In this section we will be determining the project's scope, user requirements that need to be satisfied in our mobile application and describing our task assigned to us by Evolaris' mentors.

3.1.2 History

Evolaris GmbH already has a similar application developed but they had some problems with it and would like the formerly defined functionalities to be implemented. Evolaris has sent us technical documentation and sample data on their existing web service so we can develop the application further.

3.1.3 Scope

While doing this project we are expected to create mobile application which will enable user to notify user when he gets off slope, also our application will enable user to see in which angle is he approaching the turn.

3.2 Organisational / Functional Areas Affected

3.3.1 Assumptions

The data that we use in application is from existing Evolaris GmbH webserver. Web service calculates ski slope itself and sends point on slope to our application. The problem is that slope is in Graz, Austria and our team did not have opportunity to test application in real life situation.

3.3 Requirements

All requirements are defined in point form and are rated either Mandatory (M) or Highly Desirable (HD) or Desirable (D), dependent on business need and University Policy.

3.3.1 Functional Requirements

3.3.1.1 Common Features

Requirement	Preference
1.1.1.1. User is aware of sharpness of the turn	M
1.1.1.2 User is notified when leaves ski slope	HD
1.1.1.3 User is shown picture of turn when he gets near turn	D

3.3.1.2 Reporting

Requirement	Preference
1.1.1.4 Project documentation	M
1.1.1.5 Notes from SCRUM meetings	D

3.3.1.3 Production Requirements

3.3.1.4 Hardware

Requirement	Preference
1.1.1.6 Mobile device	M
1.1.1.7 Recon snow2	D

3.3.1.5 Software

Requirement	Preference
1.1.1.8 Android min API 16	M

3.3.2 3.3.3. Development Requirements

3.3.1.6 Hardware

Requirement	Preference
1.1.1.9 Mobile device	M
1.1.1.10 Recon snow2	D

3.3.1.7 Software

Requirement	Preference
1.1.1.11 Android studio	M
1.1.1.12 Genymotion	D
1.1.1.13 Microsoft Visual Studio	D
1.1.1.14 Evolaris Web Service	M

4 Technical requirements

4.1 Evolaris Web service

Evolaris provided us with their web service which we used for getting information about slope.

5 EvoSki source structure