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Contents

Chapter 1. Introduction 2

Chapter 2. Project management 3

1. Basic building blocks 3
2. Softwares used for project management 3
3. Meetings 3

Chapter 3. Initial planning 4

1. Shortest path A -¿ B 4
2. title 4

Chapter 4. Plan of implementation 5

Chapter 5. Path algorithms 6

1. Street data 6
2. DB class structure 6
3. Algorithms - shortest path 6
4. Radius search 6
5. Bicycle search 6

Chapter 6. GUI 7

1. C++ 7
2. Matlab 7

Chapter 7. c++ vs matlab 8

Bibliography 9

CHAPTER 1

Introduction

As a project at Software Engineering class we had to develop an application that to some extent mimics well known Google Earth. The main idea is to give an user who is unfamilliar with Le Creusot the tool that enables him to search for shortest path between two points on the map, enables him to create an itinerary containing different types of points of interest. We had to do all this in C++ and in Matlab.

CHAPTER 2

Project management

In this chapter we want to present how our group organized and managed this project. As we all had a bit of software designing experiences, we knew how important a proper plan and research before the implementation is. Unfortunately, we were also aware that no matter how good the plan is, we will be forced to adjust it during the implementation, because of the things we did not take into account while planning or because some things turned out to be different to what we assumed. Because of that we decided to follow the iterative and incremental development model, which enabled us to adjust our plans after each of the implementation iterations. A schematic representation of the iterative and incremental development model can be seen on figure [].

1. Basic building blocks

To be able to fully manage the project at all times we decided to split the project into four main parts (user interface, map representation, path algorithms and database).

2. Softwares used for project management

Github, skype etc.

3. Meetings

some bullshit about that

CHAPTER 3

Initial planning

As already mentioned in the previous chapter, we decided to use the iterative and incremental development model. Before starting the iterations we spend quite a lot of time on the initial planning, with special attention to user and general project requirements analysis. From the project's instructions we were able to identify XXX major user requirements:

- user should be able to enter point either by:
  - mouse click
  - specifying latitude and longitude
  - selecting a point of interest
- find shortest path from point A to point B (by foot or by car)
- find all points of interest in a certain radius from point A (by foot or by car)
- construct an itinerary from point A to point B with points of interest in between (with max distance limit)

For each of them we constructed use case diagram to help us while implementing all of them.

1. Shortest path A -¿ B

2. title

CHAPTER 4

Plan of implementation

Just how we split matlab and c++ in gui parts

CHAPTER 5

Path algorithms

1. Street data

What did we use...open street map...shot introduction into nodes, relations etc.

2. DB class structure

3. Algorithms - shortest path

3.1. A*.

4. Radius search

5. Bicycle search

CHAPTER 6

GUI

1. C++

1.1. UI.

1.2. OpenGL.

2. Matlab

2.1. UI.

2.2. library for maps.

CHAPTER 7

c++ vs matlab

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