

User REquirements Specification



First Version

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# Introduction

User Requirements Specification document introduces you to the requirements which our application will meet and the features it will possess. Every software application which is to be developed needs to meet two kinds of requirements – functional and non-functional.

We described the functional requirements using use-cases.

Use-cases can be very helpful describing the flow of actions between the user and the system. Inside the document there are [X] use-cases. They are described in a structured and neat way. Each use-case has its own extensions below their Main Success Scenario.

Non-functional requirements of an application have to deal with its quality aspects. We briefly emphasized on the most important non-functional requirements. We included brief examples about accessibility, efficiency, maintainability, usability and reusability.

# Functional requirements (use-cases)

THIS ONE IS EXAMPLE !!!

## Undo last change

Goal level: Sea level

Actor: User

Pre: At least one modification had been made

Main Success Scenario:

1. User clicks on “undo” option in the menu

2. System depicts the network by one action backwards.

Extensions:

1a. if there are no changes

* The undo button is not active.

Note: The user can click on the button a maximum of 5 times, or until no changes are found and the button is disabled.

## Remove a crossing

Goal level: Sea level

Actor: User

Pre-condition: The application is running and the simulation isn’t running

Main Success Scenario:

1. User drags the crossing into the recycle bin.

2. System removes it from the grid and places it into the recycle bin

Extension:

1a. User ends drag before on top of recycle bin

System does nothing, crossing remains in place

## Create a new file

Goal level: Sea level

Actor: User

Pre-condition: The application is running

Main Success Scenario:

1. User clicks “New” button.
2. System creates an empty project.

Extension:

1. Other project is already open.

System will ask the user whether to save or not save the current project.

## Edit a roads traffic flow

Goal level: Sea level

Actor: User

Pre-condition: The application is running and the simulation isn’t running

Main Success Scenario:

1. User clicks on a road
2. System highlights the road and shows the current traffic flow
3. User inputs the new flow
4. System sets the number as the current flow

Extension:

3a. User sets a negative or a value that is too high

System gives an error message

## Start a simulation

Goal level: Sea level

Actor: User

Pre-condition: The simulation is not currently running

Main Success Scenario:

1. User clicks “Start” button
2. System check the status
3. System starts simulation

Extension:

1. There is uncompleted required information.

System will display errors and let the user to fix them.

1. There are required information not meet the rules.

System will display errors and let the user to fix them.

## Pause a simulation

Goal level: Sea level

Actor: User

Pre-condition: The application is running and the simulation is running

Main Success Scenario:

* 1. User clicks the “Pause” button
  2. System pauses the simulation

## Undo an action

Goal level: Sea level

Actor: User

Pre-condition: The simulation is not currently running

Main Success Scenario:

1. User clicks “Undo” button
2. System undo the last action

Extension:

1. The simulation is still running.

System will display an error message and ask the use to stop the simulation.

## Show the help window

Goal level: Sea level

Actor: User

Pre-condition: The application is running

Main Success Scenario:

1. User clicks the “About” tab from the application menu
2. System shows a drop down menu with the available options
3. User clicks on “Help”
4. System shows a window with basic instruction on how to use the application

## Exit application

Goal level: Sea level

Actor: User

Pre-condition: The application is running

Main Success Scenario:

1. User clicks “x”(on the top right) button.
2. System closes the application.

Extension:

1. The currently project is not saved.

System will ask the user whether to save or not save the current project.

## Startup the application

Goal level: Sea level

Actor: User

Pre-condition: The application is not running

Main Success Scenario:

1. User double clicks on the executable
2. System starts the application

## Show simulation result

Goal level: Sea level

Actor: User

Pre-condition: The application is running

Main Success Scenario:

1. User clicks “Show Simulation” button.
2. System pops up a load simulation result dialog.
3. User chooses the simulation result file.
4. System displays the simulation result

Extension:

1. There is current simulation result shown.
2. System will check whether the simulation result is saved or not
3. System will ask the user whether save or not the result if it is not saved.
4. System will ask the user whether close the current and open a new one or not.

## Edit a crosswalks pedestrian flow

Goal level: Sea level

Actor: User

Pre-condition: The application is running and the simulation is not running

Main Success Scenario:

1. User clicks on a crosswalk
2. System highlights the crosswalk and shows the current flow in a text box
3. User inputs a new value for the flow
4. System sets the value as the current pedestrian flow

Extension:

3a. User sets a negative or a value that is too high

System gives an error message

# User interface

# Non-functional requirements

Of course when using an application the things that can bother us or make us happy are not always related to the product’s functionality. What about Usability, Reliability, Performance and Maintainability?

1. Usability – Our application will meet all the requirements to achieve quantified objectives with effectiveness, efficiency and user satisfaction.
2. Performance – The amount of useful work accomplished by the application compared to the time and resources used is relatively huge.
3. Reliability – Our application will be able to function under stated conditions for a specified period of time. All the results returned from the software will be absolutely correct and precise.
4. Maintainability – Our software will be free of defects, it will meet all the requirements and if and error occurs it will be easily dealt with.

# Appendix A: Definitions

1. Crossing

* Representation of real crossroad, displayed on the grid in the application. Crossings are of two types.

1. Road

* Representation of real road, which is a connection between crossings or connection to crossing.

1. Simulation

* Simulation is a representation of real situation on the crossroad. Including the cars, the pedestrians and traffic lights. It gives realist view of what will happen in certain situation.

1. Traffic Flow

* The amount of car objects which are present on the roads in certain stimulation (in the application)

1. Pedestrian Flow

* The amount of pedestrian objects, which are present on certain stimulation (in the application)

1. Simulation results

* Graphical representation of statistics. Information about traffic statistics on certain stimulation.

1. Help menu

* Option menu, which is present in the application. It gives assisting information to the user about how to use the application