Salute Trasparente

Requirements Specification

Version:

2.0

Date:

09/11/2017

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CONTENT 2

INTRODUCTION

Overview

The purpose of this document is to provide detailed information needed to develop the application and functionality. In particular we will analyze the purpose, operation and services that the application can offer to the user.

We will also evaluate the functional and non functional requirements that the application will have to comply with it feasibility study, requirement analysis and their definition, providing the specification and ending with the validating and verifying it.

Document description

- System models: system analysis through the use of UML language. The analysis is done by providing different use cases which describe the behaviour of a hypothetical user interaction with the app.

ID	Unique identifier for a use case
Name	The name of a use case
Goal	The purpose of a use case
Actor	Entities which interact with the system
Pre-Conditions	Conditions which need to be satisfied in order to allow the user to trigger the use case
Trigger	Event which triggers the use case
Description	The description of the sequence of steps of the interaction between the user and the system
Dependencies to other use cases	Links between use cases that show connections in the functioning of the system.
Alternative flow	Alternative flow of events.
Post-Conditions	Conditions which need to be satisfied in the end of the use case

- Functional requirement definition: description of the services that the system provides to the end user. The scheme used for the description of the functional requirements is as follows:

ID	Unique identifier for a functional requirement
Name	The name of a functional requirement
Description	The description of a functional requirement
Reason	The reason why a functional requirement is needed
Use case ID	The unique identifier of the use case related to this functional requirement

- Non-functional requirement definition: description of constraints which the system must comply with. The scheme used for the definition of non-functional requirements is as follows:

ID	Unique identifier for a non functional requirement
Description	The description of a functional requirement
Reason	The reason why a non functional requirement is needed
Type	The type of a non functional requirement

- System evolution: anticipations about some possible upgrades or changes to the application.

- Requirements specification:

ID	Unique identifier for a requirement specification
Input	Input value for a requirement specification
Output	Output value for a requirement specification
Pre-Condition	Conditions which need to be satisfied in order to allow the user to trigger the use case
Post-Condition	Conditions which need to be satisfied in the end of the use case

Glossary

It is a list of all technical and specific terms used in this document, in order to facilitate the explanation for less experienced users .

Open data: data with public access relative to a specific field.

Android: is an operating system for mobile devices developed by Google.

Map: is a web mapping service developed by Google. It offers satellite imagery, street maps, 360° panoramic views of streets (Street View), real-time traffic conditions (Google Traffic), and route planning for traveling by foot, car, bicycle (in beta), or public transportation.

Requirement: a requirement is a singular documented physical and functional need that a particular design, product or process must be able to perform.

Functional requirement: a functional requirement defines a function of a system or its component. A function is described as a set of inputs, the behavior, and outputs.

Non functional requirement: is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviors.

UML: the Unified Modeling Language (UML) is a general-purpose, developmental, modeling language in the field of software engineering, that is intended to provide a standard way to visualize the design of a system.

Use case: in software and systems engineering, a use case is a list of actions or event steps, typically defining the interactions between a role (known in the UML as an actor) and a system to achieve a goal.

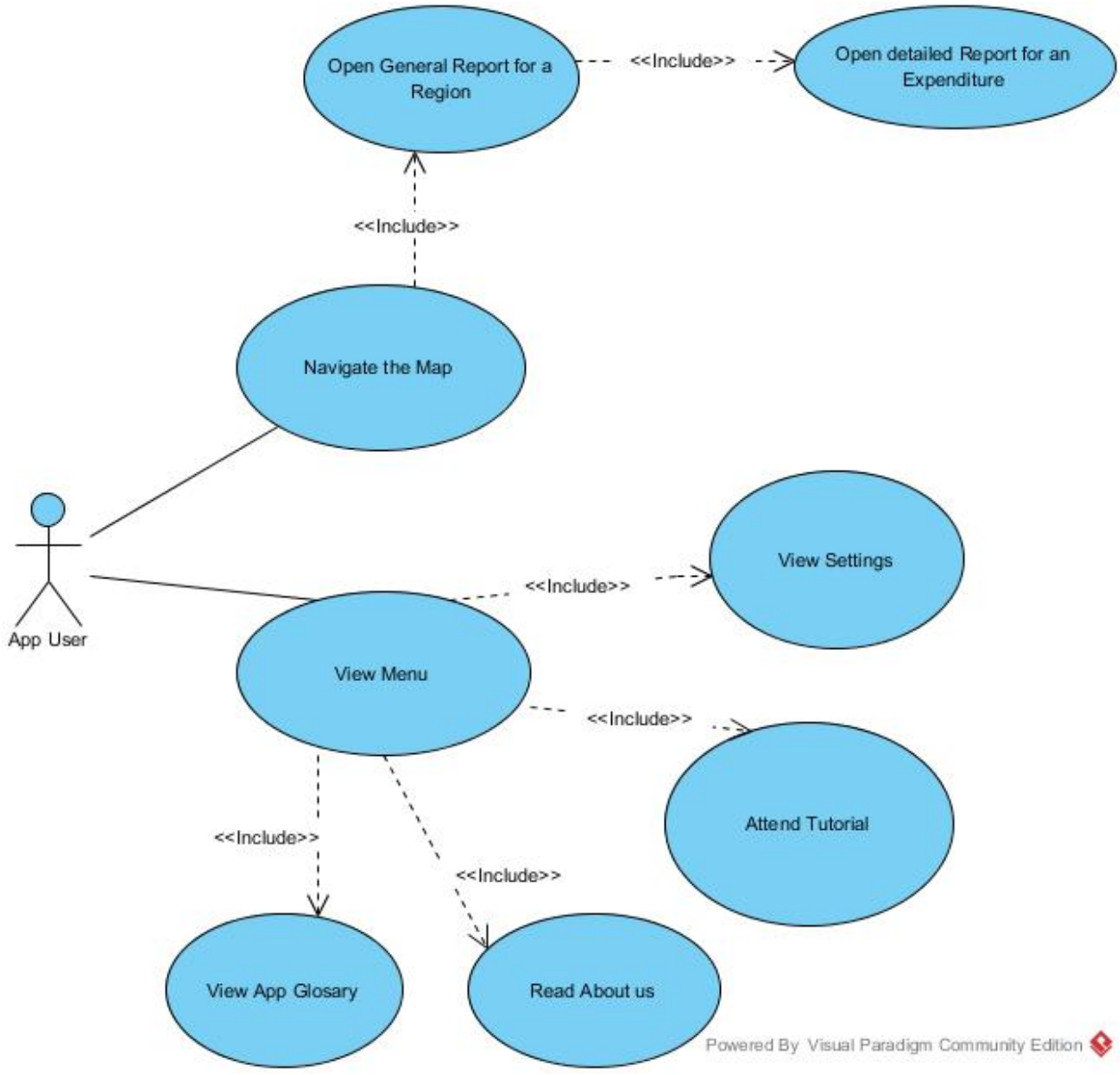
<<include>> – between two use-cases; the included UC is a reusable use-case that is unconditionally incorporated into the execution of the including UC; the including (calling) UC decides when and why to use the included UC.

Association: is a relationship between two objects. In other words, association defines the multiplicity between objects.

SYSTEM MODELS

We have used a Design & Management Tool for IT System Development software called Visual Paradigm to create the use cases diagram.

Use cases diagram



Use cases definition

ID	UC-01
Name	Navigate the map
Goal	The user can navigate through the map and access the statistics for a region.
Actor	App User
Pre-Conditions	The system is displaying the map
Trigger	The user starts the application
Description	1. The user starts the application 2. The system displays the map 3. The user moves through the map of Italy by scrolling 4. The user zooms in or zooms out 5. The user clicks on a region to get to the next use case 6. The system provides the user with map informations
Dependencies to other use cases	Includes UC-02. Association link to the App User.
Alternative flow	None.
Post-Conditions	The system is displaying the map or the statistics for a region.

ID	UC-02
Name	Open General Report for a Region
Goal	The user can see, in particular, detailed charts about the region's health expenditures
Actor	App User
Pre-Conditions	1. The user has clicked on a region 2. System is displaying charts on the screen
Trigger	The user clicks on a region on the map
Description	1. The user clicks on a region on the map 2. The system searches in the system database the specific charts for the clicked region 3. The system displays the charts for that region 4. The user can click on one chart and then get to the next use case
Dependencies to other use cases	Included in UC-01. Includes UC-03.
Alternative flow	None.
Post-Conditions	The system is displaying the charts for a region.

ID	UC-03
Name	Open Detailed Report for an Expenditure
Goal	The user views information about an expenditure
Actor	App user
Pre-Conditions	1. The user has clicked on a chart 2. System is displaying informations on the screen
Trigger	The user clicks on a chart
Description	1. The user clicks on a chart from the list of the charts 2. The system searches in the system database the specific informations about the clicked chart 3. The system displays the informations about the accessed chart 4. The user can scroll or press the back button to get to the charts screen
Dependencies to other use cases	Included in UC-02
Alternative flow	None.
Post-Conditions	The system is displaying the detailed informations about an expenditure from the charts

ID	UC-04
Name	View Menu
Goal	The user can navigate through the menu and access different options.
Actor	App User
Pre-Conditions	The application is started and it displays the map and the menu button.
Trigger	Click on the menu button.
Description	1. The user clicks on the menu button 2. The system displays a drop-down menu with three entries 3. The user can click on any of them 4. The system displays the screen that is for the option from the menu where the user has clicked
Dependencies to other use cases	Includes UC-05, UC-06 and UC-07. Association link to the App User.
Alternative Flows	Alternative Flow 1: 1.1.The user opens the menu and clicks on the "General Information" button 1.2.The system displays the screen with General Information Alternative Flow 2: 2.1.The user opens the menu and clicks on the "Glossary" button 2.2.The system displays the screen with Glossary Alternative Flow 3: 3.1.The user opens the menu and clicks on the "Tutorial" button 3.2.The system displays the screen with Tutorial Alternative Flow 4: 4.1.The user opens the menu and clicks on the "Settings" button 4.2.The system displays the screen with Settings
Post-Conditions	The system displays one of the screens for the option that was clicked on by the user.

ID	UC-05
Name	Attend Tutorial
Goal	The user can do the tutorial and learn how to use the application
Actor	App User
Pre-Conditions	Alternative flow 1 in UC-04 accessed
Trigger	The user clicks on the attend tutorial button
Description	1. The menu drop-down is opened 2. The user clicks the "Tutorial" option 3. The system displays the first screen of the Tutorial 4. The user can navigate through the Tutorial using the "Next" and "Previous" buttons
Dependencies to other use cases	Included in UC-04
Alternative flow	1. Alternative Flow 1: 1.1. User goes through the pages of the Tutorial clicking the "Next" button 1.2. User clicks the "←" button in the left high corner of the screen 1.3. System returns to the Menu 2. Alternative Flow 2: 2.1. User goes through the pages of the Tutorial clicking the "Next" button 2.2. User clicks "←" to exit the Tutorial 2.3. System returns to the map
Post-Conditions	The system displays the remaining pages of the Tutorial or the menu and map.

ID	UC-06
Name	View App Glossary
Goal	The user can read the description of expenditures
Actor	App User
Pre-Conditions	Alternative flow 2 in UC-04 accessed
Trigger	User clicks the "App Glossary" button in the menu
Description	1. The menu drop-down is opened 2. The user clicks the "Glossary" option 3. The system displays the screen with the definitions of every expenditure code 4. The user clicks the "←" button in the left high corner of the screen 5. System displays the map
Dependencies to other use cases	Included in UC-04
Alternative flow	None.
Post-Conditions	The system displays the Glossary screen or the map.

ID	UC-07
Name	Read About Us
Goal	The goal of General Information is to provide the user with informations about the team,version of application, etc.
Actor	App user
Pre-Conditions	Alternative flow 3 in UC-04 accessed
Trigger	User clicks the "About Us" button on the menu
Description	1. The menu drop-down is opened 2. The user clicks the "About Us" option 3. The system displays the screen with the information about the team of developers that created the app and other information about the application 4. The user clicks the "←" button in the left high corner of the screen 5. System displays the map
Dependencies to other use cases	Included in UC-04
Alternative flow	None.
Post-Conditions	The system displays the About Us screen or the map.

ID	UC-08
Name	View Settings
Goal	The goal of the Settings is to provide a more customizable user experience of the app.
Actor	App user
Pre-Conditions	Alternative flow 4 in UC-04 accessed
Trigger	User clicks the "Settings" button on the menu
Description	1. The menu drop-down is opened 2. The user clicks the "Settings" option 3. The system displays a screen which contains two options describing 2 alternative flows 4. The user clicks the "←" button in the left high corner of the screen 5. System displays the map
Alternative Flows	Alternative flow 1: 1.1. The user taps on the "Stile Mappa" button 1.2. The user gets to a screen where he can change the way the map show, he has 4 choices of visualization that he can choose from 1.3. The user presses the "Cancel" button and returns to the Settings screen Alternative flow 2: 2.1. The user taps on the "Soglia di Zoom" button 2.2. The user gets to a screen where he can change the way the map show, he has 3 choices of zoom that he can choose from 2.3. The user presses the "Cancel" button and returns to the Settings screen
Dependencies to other use cases	Included in UC-04
Alternative flow	None.
Post Conditions	The system displays the Settings screen or the map.

FUNCTIONAL REQUIREMENTS DEFINITION

ID	FR-01
Name	The system provides the user with an interactive and navigable map
Reason	The map is needed in order to access other data
Use case ID	UC-01

ID	FR-02
Name	The system allows the user to visualize a report
Reason	The report is needed in order to consult data
Use case ID	UC-02, UC-03

ID	FR-03
Name	The system allows the user to navigate through functions of the menu
Reason	The menu is needed in order to better use the app
Use case ID	UC-04

ID	FR-04
Name	The system provides the user with a step by step tutorial
Reason	A tutorial will help users to familiarize with the app
Use case ID	UC-05

ID	FR-05
Name	The system provides the user with an app glossary
Reason	The app dictionary help users to understand ambiguous terminology
Use case ID	UC-06

ID	FR-06
Name	The system allows the user to consult a About Us section
Reason	The info section help users to understand the app
Use case ID	UC-07

ID	FR-07
Name	The system provides the user with settings
Reason	Using the settings screen the user can change the way the map looks like and the level of zoom
Use case ID	UC-08

NON-FUNCTIONAL REQUIREMENTS DEFINITION

- Product requirements: Specify that the product must behave in a certain mode, e.g. execution speed, reliability, etc.
- Process requirements: Requirements that are a consequence of type choices organisation, e.g. the process standard used, implementation requirements etc.
- External requirements: Requirements arising from factors external to the system and to its development process, e.g. legislative requirements, ethics etc.

Product requirements

ID	NFR-01
Description	The user will be prevented from navigating outside the Italian map
Reason	The app does not provide any functionality for foreign countries
Type	Usability

ID	NFR-02
Description	The report will be available as a set of diagrams (e.g. pie chart, histogram etc.)
Reason	Diagrams allow for data visualization at different levels
Type	Usability

ID	NFR-03
Description	The menu will be a drop down
Reason	A drop down menu keep the device screen cleaned
Type	Usability

ID	NFR-04
Description	The app glossary will be a list of terms
Reason	/
Type	Usability

ID	NFR-05
Description	The about us section will be a text page
Reason	/
Type	Usability

ID	NFR-06
Description	A pop-up step-by-step text page will be provided
Reason	Comply to contractual agreement
Type	Deliveries

Process requirements

ID	NFR-07
Description	Produce documentation requested by the client
Reason	Comply to contractual agreement
Type	Deliveries

External requirements

ID	NFR-8
Description	Data veracity
Reason	Comply to the rules of veracity
Type	Ethical

SYSTEM EVOLUTION

We can expect that the following functionalities will be implemented in future versions of the application:

- **Data extension**: the system could take into account the data relative to the remboursements between regions;
- **New functionalities**: comparisons between single regions could be added.

REQUIREMENTS SPECIFICATION

ID	RS-01
Input	Tap on the app icon
Output	The app will display the map
Pre-Condition	The app needs to be installed in the device
Post-Condition	The user will be able to navigate the map

ID	RS-02
Input	Tap on a Italian region marker on the map
Output	The app will display a statistic report
Pre-Condition	The app has to display the map
Post-Condition	The user will be able to consult the report

ID	RS-03
Input	Tap on a statistic chart section
Output	The app will display a more detailed report
Pre-Condition	The app has to display the general report
Post-Condition	The user will be able to consult detailed information

ID	RS-04
Input	Tap on the menu icon
Output	The app will display a drop down menu with a list of functionalities
Pre-Condition	The app has to display the map
Post-Condition	The user will be able to select a function

REQUIREMENTS TRACEABILITY

Requirements dependencies matrix

/	FR-01	FR-02	FR-03	FR-04	FR-05	FR-06	FR-07
NFR-01	X						
NFR-02		X					
NFR-03			X				
NFR-04					X		
NFR-05						X	
NFR-06							X
NFR-07				X		X	
NFR-08	X	X					X