Team 1 - First Deliverable

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1 Introduction

1.1 Purpose of this document

The purpose of this document is to collect the functional and non-functional requirements of our project, as well as to make a software implementation plan.

1.2 Project Summary

Project Name: Process of Purchasing a Solar System - Area 1: 3D model import

1.3 Purpose

Implement logic that takes a 3D model XML file produced by RoofOrders company, reads it, and extracts the information needed in the further solar system design process steps.

1.4 Overview of the document

Our area is responsible for extracting all the information from a XML file and processing it; when our job is finished we will use this information to pass it on to team 2 that handles area 2 where they will start coding all the possibilities to get the maximum quantity of solar panels within the other rules.

2 Functional Requirements

1. The area 1 functionality shall be able to read an XML file and extract relevant data from it.

2. The area 1 functionality shall store the exact dimensions of the roof of the house once the data has been extracted from the file. This means that the system shall store data about the faces, hips, ridges, rakes, valleys, slopes and the azimuth of the roof.

3. The area 1 functionality shall be able to recognize which type of roof the file contains.

4. The area 1 functionality must be able to generate a list of data extracted from the XML file in a format suitable for use by other software.

5. The area 1 functionality must be able to convert xml to json.

6. The area 1 functionality shall store the data with some type of encryption to prevent it from being stolen and used by other companies.

7. The area 1 functionality will request a password each time a person attempts to access it to prevent non-employees from accessing the system.

8. The area 1 functionality requires the file name to contain at least 5 characters, a number and a capital letter.

9. The area 1 functionality wont accept file names containing forbidden characters like ñ, * or (space) for example

10. The area 1 functionality requires the file extensions to be xml.

3 Non-Functional Requirements

3.1 Reliability

1. The area 1 functionality should be able to read data from any XML file except when there is an error in the file, in which case the system will throw an exception.

2. The area 1 functionality should be able to store the collected data every 24 hours in order to avoid a system crash.

3. The area 1 functionality should be secure so everyone can buy from a webpage/application without any vulnerabilities.

4. The area 1 functionality should be in a good server so it can be accessed 24/7 and with no more than 100ms.

5. The area 1 functionality should have a secondary copy for the case that any problem appears.

3.2 Usability

1. The area 1 functionality should be able to generate a list of data extracted from the XML file in a human readable format.

2. The area 1 functionality should have an appropriate design to ensure proper display on multiple personal computers and tablet devices.

3.3 Performance

1. The area 1 functionality should be able to read an XML file in less than x seconds.

2. The area 1 functionality should be able to update the changed data in less than x seconds.

3.4 Security

1. We assure that our system and specifically area 1 functionality will be secure, bacause our system will be secure because we will implement all the functions based on security functionality specified in functional requirements.

3.5 Supportability

1. The area 1 functionality should be able to adapt in the future to be able to read another type of file other than XML.

2. The area 1 functionality should be able to adapt in the future to be able to accept files from other providers distinct from RoofOrders.

4 Implementation plan

1. The first version of the software shall return the number of buildings in the xml file.

2. The second version of the software shall return the number of roof faces of each roof.

3. The third version of the software shall return the size of every roof face from the ridge to the eave in order to easily calculate the setback area.

4. The fourth version of the software shall return the total area of each roof face.

5. The fifth version of the software shall return the position of the objects(chimneys, windows. . .) that may interfere in the display of the solar panels.

6. The sixth version of the software shall return the usable area of the roof face bearing in mind the previously mentioned objects.

7. The seventh version shall return all the useful data from the data structure in the xml file