Software Requirements Specification for image-based web scraping software

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# Introduction

## Purpose

The purpose of this document is to present a detailed description of the web scraping system. It will explain the purpose and features of the system, the interfaces of the system, what the system 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.

## Scope

This software system will be web scraper that uses image to search web sites, it will be designed to minimize the time taken to collect information about product category in an online e-commerce platform, it will only need a picture or text of that product (ex: mobile picture), And it will provide an easy to read report that contain links ,prices and names of that product from a list of online market websites, this report can be tremendously useful in market evaluation witch is an important part of visibility study, it also can be use full for searching and facilitating purchase from most of online e-commerce platforms.

## References

* *IEEE*. *IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications.* IEEE Computer Society, 1998.

## Overview

This document is written according to the standards for Software Specification Requirement explained in “IEEE Recommended Practice for Software Specification Requirement”.

The next chapter, the Overall Description section, of this document gives an overview of the functionality of the product. It describes the informal requirements that is used to establish a context for the technical requirements specification in the third chapter.

The third chapter, the Specific Requirement section, of this document is written primarily for the developers and describes in technical terms the details of the functionality of the product.

Both sections of the document describe the same software product in its entirety but are intended for different audiences and thus use different ways explaining it.

# overall description

## Product perspective

This System provides simple mechanism for users to get range of prices and number models/alternatives of specific product category.

## Product functionality

### Functionality as diagram

A close up of a logo

Description generated with high confidence

Figure 1. System functionality

## User Characteristics

### Stakeholders

#### System engineer

* Responsible for requirements gathering
* Responsible for development
* Responsible for deployment and support
* Responsible for testing

#### Users

* Search for the product category
* Search for specific product

### Users objectives

#### System engineer

* Gain Experience in software engineering and development

#### Users

* Get report/s contain list of prices, links and names of the product he/she want

## Constraints

The system is designed to be built using python 3 with already made TensorFlow API with object recognition model and selenium web-driver for web-scrapping are used to generate the report/s.

# specific requirement

## External Interfaces

### External Interfaces requirement

#### Input

* Text or Image file of extension JPG, PNG and JPEG with minimum quality 300x300 pixels.

#### Output

* Csv file/s (report/s) contain all links, names and prices of the product category.

### User interfaces

#### Screen image

A screenshot of a cell phone

Description generated with very high confidence

Figure 2. software interface

## System Features

A close up of text on a white background

Description generated with high confidence

Figure 3. Use case diagram

### Use case: Select the scrapping type (UC ID1)

#### **Participating actors:** User

#### **Entry condition:** Open the program

#### **Exit condition:** Select one option

#### **Typical flow of event:**

1. User select either scrapping by text or image
   1. Select the method of software operation

### Use case: Upload new picture (UC ID2)

#### **Participating actors:** User

#### **Entry condition:** Click open button in the software GUI

#### **Exit condition:** Successful upload the picture OR cancel

#### **Quality requirement:** minimum image quality is 300 X 300 pixels, image extensions JPG, PNG, JPEG.

#### **Related requirement:** object recognition

#### **Typical flow of event:**

1. User upload an image
   1. The system will show the image after resizing.

#### **Exceptions:**

1. User upload an image
2. The system shows error massage if low quality image or non-valid image.

### Use case: Select website (UC ID3)

#### **Participating actors:** User

#### **Entry condition:** Upload image (UC ID2) or enter text

#### **Exit condition:** Select one or more website

#### **Related requirement:** Get report

#### **Typical flow of event:**

1. User select website
   1. Set the selected website/s URL to start web scrapping

### Use case: Get report (UC ID4)

#### **Participating actors:** User

#### **Entry condition:** Upload image (UC ID2) or enter text, Select website (UC ID3) and click start scrapping button

#### **Exit condition:** Report successfully generated OR error getting data

#### **Quality requirement:** Response time on 1MBit internet speed for 1 report 60 ± 20 seconds

#### **Related requirement:** Save report

#### **Typical flow of event:**

1. User click on start scrapping
   1. System send recognized object names to web scrapper (selenium) Or text.
   2. Web scrapper search the website for the object’s names.
   3. Extract the links, names and prices of products (objects) from the website/s.
   4. Put the links, names and prices in a csv file (a file for each object on a website).

### Use case: Save report (UC ID5)

#### **Participating actors:** Get report (UC ID4)

#### **Entry condition:** Report successfully generated

#### **Exit condition:** NAN

#### **Quality requirement:** The report/s are saved default directory file size 5 ± 2KB

#### **Typical flow of event:**

1. Save the file/s
   1. File/s are saved to default location

#### **Exceptions:**

1. Save the file/s
   1. No authorization to save in the default location
   2. Location doesn’t exist

## Non-Functional requirement

### Object recognition

The software can recognize up to 3 different objects in one image of minimum quality of 300x300 pixel.

### Report generation time

Reports are generated and saved in 40 ± 20 seconds on internet of 1MBit speed and processor core i7 with 8GB ram.

### Report csv file size

Report are generated in csv file form and its size is 5 ± 2KB for one file (object in one website).

## Class diagram

A screenshot of a cell phone

Description generated with very high confidence

Figure 4. class diagram

# System evolution

* Make our own TensorFlow API model to be able to recognize specific object not a whole category
* Increase the range of supported image extensions to include TIFF and GIF
* Give the software the ability to generate report in Microsoft word extension.

# 

# Time plan

|  |  |  |  |
| --- | --- | --- | --- |
| **Task** | **Start date** | **End date** | **Duration** |
| **SRS** | 6-Jun | 8-Jun | 3 |
| **SDD (pre)** | 7-Jun | 8-Jun | 2 |
| **SDD** | 9-Jun | 14-Jun | 6 |
| **Test Cases** | 13-Jun | 14-Jun | 2 |
| **T1(installing libraries)** | 9-Jun | 10-Jun | 2 |
| **T2(scraping)** | 15-Jun | 17-Jun | 3 |
| **T3(GUI)** | 16-Jun | 18-Jun | 3 |
| **T4(integration and testing)** | 19-Jun | 20-Jun | 2 |

