

Software Requirements Specification

File Search Engine

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CPCS 362

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1. Introduction

1.1 Purpose

This following document will provide a description of the software requirements for our CPSC362 Fall 2019 semester group project. This document will explain the purpose and specifications and overall goals of both our desktop executable and web-based versions of our application. <insert application name>.

1.2 Scope of the Problem

Many users need to quickly and easily search through documents (including their contents) located on their hard-drive or on their local LAN for specific keywords that may be pertinent to them. We aim to provide a fast and simple solution so the user can quickly find the information he or she needs and maintain a productive workflow.

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Our application will provide a benefit over the standard search in within the operating system in that it will be able to search the content of files quickly and reliably. Our interface will be simple yet intuitive to provide the user a smooth experience

1.3 Intended Audience

The intended audience for this document includes but is not limited to Professor Lidia Morrison, instructor for CPCS 362 Fall 2019, all members of the group participating in this project. As well as any student currently enrolled in the aforementioned classes located at California State University, Fullerton.

2. Overall Description

2.1 User Objectives

File Search Engine is both a desktop and web-based application that will provide users a fast and reliable keyword searches that will contents of various document types. <show interface>

2.2 Product Functions

File Search Engine is a project focused on providing users the ability to quickly search documents on their local hard-drive or across a local are network. This app will enable users to search the contents of a large number of documents of varying file types all at once. The user will be able to select a directory or drive to search and enter their keyword of choice, the application will then search through multiple file types including (But not limited to.) text, word document, PowerPoint, excel spreadsheets and PDF files.

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Some of the basic functionality of the application:

- Users can specify search location.
- Users can specify keyword.
- Users can search multiple filetypes.
- Users will receive an interactive list of results with ability to preview the documents.
- Keywords found within the documents will be highlighted for the user.
- Users will be able to choose between a desktop or web based application.

2.3 Operating Environment

File Search Engine will be both a desktop application with executable as well as a web-based version utilizing python. The target is cross platform compatibility with initial versions being a windows based desktop application and web-based application.

2.4 Similar System Information

As an alternative to the default OS search which is limited in its scope as it cannot search the contents of many filetypes. We will adopt a similar style interface with simplicity as its goal while remaining an intuitive experience.

2.5 User Characteristics

This application is for any user who needs to be able to search the contents of documents quickly and effectively. There is no target audience as the application should be able to be used by any demographic, and should not require any specialized skill other than rudimentary knowledge of how to navigate a modern operating system. An intuitive interface should make the application clear in its usage with no vague elements providing a positive user experience and outcome.

2.6 Design and Implementation Constraints

This app will be designed with windows operating system in mind, which means upon initial release there will not be any Linux support however support for Linux based systems may be added down the line. The application should not be system intensive and should run on a many system of varying hardware age.

A keyboard, mouse or interactive touch device will be require to be able to input search location and keyword.

2.7 Assumptions

This document will assume that:

- Users have basic knowledge of navigating an OS.
- Users will have basic knowledge of how a file system is organized on windows.
- Users will know where their documents are located in the filesystem
- Users will be able to utilize an input device.
- Users understand English as no localization will be featured upon initial release.
- Uses will have an estimated 5mb of free space on their system to install the applicaton.

3.0 Functional Requirements

3.1 The application shall display on a single window or webpage

Description

When clicking on the application icon or opening the web-based application the application shall display a single unified user interface with every aspect of the application accessible on the same screen.

Pre-condition – The user has downloaded and installed the desktop application or have access to a web-browser with access to the web-based application.

Post-condition – The user will immediately be able to utilize the application after it loads on screen.

3.2 The application shall allow to specify search location

Description

There will be an textbox for input that allows users to specify a search location.

Pre-condition – User will input a valid search location on the system

Post-condition – The application will check for valid location and return error message to user if location is invalid.

3.3 The application shall allow the user to specify a keyword

Description

The application will allow to specify a keyword for the search process of both filenames and file contents.

Precondition – User inputs their desired keyword to search.

Post-condition – The user is required to enter a keyword to search before clicking on the “Search”. After the user enters a keyword and previously entering a valid search location the user will be able to utilize the search function.

3.4 The application shall let the user click a “Search” button to initiate a search.

Description

Upon clicking the search button the application shall initiate the search process.

Pre-condition – User selected the “Search” button

Post-condition – The application shall begin the search processed based on the user input

3.5 The application shall search for the keyword in the specified folder

Description

The application will limit the scope of the search to the specified folder

Pre-condition – User has entered a valid folder location

Post-condition – Search will begin.

3.6 The application shall search filenames and file contents with the specified keyword

Description

The application will search the specified folder for any files containing the specified keyword,

additionally the application sill also search contents of text, word, excel, powerpoint and PDF files for keywords

Pre-condition – Search was initiated by user.

Post-condition – Results are stored into memory.

3.7 The application shall display search results on screen

Description

A list of results will be generated and displayed for the user to view results, the list will be

interactive and allow users to click on any individual result to see a preview

Pre-condition – Search has completed.

Post-condition – Application awaits interaction from user to preview the files that returned positive results.

3.8 The application shall allow the user to view the files with positive results highlighted

Description

The user can preview files that returned positive results by clicking on the file on the list of results, the application will then preview any use selected documents.

Pre-condition – User selected one of the results generated from the search.

Post-condition – The application starts to generate a preview of the user selected document.

3.9 The application shall display the contents of the file with each positive result highlighted

Description

When generating a preview, the application shall highlight each instance where the specific keyword was found in the selected document so the user can quickly find results.

Pre-condition – The user selected to preview a specific document then

Post-condition – The application displays a highlighted preview on the document on the main window.

3.10 The application shall allow the user to preview additional documents by selecting different files from the results list.

Description

The application shall allow the user to continue to view highlighted previews of the documents by selecting different files on the results listing.

Pre-condition – The user selected another document from the results list.

Post-condition – The application generates highlighted preview of the selected document.

3.11 The application shall allow the user to change search location and keyword

Description

The user can enter a new or modify the existing search location or keyword without any additional interaction.

Pre-condition – Current search location and keyword boxes are editable.

Post-condition – User enters a new keyword or search location.

3.12 The application shall clear previous results if user initiates a new search

Description

The application shall clear the previous results if the user initiates a new search by selecting the “Search” button.

Pre-condition – The current search results are displayed.

Post-condition – User selects “Search” and initiates a new search, the previous results are then cleared from the application.

3.13 The application shall cleanly exit when the user closes the application.

Description

When user is completed with their task the program will cleanly exit when the user closes the application

Pre-condition – User chooses to close the application.

Post-condition – The application closes and properly unloads from memory.

4.0 Quality Control Attributes for File Search Engine

Quality Attribute	Brief Description
RT-1	The application will alert the user if an error occurred during the search process.
AS-1	The app shall not modify files by any means
AA-1	The app shall be available as long as it's on the user's system
AC-1	The application shall be accessible via executable or web-based versions.

RE: response time

AS: application security

SA: application availability

AC: application accessibility

5.0 Non-Functional Requirements

Security:

- The application will only have access to local file systems or those located on an open local area network (LAN).
- All data accessed during usage of the application shall not be modified.

Usability:

- The application will load in under 5000 milliseconds.

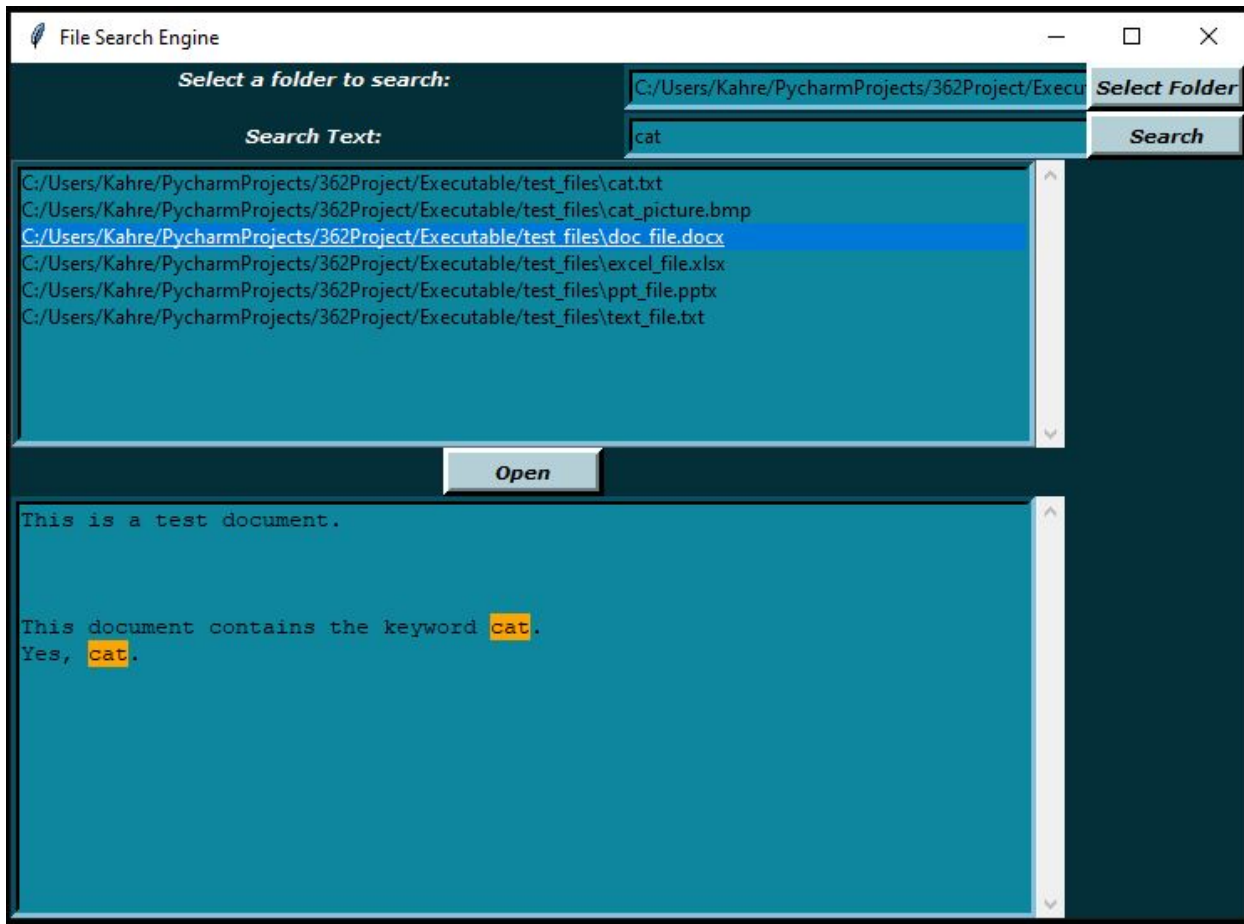
6.0 Interface Requirement

6.1 Graphical user interface (GUI)

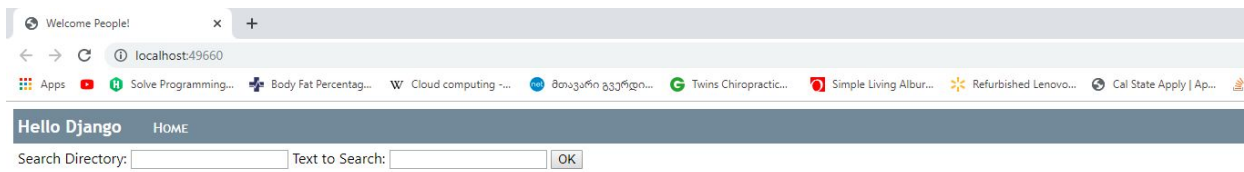
When a user double clicks on <application name> executable or visits the URL. The application and UI is loaded ready for user input. Both text boxes will be black by default as well as the result and preview window. The user can search for keywords both in filename and within file contents, view results of the search and then view previews of any files the user selects.

Desktop Application Screen

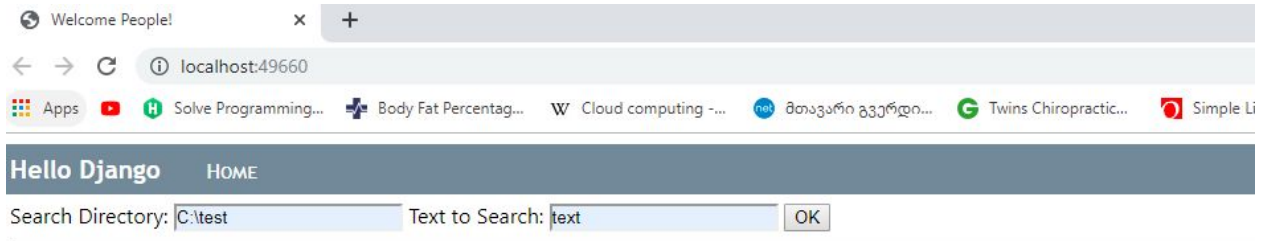
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Web Based Application



Web based application with sample input.



6.2 Hardware Interfaces

This application should function on both the Microsoft Windows operating system via either desktop or web-based application. Before downloading the application, a minimum 10Mb of free storage space is required. The app is expected to work on any machine that can run Windows 10.

7.0 SWOT analysis for File Search Engine

Strengths:

S1: Given the narrow scope of the project, completion of the application with full functionality should be met before the deadline. This is predicated on the fact that the application will meet all functional requirements.

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S2: Python and it's associated software tools, knowledge-base and tutorials required for completion of this project are readily online.

S3: This project is completed as part a CPCS 253 assignment, as such this project requires no additional financial support or considerations other than members of the project requiring computer access, which is readily available on campus. Therefore the economic feasibility of this project is certain.

Weakness:

W1: Although this group consists of students with a good background in software design and also good programming skills, this is the first time we are building a mobile application. This is actually a weakness because more time is spent learning how to use the software tools instead of producing the product. This may actually affect the project's schedule.

W2: Since this is the first version of the app, it lacks certain functionalities compared to other budget assistant apps in the market. But subsequent versions will have more functionalities.

Opportunities:

O1: Often someone requires looking up information from within documents located on their computer system, however a google like search that can navigate multiple file-types at once, is not available on the operating system by default.

O2: This project benefits the group, by providing an opportunity to learn a new software language (Python) and new software design methodology. Knowledge is gained during the creation of this software by learning the programming language and it's associated tools.

Threats:

T1: As this is as semester project, every group in the class is assigned this project, thus every group will be developing a similar application. The threat is losing internal focus and not getting lose in other's apps, so we may focus on making it the best app possible.

8.0 UML Diagrams

8.1. Use Case Diagram

The main application screen encompasses all functionality of the application without the need for a second window or usage of dynamic elements. When the application is opened the user is presented with two input text box elements, a "Search" button and two elements for output.

When the Search button is selected the user is given an interactive list of results from which to choose from. The user then may click on any results to get a preview of the selected file. If the user chooses to modify or initiate a new search the previous results will be cleared from the application screen.

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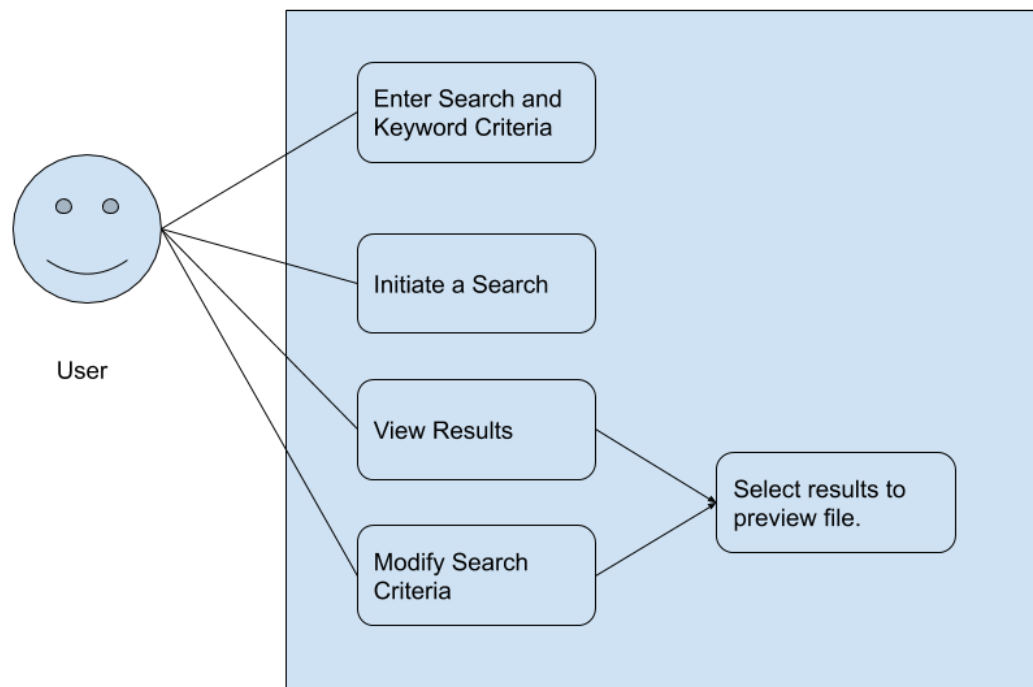
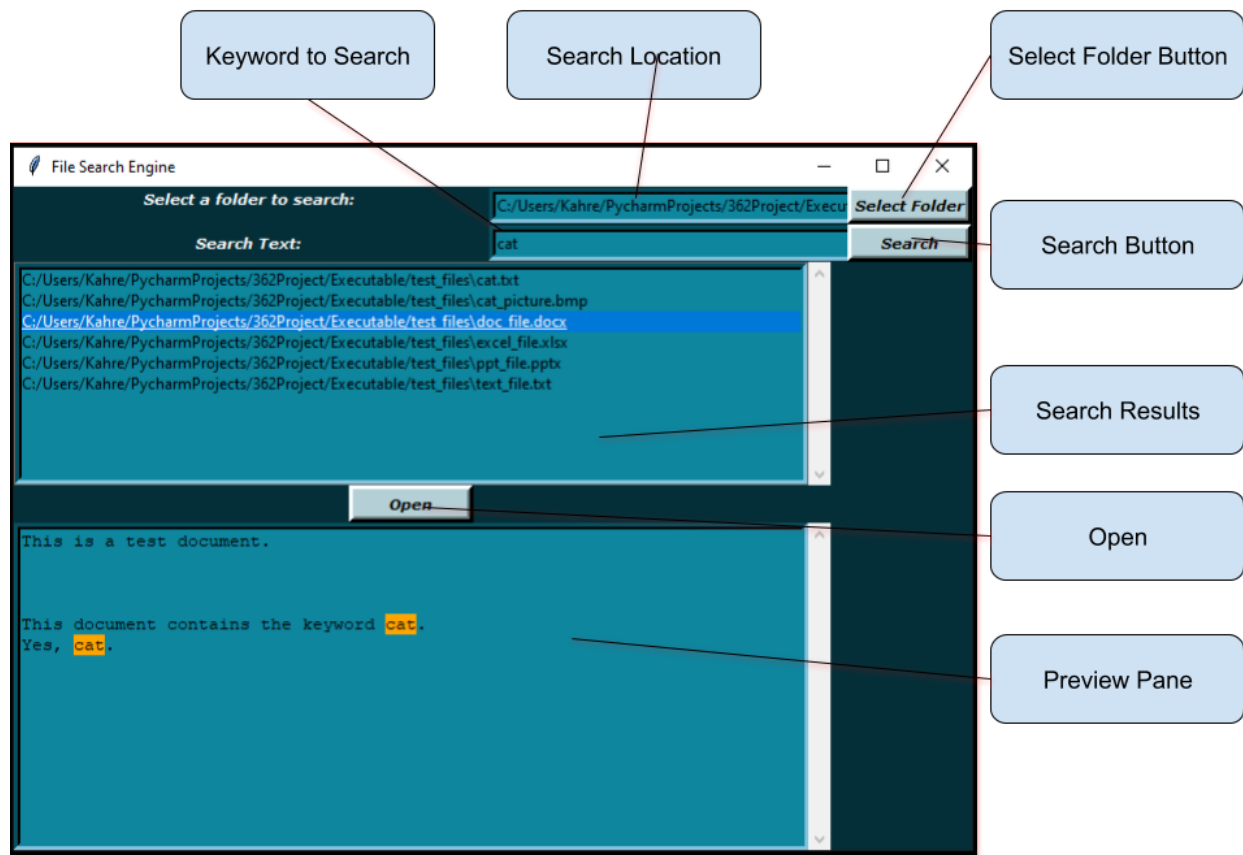


Figure for Use Case diagram for File Search Engine

APPENDIX A: User Operation Manual

Guide for using File Search Engine

Search File Engine Layout:



1. File location Textbox

Type desired search location for which to conduct search.

2. Select Folder Button

Navigate to desired search location for which do conduct search.

3. Keyword to Search

Type Desired keyword to search.

4. Search Button

Press button to start search.

5. Search Results

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This pane shows the results from which you may choose from to preview.

6. Open Button

Press button to open file for view.

7. Preview Pain

Displays file contents with results highlighted

APPENDIX B: References and Tools Used

References

Software Engineering A Practitioners Approach – Roger S. Pressman, Ph.D

Lecture Notes and Slides by Lidia Morrison

Tools Used

The following tools were used for developing this SRS and drawing all UML diagrams

- Microsoft Office 365 – Microsoft
- Google Drawings – Google LLC