User Manual

Introduction:

The following is a brief description of the JV Mustang Search Engine, including relevant menus, options, and formats expected by the program for optimal use. Choices are presented in a bold font. Important information is presented in italics.

Invoking the Search Engine:

To invoke the Search Engine, simply execute the program in your command terminal. There are no expected arguments.

Loading the Persistent Index\*:

When the Search Engine first opens, it will check the working directory for a persistent index, created on a previous execution. The terminal will prompt the user to choose which data structure they would like to load the persistent index into. Choose “1” to load the index into an AVL Tree, or “2” to load it into a Hash Table.

\*Note: If there is no persistent index found, the search engine will proceed to the main menu without loading an index.

The Main Menu:

The main menu allows the user to enter into the Search Engine’s two modes: **maintenance mode** and **interactive mode**. These modes will be described in more detail below. Choose “1” to enter **maintenance mode** “2” to enter **interactive mode**. Choosing “3” will **exit** the Search Engine, saving the index and associated files to the working directory.

Maintenance Mode:

Maintenance mode is the location of important features like loading new XML documents into the index, as well as clearing the index entirely. Choose “1” to **add a document** or “2” to **clear the index**. Choosing “3” will **exit to the main menu**.

Adding documents:

Here the user can add an XML document to the index. The user can enter the *filename of a document in the working directory* (ex. “filename.xml”) or a *complete file path to a document*.

Clearing the index\*:

Here the user can choose to clear the index and delete all associated files and information. Choose “1” to **clear the index**, or “2” to **exit to the maintenance menu**.

\*Note: Clearing the index will prevent the user from accessing the interactive mode until a new index has been loaded.

Interactive Mode:

Interactive mode is the location of functions like changing the structure of the index, making queries, and displaying various statistics about the index. Choose “1” to **switch the index**, “2” to **query the index**, or “3” to **display statistics**. Choosing “4” will **exit to the main menu.**

**\***It should be noted that in order to access the interactive menu, an index must be present. If one is not present, the user will be denied access to this menu.

Switching the index structure:

Here the user can switch the data structure that the index uses to store data. The structure currently used will output to the terminal. Choose “1” to **switch to the other structure**, “2” to **exit to the interactive menu**.

Querying the index:

Here the user can make a query to the index, including a simple Boolean query consisting of either a AND or OR command followed by a list of arguments, with the option to add an additional NOT command followed by arguments. The Search Engine will return the top 15 results of the query (sorted by Tf-Idf relevancy) to the terminal. At this point, the user can choose the number of the document they would like to see the full text of, or choose “0” to exit back to the Interactive Menu.

Displaying Search Engine Statistics:

Selecting this option will display three statistics about the search engine, including: *the total number of pages* it contains*, the total number of unique words* it contains*,* and *the top 50 words (by overall frequency)*. It will then exit to the interactive menu.