**Search Engine User Manual**

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Hello and welcome to the Barnes, Bubrosky & Smith Search Engine. Below you will find all of the necessary instructions on how to use our search engine.

Step 1: Launch program by entering ./a.out /\*document\_title\*/ into the command line.

Step 2:

1. The user (You!) will be prompted to select which mode they would like to enter. They can choose Maintenance Mode by entering 1 or Interactive Mode by entering 2.

Maintenance Mode:

* The user will be prompted to add a document (enter 1), clear the indexes (enter 2), or exit Maintenance Mode
  + Add Document – the user will enter the document name that they wish to add.
  + Clear Indexes – both the AVL Tree and Hash Table will be cleared.
  + Exit Maintenance Mode – the user will be returned to the start screen.

Interactive Mode:

* The user will be prompted to select the query processor by entering 1 or the search engine statistics (total page numbers indexed and total number of words indexed) by entering 2.
  + Query Processor:
    - The user will enter a simple prefix Boolean query
    - **Format**:

Single word – term

AND – AND term1 term2 term3 … termn

OR – OR term1 term2 term3 … termn

NOT – AND/OR term1 term2 term3 … termn NOT termn+1 termn+2 termn+3 … termn+x

NOT – term NOT term1 term2 term3 … termn

Nested – AND/OR term1 term2 term3 … termn (OR termn+1 termn+2 termn+3 … termn+x) termn+x+c

\*\*\*number of terms will be decided by user

* **Boolean definitions**:

AND – will include page numbers shared by following terms

OR – will include all page numbers from following terms

NOT – will removed page numbers that following terms appear on

* **Query examples**:

apple (one word search that will return all documents containing apple)

AND apple banana (will return all documents containing both apple and banana)

OR apple banana (will return all documents containing apple as well as documents containing banana)

apple NOT banana (will return all documents containing apple that do not contain banana)

AND apple (OR tree bush) banana (will return all documents containing apple, tree/bush, and banana

* **Restrictions**:
  + Levels of nest may not exceed two levels (i.e. two sets of parentheses), example above shows one level of nesting
* **Display**:
  + Data obtained from Boolean query search will be displayed in the following format:

(Page Number) (Frequency) (Page Title) (Date article was made) (Username of article author)

* The user will then be asked if they want to see the contents of a page in the results by entering y (yes) or n (no).
  + If user enters yes:
* The user will be prompted to enter a specific page number that they desire to view
* The text from page will be outputted
* Then the user will be prompted to enter another page (enter specific page number) or exit back to start screen (enter -1)
  + If user enters no:
    - The user will be returned to the start screen

Thank you for your time. We hope you enjoyed using our search engine!