**ADA – A2 – Q5:**

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Overview:

After running SearchTool.py, you will be asked to enter seed URLs.

Entered seed URLs must be full urls. EG: <http://www.seed.com>

Once you've entered the seed URLs you want, press enter without typing anything in to continue.

You will then be asked to enter a keyword to search for in each pages meta keywords. Do that.

The spider will then begin crawling. It will list each URL it visits as it visits them.

Once it has reached the depth-limit of 3, or run out of links to follow, it will list the sites with keyword matches, ordered by page-rank.

SpiderLeg:

This class contains the methods for scraping data from websites. It has separate methods for scraping links, metadata, images, and titles.

The getHyperLink method also validates any links it finds before returning them. It checks to ensure they are valid urls, and ensures they are not on the exclusion list. The exclusion list includes large, complex sites such as Twitter, Facebook, and Youtube. It also excludes pages in formats that it cannot scrape, such as .asp sites.

Spider:

This class does the actual crawling. It is given a list of seed URLs, and effectively conducts a BFS using the seeds as starting nodes.

It maintains a list of visited and unvisited URLs, as well as an adjacency list for the pages in visits.

It checks the keyword metadata of each site it visits to check for matches with the user-selected keyword, and keeps a list of URLs that match.

It also keeps track of the depth of the search, and stops adding links to scrape when the current page it is on has reached that limit.

It is also the class responsible for writing the list of visited sites to a txt file.

SearchTool:

This class is responsible for getting input from the user regarding seed URLs and keywords to search for.

It is also the class that calculates the page-ranks for each page that is visited.

Finally, it prints the sites that keyword match to the console in the order of highest page ranks, and saves a list of them to a text file.