As a team, our intended project was to load data into a graph and output the results using a BFS traversal. Our algorithm that we chose to implement were Dijkstra's Algorithm and the Landmark algorithm; these algorithms were used to find the shortest path between 2 nodes. In the case of our project, the nodes are actually specific subreddits. Another goal that we chose was to find the shortest between 2 nodes, which are subreddits in this case, through a specific third node. In the end, we did meet these goals.

We attained the data we wanted by loading the data from the subreddit hyperlink network that was already provided to us. After loading the data from the subreddit hyperlink network we looked at both the source_subreddit attribute and the target_subreddit attribute. The source_subreddit attribute is the subreddit where the link originates and the target_subreddit attribute is the subreddit where the link ends. By loading both of these attributes into our code using a BFS traversal, we were able to output the results and find the shortest path between 2 nodes, which are subreddits in this case.

We coded Djikstra's algorithm by using unordered maps; these were implemented using vertices associated with costs and previous vertices. The technique of lazy deletion was used in order to update the priority queue instead of modifying the actual queue each time the priority was updated. By using lazy deletion, we just deleted larger, older elements as they appeared along with adding smaller, newer elements. After this was done, we traversed backwards through the map to produce the shortest path from beginning to end in terms of a linked list.

We also used Djikstra’s algorithm when implementing the Landmark algorithm. Because our graph of subreddits is both weighted and has a direction, our landmark algorithm that went from node A to node B through node C involves combining the path from Djikstra’s node A to node C with that of Djikstra’s node C to node B.

Ultimately, we enjoyed learning how to implement Dijkstra's algorithm. It was interesting to research different algorithms and after learning more we think that maybe a star could also be a good algorithm to implement in order to reach a faster efficiency due to its heuristic abilities, while Dijkstra goes through every possible pathway.