

CSE 222 Homework#8 Report

Classes and Methods:

Main class: The main class for the social network analysis program.

- **main():** The main method that starts the social network analysis application. It continuously displays the menu and prompts the user for input until the user chooses to exit.
- **menu():** Displays the main menu for the Social Network Analysis application.
- **prompt():** Prompts the user for input and performs actions based on the user's choice.

Person class: Represents a person with name, age, hobbies, and timestamp.

- **Person():** Constructs a new Person object.
- **getName():** Returns the person's name.
- **getHobbies():** Returns the person's hobbies.
- **getTimestamp():** Returns the timestamp when the person object was created.

SocialNetworkGraph class: Represents a social network graph where people can be added, removed, and friendships can be managed. It also provides functionalities to find the shortest path between two people, count clusters of friends, and suggest friends.

- **addPerson():**
 - Creates a person with name, age and hobbies
 - Add the person to people and friendships fields.
- **removePerson():**
 - If there exist a person with prompted name, remove from the people field.
- **addFriendship():**
 - If there exist two people with prompted names, add them to each other's friendships list.

- **removeFriendship():**
 - If there exist two people with prompted names, remove them from each other's friendship list.
- **findShortestPath():**
 - If there exist two people with prompted names.
 - Performs bfs to find shortest path
- **printPath():**
 - Prints the shortest path between two people.
- **countClusters():**
 - Counts the number of clusters of friends using BFS.
 - Prints names of the people in same cluster
- **suggestFriend():**
 - If there exist a person with prompted name
 - Performs bfs to traverse all people, and calculate score
 - Sorts the people with descending order and prints
- **calculateScore():**
 - Calculates number of mutual friends and common hobbies
 - Calculates score based in mutual friends and common hobbies
 - Returns double array for score, number of mutual friend and common hobbies respectively.
- **bfs():**
 - Performs a BFS to find all connected people starting from a given person.

Screenshots:

Example output has been recorded and they can be reached via screenshots folder.