Data Structures & Algorithms FInal Project - Retake

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An Interest-Based Community Movie Recommendation System

- **Abstract**

For long, users of streaming services like Netflix, Hulu, Disney+ for recommendations on what to watch next after wrapping up a movie. We tend to believe that the algorithm used by these platforms can accurately predict our interests when it comes to what to watch. However, we are more to enjoy the movies we watch, not because they are comedies or thrillers, but because their storyline is in line with our interests. More still, the movies everyone looks forward to watching is one recommended by people that have already watched, preferable our friends.

- **Problem Analysis**

Most movie lovers rely on the recommendations deduced from the algorithms of streaming platforms to choose what to watch. Most times, these recommendations do not suit our needs. Therefore, we struggle to find something exciting to watch amongst millions of movies on these platforms. However, there is more fun in getting movie recommendations that are based on your interests from your fellow friends. It increases your excitement to see a particular movie.

- **Problem Interpretation**
    - **Data Stored**:
        - User's name - The system requires a simple process to collect and store customers name.
        - Movies - The system requires a simple process to collect and store available movies in each category
        - Movie Category - The system organizes movies according to several interests that users can choose from.
        - Sub Categories - The system organizes movies according to the interest (categories)
        - Recommendations - The systems stories the recommendations given by members of the community
          Afterwards, a unique identifier is required to identify customers when they get to the cinema uniquely.

All these data are stored in an array for easy and quick access by the user.

- **Constraints**: The time complexity for giving or getting a movie recommendation should be O(1)

- **Problem Solution**
  After an in-depth analysis of the situation, we created a simple interest-based community movie recommendation system that allows users to get movie recommendations from friends who have watched the movie, as well as give movie recommendations for the movies they've watched on streaming platforms. Users simply sign into the app, then find or recommend a movie that matches their interests by making several selections.

- **Solution Implementation**
  For the implementation of the solution, we create a movie class and created an array to store the movie categories (interests) and movie(s) matched to each category.

```
static String[] Categories = {"1. African Culture", "2. Racism", "3. Apartheid", "4. Slavery", "5. College Life"};
static String[] Recommendations_African_Culture = {"Beasts Of No Nation Netflix", "Prince OF Egypt Hulu"};
static String[] Recommendations_Racism = {"Monsters & Men Hulu ", "Strong Island Netflix"};
static String[] Apartheid = {"Skin Netflix", "Kalushi Netflix"};
static String[] Slavery = {"Django Unchained Netflix", "Gladiator Netflix"};
static String[] College_Life = {"Boy Erased HBO", "Hoop Dreams HBO"};
static String[] Options = {"1. Give A Movie Recommendation", "2. Get A Movie Recommendation", "3. Exit"};
```

Next, we created a method to prompt the user to either get a movie recommendation or give one, else they exit the program.

```
public static void getSelection(){
  System.out.println("Welcome to PopCorn Recommenda");
  System.out.println("What's your name");
  name = scan.next();
  System.out.println(name + " What do you want to do?\nSelection an Option" );
  for (int i=0; i<Options.length; i++) {
     System.out.println(Options[i]);
  }
 Option = scan.nextInt();
  if (Option == 1){
     giveRecommendation();
  }
  else if (Option == 2){
     getRecommendation();
  }
  else {
     System.out.println("Thank you " +name +" for contributing");
     System.exit(Option);
  }
}
```

We also created methods to get a recommendation for a movie or give a recommendation. But most importantly, we ensured that users could go back to the first selection after completing their user journey, in case they wish to give or get another movie recommendation.

```
public static void RecommendAfricanCulture(){
  System.out.println("Type in the movie title and the streaming platform you saw it (eg Netflix)");
  movie = scan.next();
  Recommendations_African_Culture[Recommendations_African_Culture.length - 1] = movie;
  System.out.println("Thank you for adding to our African Culture Catalogue");
  getSelection();
```

Conclusion

Problem Solving:

As more movies are put on the Netflix platform, it has become necessary to create a more meaningful way of getting recommendations of what to watch on streaming platforms without relying on their algorithms for suggestions. To tackle this problem, we created an interest-based community movie recommendation system to allow users to get movie recommendations from their fellow movie lovers based on their shared interests.

Runtime: The complexity of fetching and adding to the array used here (no matter the size is O(1). Therefore, it is guaranteed that this system is fast and reliable.

User-Friendliness: This system is very interactive and easy use. However, talks are ongoing to create a graphical user interface for the users.

Code Repository: https://github.com/nnadozie0/RetakeSummative.git