



**COURSE NAME:** Data Structures and Algorithms

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**HOMEWORK SUBJECT:** Search in Graph With BFS algorithm

### Algorithm:

- 1-) A file opens with the given name and file is read line by line.
- 2-) The part up to the first '/' character is taken as the movie name, and each remaining part is taken as the actor name. with that information actor list creating.
- 3-) A list with the movie title and actor list is created. And file is closed.
- 4-) an actorInfo list created and it sent to the findNextBacon function and converted to the next kevin bacon list. Since the difference between the previous size of the list and the next size will give the number of kevin bacon, that information is printed to user.
- 5-) The movies in the movie list created in the findNextBacon function are examined one by one. The actors in each movie are compared with those on the kevin bacon list.
- 6-) If a match is found for any actor in the movie, it is checked whether the elements in that movie are already on the kevin bacon list, if that actor is not on the list, they will be added to the list. The boolean variable kevinBacon is set to true, indicating that your movie is in the kevin bacon sequence.
- 7-) When adding it to the list, we also add movie name and connected actor name into the list.
- 8-) If there is no match then nodes won't change.
- 9-) Loop iterates until findNextBacon giving no result.

10-) After the last kevin bacon list created, all the actors in the remaining movies are added to a new list without a match, and the size of the list is printed to the user as the number of actors unrelated to kevin bacon.

12-) The actor name and surname information to be searched is obtained from the user and this information is recorded according to the text form in the list.

13-) After the list creation is complete, the actor is sought from the kevin bacon list. If there is a pairing, the prev nodes reach back to kevin bacon. Then Kevin bacon count is found and printed. Actor names and movie names in prev nodes are arranged and printed as desired output.

14-) If there is no match, the user is informed that the number of kevin bacon is infinite.

15-) The user is asked whether to search for a new actor or not, if a new actor is to be searched, name and surname information is taken again.

16-) The received information is scanned through the kevin bacon list already created and the kevin bacon information is given to the user.

## Screenshots:

### Input-1.txt - Kevin Bacon counts

```
Welcome to the Kevin Beacon Calculator
Please enter a file name(Ex : input-1.txt) :input-1.txt
Creating Kevin Bacon list...
This may take some time depending the file size.
Kevin Bacon Counts:
0.1
1.1494
Inf: 3
Kevin Bacon list succesfully created.
```

### Input-2.txt - Kevin Bacon counts

```
Welcome to the Kevin Beacon Calculator
Please enter a file name(Ex : input-1.txt) :input-2.txt
Creating Kevin Bacon list...
This may take some time depending the file size.
Kevin Bacon Counts:
0.1
1.61
2.25
3.36
4.120
5.182
6.248
7.76
8.302
9.237
10.43
11.6
Inf: 1176
Kevin Bacon list succesfully created.
```

### Input-3.txt - Kevin Bacon counts

```
Welcome to the Kevin Beacon Calculator
Please enter a file name(Ex : input-1.txt) :input-3.txt
Creating Kevin Bacon list...
This may take some time depending the file size.
Kevin Bacon Counts:
0.1
1.1372
2.93798
3.72980
4.1636
5.14
Inf: 717
Kevin Bacon list succesfully created.
```

## Kevin bacon list for actors in homework on input-3.txt

```
Please enter actor's name:Meryl
Please enter actor's surname:Streep
Meryl Streep's Kevin Bacon number is 1.
Kevin Bacon-Meryl Streep : The River Wild (1994)
Do you want to search another person with same list?(y/n) :y

Please enter actor's name:Nicolas
Please enter actor's surname:Cage
Nicolas Cage's Kevin Bacon number is 2.
Falconer Abraham-Nicolas Cage : Zandalee (1991)
Kevin Bacon-Falconer Abraham : The Air Up There (1994)
Do you want to search another person with same list?(y/n) :y

Please enter actor's name:Elie
Please enter actor's surname:Samaha
Elie Samaha's Kevin Bacon number is 3.
Jack Kruschen-Elie Samaha : 20 Dates (1998)
Falconer Abraham-Jack Kruschen : 00,000 Duck $1 (1971)
Kevin Bacon-Falconer Abraham : The Air Up There (1994)
Do you want to search another person with same list?(y/n) :y

Please enter actor's name:Dakota
Please enter actor's surname:Fanning
Dakota Fanning's Kevin Bacon number is 2.
Falconer Abraham-Dakota Fanning : I Am Sam (2001)
Kevin Bacon-Falconer Abraham : The Air Up There (1994)
Do you want to search another person with same list?(y/n) :y

Please enter actor's name:Adile
Please enter actor's surname:Naşit
Adile Naşit's Kevin Bacon number is infinite.
Do you want to search another person with same list?(y/n) :n
```

## 4 Actors are in the Kevin Bacon List

```
Please enter actor's name:Christian
Please enter actor's surname:Bale
Christian Bale's Kevin Bacon number is 2.
Falconer Abraham-Christian Bale : Velvet Goldmine (1998)
Kevin Bacon-Falconer Abraham : The Air Up There (1994)
Do you want to search another person with same list?(y/n) :y

Please enter actor's name:Will
Please enter actor's surname:Smith
Will Smith's Kevin Bacon number is 2.
Falconer Abraham-Will Smith : Where the Day Takes You (1992)
Kevin Bacon-Falconer Abraham : The Air Up There (1994)
Do you want to search another person with same list?(y/n) :y

Please enter actor's name:Tom
Please enter actor's surname:Hanks
Tom Hanks's Kevin Bacon number is 1.
Kevin Bacon-Tom Hanks : Apollo 13 (1995)
Do you want to search another person with same list?(y/n) :y

Please enter actor's name:Matt
Please enter actor's surname:Damon
Matt Damon's Kevin Bacon number is 2.
Falconer Abraham-Matt Damon : Titan A.E. (2000)
Kevin Bacon-Falconer Abraham : The Air Up There (1994)
Do you want to search another person with same list?(y/n) :
```

## 4- Actors does not in the Kevin Bacon List

```
Please enter actor's name:Kubilay
Please enter actor's surname:Aka
Kubilay Aka's Kevin Bacon number is infinite.
Do you want to search another person with same list?(y/n) :y

Please enter actor's name:Cihangir
Please enter actor's surname:Ceylan
Cihangir Ceylan's Kevin Bacon number is infinite.
Do you want to search another person with same list?(y/n) :y

Please enter actor's name:Filiz
Please enter actor's surname:Akın
Filiz Akın's Kevin Bacon number is infinite.
Do you want to search another person with same list?(y/n) :y

Please enter actor's name:Derya
Please enter actor's surname:Alabora
Derya Alabora's Kevin Bacon number is infinite.
Do you want to search another person with same list?(y/n) :
```