In the files:

[movies\_sample.txt](https://ku.blackboard.com/bbcswebdav/pid-192791-dt-content-rid-6731168_1/xid-6731168_1) and [movies\_full.txt](https://ku.blackboard.com/bbcswebdav/pid-192791-dt-content-rid-6731167_1/xid-6731167_1)

you will find a list of movies together with their actors. Every line represents a new movie starting with the movie name. Year of release is in the parentheses. Actors are separated with “/” characters, in format /Surname, Name/Surname, Name/…

Note that some actors might have only one name without a surname, in such case you can fill the actor’s surname as an empty string.

\* The file movies\_full.txt contains the full dataset; however, the input/output examples given in this document are obtained using the data in movies\_sample.txt.

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| In your code, you should use comments to explain which parts of the question are you trying to solve. There will be 10 points given for code structure, good formatting and clear comments. You will get 10 points if you check all the following points when you complete your code:   * Obvious comments are avoided * Necessary comments are explained with a simple language * Code has consistent indentation * Functions and variables have consistent naming * Empty/wrong user inputs are handled in code. |

In this assignment, you need to complete the following tasks:

**Create Actor and Movie classes.**

- Actor class has the following attributes and getters/setters:

    String name

    String surName

- Movie class has the following attributes and getters/setters:

    String name

    int releaseYear

    List<Actor> cast: list of actors who played a role in the movie

**Read the given file using Scanner in the main file:**

Extract movie names, release years, actor names, and actor surnames (you can use a pattern and a matcher to extract the movie data from each line).

**Create an Utils class and add the following functionalities:**

**1-** Add a method to find if two actor had co-starred in one or more movies. The user should enter the name and surname of the actors. Your method should return list of the movies sorted by their names in ascending order. You should use Collections/streams to solve this part.

(**Hint:** you can use the movie name (String) as a key for a map of Movies and the actor’s “name surname” as a String key for the Actor’s Map. For a more advanced method to handle this, you can check the use of hashCode and equals functions from the following tutorial: <https://www.javaworld.com/article/3305792/java-challengers-4-comparing-java-objects-with-equals-and-hashcode.html>)

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| **Input 1:**  Enter the name and surname of the actor separated by comma (without a space): Kevin Bacon,Benjamin Bratt  **Output 1:**  ‘Kevin Bacon’ and ‘Benjamin Bratt’ had co-starred in one movie:  River Wild, The  **Input 2:**  Enter the name and surname of the actor separated by comma: Kevin Bacon,Eddie Albert  **Output 2:**  ‘Kevin Bacon’ and ‘Eddie Albert’ had co-starred in more than one movie  Big Picture, The  Demon Murder Case, The |

**2-** Add a sorting method that returns an alphabetically ordered list of movies which starts with the given character. The user should be able to specify if it is in ascending or descending order. You should use Collections/streams in this part.

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| **Input 1**:  Enter the first character and ordering type: A ascending  **Output 1**:  Air Up There, The  Animal House  Apollo 13  **Input 2:**  Enter the first character and ordering type: D descending  **Output 2:**  Diner  Digging to China  Destination Anywhere  Demon Murder Case, The |

**3-** The user should be able to search for movies played by an (actor/actress)’s first name.

For example, if the user enters “Peter”. The output should be a list of all actors whose first name is “Peter” and for each of them, a list of movies he/she played in sorted by the movies release year (descending). The list should be sorted by by the actors’ last name. A sample of the input/output is given below. You can use Collections/streams in this part.

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| **Input:**  Search movies by first name, please enter the actor’s first name: Peter  **Output:**  Movies played by actors with first name “Peter”:  Actor’s Name/Surname    Movie(s) Title(s)  ------------------------------    ---------------------  Peter Appel            Sleepers (1996)  Peter Brouwer            Friday the 13th (1980)  Peter Gerety            Sleepers (1996), Demon Murder Case, The (1983) |

**4-** The user should be able to query a list of movies released in a certain period of time (inclusive) ordered by their release year, then their names. Sample example is below. You should use Collections/streams in this part.

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| **Input:**  Search movies by release date. Please enter the start year and end year of the period you want to search for separated by a space: 1999 2000  **Output**:  Movies released between 1999 – 2000:  Stir of Echoes     1999  Hollow Man         2000  My Dog Skip         2000  We Married Margo     2000 |

**5-** Find the actor who played in the maximum number of movies. And output the actor’s name and surname, the number of movies that actor was part in, in which year(s) was he/she the most active (i.e. the year(s) in which they played in maximum number of movies through their career). You should use Collections/streams for this part.

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| **Output:**  The actor with the maximum number of movies played in is Kevin Bacon who played in 45 movies.  1987,1991,1997 were his/her most productive year(s) with 4 movies in each. |

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