Exercise 8 (10 points) – can be done in pair or individually
- The first lines of all source files must be comments containing names & IDs of all members. Also create file readme.txt containing names & IDs of all members

- Put all files (source, input, readme.txt) in folder Ex8_xxx where xxx = ID of the group representative. That is, your source files must be in package Ex8_xxx and input files must be read from this path

- The group representative zips Ex8_xxx & submits it to Google Classroom. The other members submit only readme.txt. Email submission is not accepted
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1. Complete class ActorMap. Modify it as needed, but don't change the visibility of the given members.

```
class ActorMap {
    // Key = actor, Value = set of movies
    // Java's String already has consistent equals & compareTo for equality check

    private TreeMap<String, LinkedHashSet<String>> workingMap;
    private LinkedHashSet<String>                  resultSet;

    public void initialActors()
    {  /* Initialize resultSet to contain movies of all given actors */  }

    public void containActors()
    {  /* Find movies in resultSet containing given actors */  }

    public void withoutActors()
    {  /* Find movies in resultSet without given actors */     }
}
```

2. Write a main class to do the following:
   2.1 Read data from movies.txt into workingMap. Each input line consists of 1 movie name followed by a few actor names – all are separated by semi-colon (;)

   2.2 Print the content of working Map.

   2.3 Program must be able to loop for new queries from user:
   ```
   Menu = 0    Let the user enter a few actor names or surnames
               Initialize resultSet to contain the movies of all given actors

   Menu = 1    Let the user enter a few actor names or surnames
               From the current resultSet, find movies containing given actors

   Menu = 2    Let the user enter a few actor names or surnames
               From the current resultSet, find movies without given actors
   ```

   ** results from all menus must be obtained by set operations (i.e. don't compare movies of any 2 actors one-by-one)

Note: use String's contains to check whether a String contain given substring

```java
String substring  = "tom";
String fullstring = "Tom Hanks";
if ( fullstring.toLowerCase().contains(substring) )
    System.out.println("exist");
```

```
--- exec-maven-plugin:3.0.0:exec (default-cli) @ solutions ---
Total movies = 60
Total actors = 85

        Al Pacino  >>  Donny Brasco              Heat
    Alec Guinness  >>  Kafka
    Alison Lohman  >>  Beowulf                   Matchstick Men          Where the Truth Lies
    Angelina Jolie  >>  Beowulf                  Gone in 60 Seconds      Life or Something Like It      Taking Lives
   Angelo Rossitto  >>  The Dark
   Anthony Hopkins  >>  Beowulf                  The Mask of Zorro
  Antonio Banderas  >>  The Mask of Zorro
       Ashley Judd  >>  A Time to Kill           Heat
        Beau Starr  >>  Speed                    Where the Truth Lies
       Ben Affleck  >>  Daredevil                Good Will Hunting

...

       Tom Cruise  >>  Minority Report       Vanilla Sky
        Tom Hanks  >>  Apollo 13             Forrest Gump          Saving Private Ryan
        Val Kilmer  >>  The Saint
  Vittorio Gassman  >>  Sleepers
      Willam Hurt  >>  The Village
    William Devane  >>  Hollow Man            The Dark
===================================================================================================
Find movies >> 0 = set initial actors,
               1 = contain actors,
               2 = without actors,
           others = quit
 0
Add names or surnames separated by comma =
tom, mary, bacon, robert
Valid input actors = [Tom Cruise, Tom Hanks, Kevin Bacon, Julia Roberts, Robert De Niro, Robert Wagner]

       Tom Cruise  >>  Minority Report       Vanilla Sky
        Tom Hanks  >>  Apollo 13             Forrest Gump          Saving Private Ryan
      Kevin Bacon  >>  Apollo 13             Flatliners            Hollow Man            Loverboy
                   >>  My Dog Skip           Novocaine             Picture Perfect       Sleepers
                   >>  Stir of Echoes        Where the Truth Lies  White Water Summer    Wild Things
    Julia Roberts  >>  Flatliners            Ocean's Eleven        Pretty Woman
   Robert De Niro  >>  Heat
    Robert Wagner  >>  Midway                The Player            Wild Things

Result = [Minority Report, Vanilla Sky, Apollo 13, Forrest Gump, Saving Private Ryan, Flatliners, Hollow Man, Loverboy, My Dog Skip, Novocaine, Picture
 Sleepers, Stir of Echoes, Where the Truth Lies, White Water Summer, Wild Things, Ocean's Eleven, Pretty Woman, Heat, Midway, The Player]

Total movies = 21

===================================================================================================
Find movies >> 0 = set initial actors,
               1 = contain actors,
               2 = without actors,
           others = quit
 1
Add names or surnames separated by comma =
hanks, kevin, gary
Valid input actors = [Tom Hanks, Kevin Bacon, Gary Sinise]

        Tom Hanks  >>  Apollo 13             Forrest Gump          Saving Private Ryan
      Kevin Bacon  >>  Apollo 13             Flatliners            Hollow Man            Loverboy
                   >>  My Dog Skip           Novocaine             Picture Perfect       Sleepers
                   >>  Stir of Echoes        Where the Truth Lies  White Water Summer    Wild Things
      Gary Sinise  >>  Apollo 13             Forrest Gump          The Quick and The Death

Result = [Apollo 13]

Total movies = 1
```

```
=================================================================================================
Find movies >> 0 = set initial actors,
             1 = contain actors,
             2 = without actors,
         others = quit
0
Add names or surnames separated by comma =
tom, mary, bacon, robert
Valid input actors = [Tom Cruise, Tom Hanks, Kevin Bacon, Julia Roberts, Robert De Niro, Robert Wagner]

        Tom Cruise  >>  Minority Report             Vanilla Sky
        Tom Hanks  >>  Apollo 13                    Forrest Gump                Saving Private Ryan
       Kevin Bacon  >>  Apollo 13                    Flatliners                  Hollow Man                  Loverboy
                   >>  My Dog Skip                  Novocaine                   Picture Perfect             Sleepers
                   >>  Stir of Echoes               Where the Truth Lies        White Water Summer          Wild Things
     Julia Roberts  >>  Flatliners                   Ocean's Eleven              Pretty Woman
    Robert De Niro  >>  Heat
    Robert Wagner  >>  Midway                       The Player                  Wild Things

Result = [Minority Report, Vanilla Sky, Apollo 13, Forrest Gump, Saving Private Ryan, Flatliners, Hollow Man, Loverboy, My Dog Skip, Novocaine, Picture
 Sleepers, Stir of Echoes, Where the Truth Lies, White Water Summer, Wild Things, Ocean's Eleven, Pretty Woman, Heat, Midway, The Player]

Total movies = 21
=================================================================================================
Find movies >> 0 = set initial actors,
             1 = contain actors,
             2 = without actors,
         others = quit
2
Add names or surnames separated by comma =
kevin
Valid input actors = [Kevin Bacon]

       Kevin Bacon  >>  Apollo 13                    Flatliners                  Hollow Man                  Loverboy
                   >>  My Dog Skip                  Novocaine                   Picture Perfect             Sleepers
                   >>  Stir of Echoes               Where the Truth Lies        White Water Summer          Wild Things

Result = [Minority Report, Vanilla Sky, Forrest Gump, Saving Private Ryan, Ocean's Eleven, Pretty Woman, Heat, Midway, The Player]

Total movies = 9
```