

Exercise 8 (10 points) - individual work

- The first lines of all source files must be comment containing your name & ID
 - Put all files (source, input, output) in folder **Ex8_xxx** where **xxx = your full ID**. That is, your source files must be in package **Ex8_xxx** and input/output files (if there is any) must be read from/write to this folder
 - Zip **Ex8_xxx** & submits it to Google Classroom. Email submission is not accepted
- =====

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

```
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
    William 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
Kevin Bacon >> Apollo 13           Flatliners
               >> My Dog Skip      Novocaine
               >> Stir of Echoes   Where the Truth Lies
Julia Roberts >> Flatliners        Ocean's Eleven
Robert De Niro >> Heat
Robert Wagner >> Midway            The Player

Saving Private Ryan
Hollow Man
Picture Perfect
White Water Summer
Pretty Woman
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
               >> My Dog Skip      Novocaine
               >> Stir of Echoes   Where the Truth Lies

Hollow Man
Picture Perfect
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

```