Relatives database (24 Points)

a) Relatives (18 points)

Create a class for managing relationships `(Relatives.java)`. This Relatives class should be able to manage a group of people `(Person.java)` and make several queries it available. You can assume that the names of the people are always unique in the input data.

The people-class to this include the following information:

- First name `(String)`
- Gender `(enum Gender)`
- Father `(person)`
- Mother `(Person)`
- Partner `(person)`

The Relative class should permit the following queries:

- `getPersons ()` returns all individuals in the database
- `getPersonMap ()` returns a (non-alterable) Figure of `(String)` to person
- `getAncestors (Person person)` provides all ancestors of the specified person
- `getDescendants (Person person)` returns all descendants of the specified person
- `getNumberOfAncestors ()` provides an illustration of person on number ancestors `(Integer)`
- `getNumberOfDescendants ()` provides an illustration of person on number Descendants `(Integer)`
- `getCommonAncestors (Collection <Person> pers)` provides for more than one person, the common ancestor
- `getCommonDe scendants (Collection <Person> pers)` provides for more than one person, the common descendants
- `getAncestorComparator ()` returns a `Comparator <Person>`, the (low) ranked first by number ancestors and then by Name (ascending)
- `getDescendantComparator ()` returns a `Comparator <Person>`, the (low) ranked first by the number of offspring and then by Name (ascending)

Ancestors here are the parents + the parents of the parents + ...
Descendants are the children + children of the children ... +

The aim of this task is, the functions of collections - to use library. So you should try the task as far as possible to solve using the collections. You are also welcome to use the streaming API.

When you create the interface of the class not to use general possible parameter types (eg `Map` and `HashMap` not) and the return in the right form (eg immutable).

A class `Person  Data` is given, there is in it a field named `DATA`, which contains sample data. The data is stored in an array of strings, each string a person describes. contains the string, separated by spaces:

- first given name
- Gender ("F" or "M")
- First name of the father (or "-" if not in the database)
- First name of the mother (or "-" if not in the database)
- First name of the partner / partner (or "-" if not / not yet in the database)

```
package at.jku.ssw.swe.relatives;

public class Person {Data
            public static final String [] DATA = new String []
     {
                   "Adelia F Demarcus Allena -"
                   "Allena F Jae Joni Demarcus"
                   "Aron M Demarcus Allena -"
                   "Bernadette F Demarcus Allena -"
                   "Darius M - - Elena"
                   "Daron M Darius Elena Tamekia"
                   "Demarcus M Darius Elena Allena"
                   "Elena F - - Darius"
                   "Jae M - - Joni"
                   "Jesenia F Jae Joni -"
                   "Joni F - - Jae"
                   "Karl M Darius Elena -"
                   "Kathlene F Monty Pauletta -"
                   "Kraig M Daron Tamekia -"
                   "Lelah F Daron Tamekia -"
                   "Monty M - - Pauletta"
                   "Pauletta F - - Monty"
                   "Tamekia F Monty Pauletta Daron"
                   "Vernell F Daron Tamekia -"
            };
}
```

The constructor of the class Relative to accept such an array of strings, evaluate and initialize the database with this information. You can assume that the input data is correct, ie no duplicate names and all fathers / mothers / partners exist in the database.

b) sample data (6 points)

Create a program that uses the Relative class to perform the following queries on the sample data (it is not necessary to program an interactive console application):

- What are the descendants of Pauletta? What are the descendants of Darius? What are the descendants of Joni?
- What are the common descendants of Darius and Joni? What are the common ancestor of Adelia and Lelah?
- A sorted by number descendants and name list of all persons.
- Who exactly two ancestors?
- What is the family (ancestors + descendants) of Allena?
- A sorted by number ancestors and name list of women who have children in the database.

Your program should output these questions and the answers in text on the console.

```
descendents of Pauletta: [Lelah, Vernell, Kathlene, Kraig,
     Tamekia]
descendents of Darius: [Daron, Lelah, ...
...
```

Close the console output in your training dispenser with a.