

Introduction to Programming exam: The Britannia

In this exam you are going to build "The Britannia Passenger app!". This application registers the passengers for the ship 'The Britannia'. For each passenger the name, sex, age, weight and travel-class are registered.

When the user starts the application, a menu will be shown. This menu offers the following options and functionality.

```
Welcome to the Britannia's passenger list!
-----
Number of passengers: 0
1. Read from passengers.csv
2. Show all passengers
3. Add a passenger
4. Show statistics
0. Exit
```

Note: the number of passengers will initially be zero (0). After choosing menu option 1, passengers read from the csv file should be present in the system and the number of passengers should be updated accordingly.

Option 1: Read from passengers.csv

The application will read the file passengers.csv and add all passengers mentioned in that file. Make sure that the first line from the csv file will be skipped.

Option 2: Show an overview of the passengers

The application gives an overview of all the passengers. For each passenger show the following data:

- name
- sex
- class
- age
- weight

```
Welcome to the Britania's passenger list!
-----
Number of passengers: 18
1. Read from passengers.csv
2. Show all passengers
3. Add a passenger
4. Show statistics
0. Exit
2
This is an overview of all the passengers

Barbra Streisand (F) age:80 weight:80.5 travels in class: 1
Peter Parker (M) age:25 weight:55.6 travels in class: 3
Clark Kent (M) age:35 weight:105.6 travels in class: 2
Robert De Niro (M) age:79 weight:85.3 travels in class: 3
Marlon Brando (M) age:79 weight:79.5 travels in class: 1
Katharine Hepburn (F) age:79 weight:65.3 travels in class: 2
Meryl Streep (F) age:72 weight:62.9 travels in class: 3
Ingrid Bergman (F) age:76 weight:69.2 travels in class: 3
Tom Hanks (M) age:68 weight:85.9 travels in class: 1
Elizabeth Taylor (F) age:79 weight:62.3 travels in class: 1
Bette Davis (F) age:72 weight:59.3 travels in class: 1
Leonardo DiCaprio (M) age:50 weight:80.5 travels in class: 3
Audrey Hepburn (F) age:80 weight:61.5 travels in class: 2
Kate Winslet (F) age:53 weight:65.5 travels in class: 1
Diane Keaton (F) age:55 weight:61.9 travels in class: 2
Julia Roberts (F) age:49 weight:64.3 travels in class: 3
Jodie Foster (F) age:55 weight:60.3 travels in class: 2
Morgan Freeman (M) age:79 weight:75.3 travels in class: 2
Press a key to continue
```

Option 3: Add a passenger

The application prompts the user for a name, sex, class, age and weight. The application checks if the entered information lies between the mentioned boundaries. If this is not the case, the user should be prompted again to enter the information.

Item	Rules
Name	May not be empty
Sex	M, F, N (Male, Female, Non-binary)
Class	1,2,3
Age	Number between 0 and 110
Weight	Number between 40.0 and 120.0

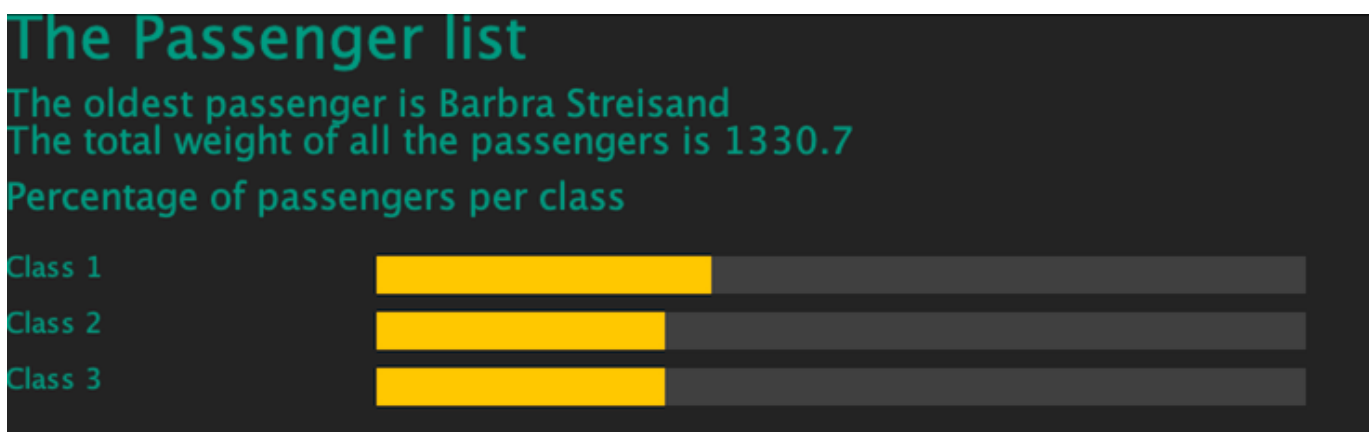
```

Welcome to the Britania's passenger list!
-----
Number of passengers: 18
1. Read from passengers.csv
2. Show all passengers
3. Add a passenger
4. Show statistics
0. Exit
3
What is the name of the passenger?
Anthony van den Berg
What is the sex of the passenger (M , F , N)?
v
Incorrect format for sex
What is the sex of the passenger (M , F , N)?
M
What is the class of the passenger? (1,2, or 3)
4
Incorrect format for passenger class
What is the class of the passenger? (1,2, or 3)
1
What is the age of the passenger? (between 0 and 110)
200
Impossible age for the passenger.
What is the age of the passenger? (between 0 and 110)
56
How heavy is the passenger? (between 40.0 to 120.0)
88.0
Person is successfully added. Press a key to continue

```

Option 4: Show statistics

Present the user with statistics based on the passenger list. The statistics should look as follows.

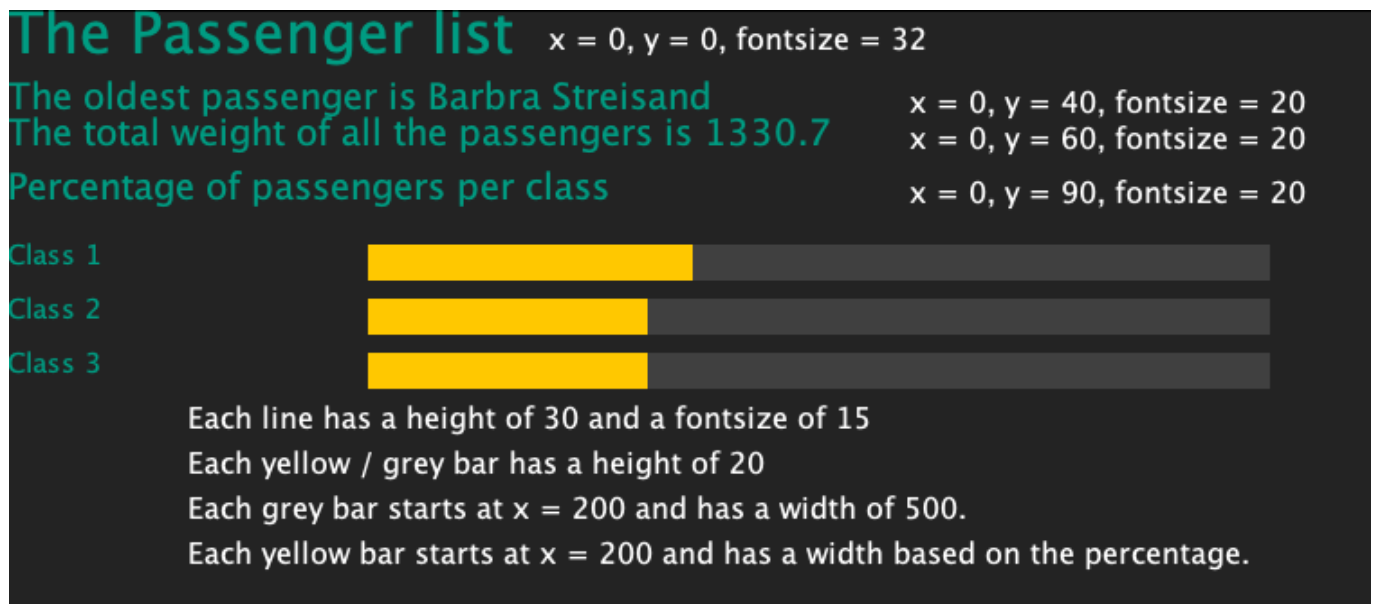


On top of the screen, the oldest passenger will be shown (in case of multiple passengers with the same age, just pick one of them).

After that the sum of the weights of all the passengers will be shown. Present this value in 1 decimal format.

Below that a visual presentation will be made of the percentage of users traveling in 1st, 2nd and 3rd class. Suppose there are only passengers traveling 1st class, this bar will be fully filled and the others will not be filled. The percentages of the 3 categories should add up to 100%.

Please look at the image below, it will help you with creating the layout.



A few tips to start

- Most important, read the assignment carefully!
- Start with structuring your program. For instance, by using code comments first, as you have during this course.
- Start small, with a part that you are able to solve.
- Test your program often, not just in the end!
- Remember and apply the tips about 'good' code. For instance, use clear variable names and methods where you seem fit.
- The csv file can be opened with: `new CsvReader("passengers.csv");`. You do not need an additional path in this call.
- In case you get stuck. Try to find a workaround. For instance, when you fail to read the csv file, you can add some passengers manually in the code.
- Good luck!