LAB EXAM 8

Section 2

Apr. 12, 2016

In this lab exam, you are going to write a program that maintains an array of players for a game program.

In this game, the players are stores by their name and score. First, write a class, called Player, to model a player. Next, write a class, called Game, which maintains the players in a partially filled ordered array of players. The players will be ordered by their scores in decreasing order.

The Game class will have a menu driven interface that allows the user to add, search, remove and list the users.

Initially the array will be empty. With the addition of the first player, the size of the array will be 1. In general, the size of the array should be doubled when there is no room for adding a new player.

The Game class should implement the following methods:

- insert, that inserts a new player.
- search, that returns the position of a player whose name is given. It returns -1 if no player by this named is seen.
- remove, that removes a player, whose position in the array is given. It should validate the position given.
- list, that lists the players in the partially filled array. It should also display the percentage of the array being used.

Sample Run:
User entries are in red.

```
What do you want to do?
A) Add a new player
S) Search for a player
R) Remove a player
L) List all players
E) Exit
Your choice: A
Enter the name and the score of the new player: Deniz 100

What do you want to do?
A) Add a new player
S) Search for a player
```

```
R) Remove a player
L) List all players
E) Exit
Your choice: A
Enter the name and the score of the new player: Can 120

What do you want to do?
A) Add a new player
S) Search for a player
R) Remove a player
L) List all players
E) Exit
Your choice: A
Enter the name and the score of the new player: Umit 115

What do you want to do?
A) Add a new player
S) Search for a player
R) Remove a player
L) List all players
E) Exit
Your choice: L
[Can(120), Umit(115), Deniz(100)] Array is 75% full.

What do you want to do?
A) Add a new player
S) Search for a player
R) Remove a player
L) List all players
E) Exit
Your choice: A
Enter the name and the score of the new player: Gorkem 95

What do you want to do?
A) Add a new player
S) Search for a player
R) Remove a player
L) List all players
E) Exit
Your choice: S
Enter the name of the player: Deniz
Deniz appears in position 2

What do you want to do?
A) Add a new player
S) Search for a player
R) Remove a player
L) List all players
```

```
E) Exit
Your choice: R
Enter the position of the player to be removed: 5
To remove a player, the position must be between 0 and 3

What do you want to do?
A) Add a new player
S) Search for a player
R) Remove a player
L) List all players
E) Exit
Your choice: R
Enter the position of the player to be removed: 2

What do you want to do?
A) Add a new player
S) Search for a player
R) Remove a player
L) List all players
E) Exit
Your choice: L
[Can(120), Umit(115), Gorkem(95)] Array is 75% full.

What do you want to do?
A) Add a new player
S) Search for a player
R) Remove a player
L) List all players
E) Exit
Your choice: E
```

Note that this is an exam. You are not allowed to communicate with any person other than your teaching assistant. Those who do not obey this rule will be subject to disciplinary investigation.

You can use only the features (techniques, classes, methods and statements) that are covered in the class. After finishing your work, select your folder (e.g. Lab08), then right click and select “Send to” option. Click “Compressed (zipped) folder”. Rename your zip file as “Lab08_Surname_Name”. Note that, your file type is “zip”, namely your file name will not be “Lab08_Surname_Name.zip”. Upload your zip file to Unilica. Note that you must upload your file before 11:40; you cannot upload your file after that time.