14 – DAY – TASK (13-08-2024)

1. **Create a Java class with user defined exception handling**

   Code:

   UserException.java File:

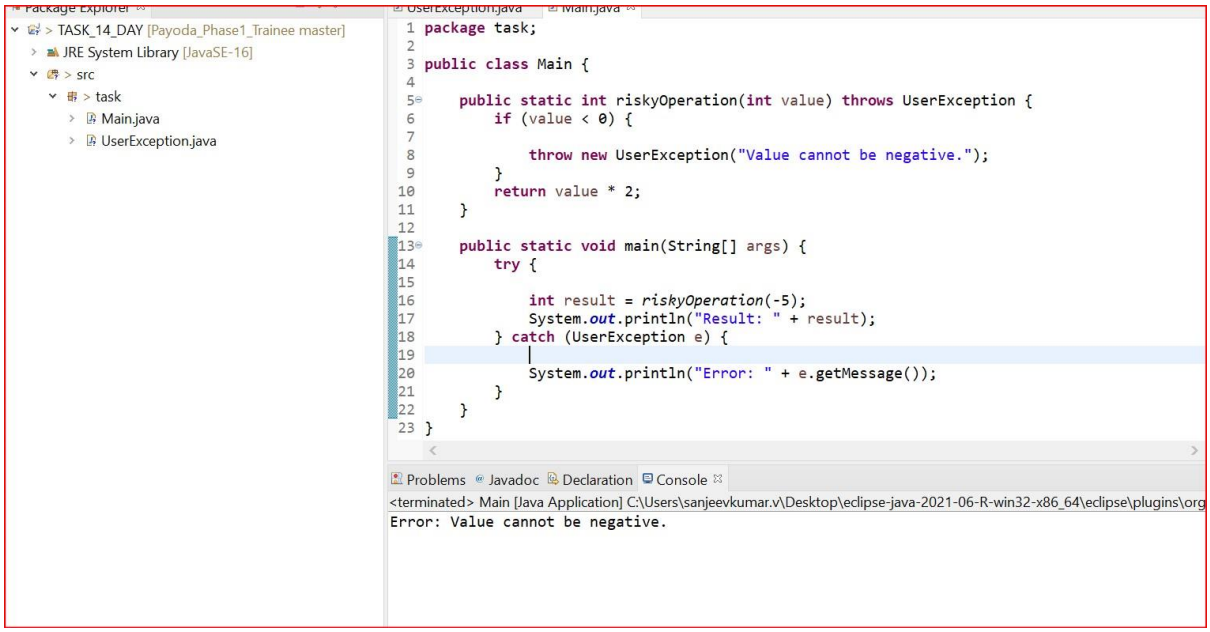
```
package task;

public class UserException extends Exception {
/**
 *
 */
private static final long serialVersionUID = -6327011303529182059L;

public UserException(String message) {
super(message);
}
}
```

   Main.java File:

```
package task;

public class Main {

  public static int riskyOperation(int value) throws UserException {
    if (value < 0) {

      throw new UserException("Value cannot be negative.");
    }
    return value * 2;
  }

  public static void main(String[] args) {
    try {

      int result = riskyOperation(-5);
      System.out.println("Result: " + result);
```

```
        } catch (UserException e) {

            System.out.println("Error: " + e.getMessage());
        }
    }
}
```

Output:



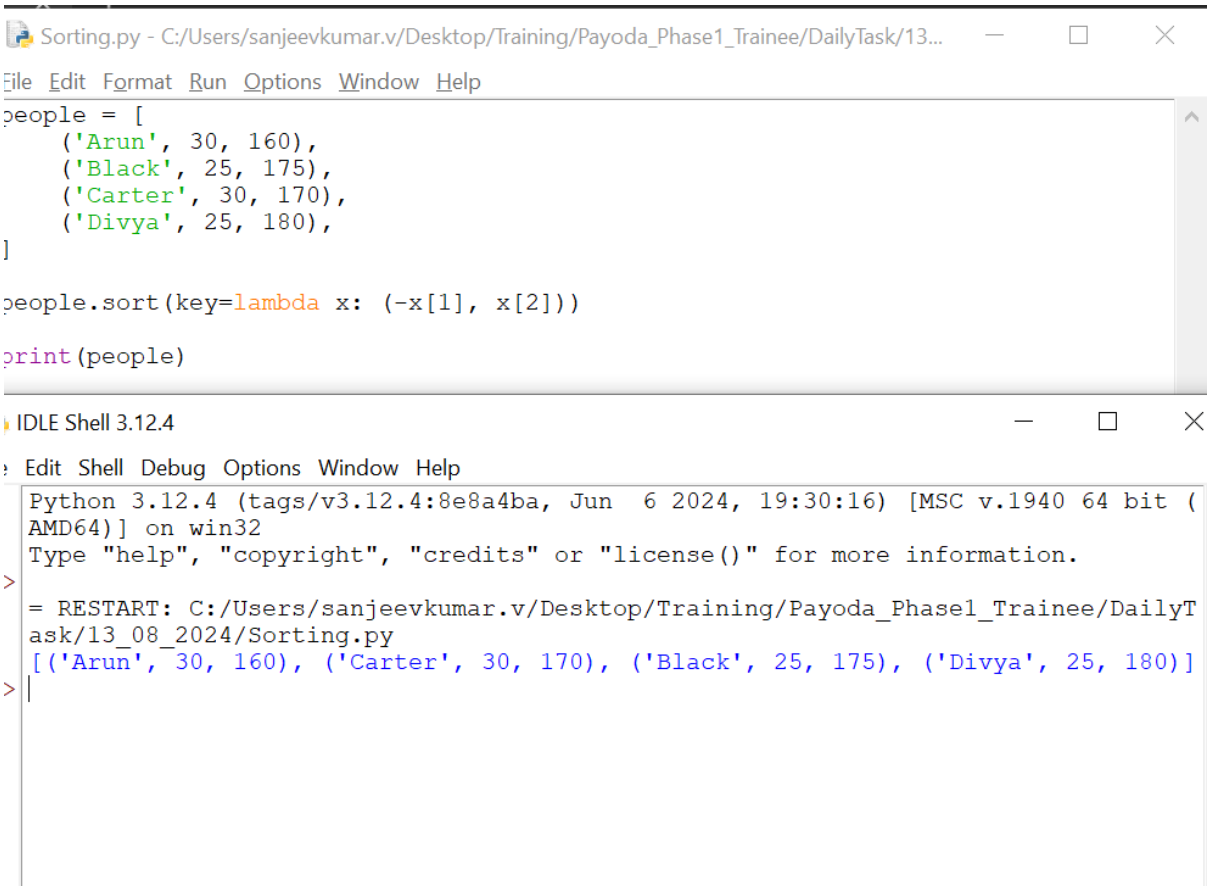
2. Modify below sorted list of user with name, age and height such that age can be descending and height as ascending using python.

“people = [('Arun', 30, 160), ('Black', 25, 175), ('Carter', 30, 170), ('Divya', 25, 180)]

Code:

```
people = [
   ('Arun', 30, 160),
   ('Black', 25, 175),
   ('Carter', 30, 170),
   ('Divya', 25, 180),
]

people.sort(key=lambda x: (-x[1], x[2]))

print(people)
```

Output:



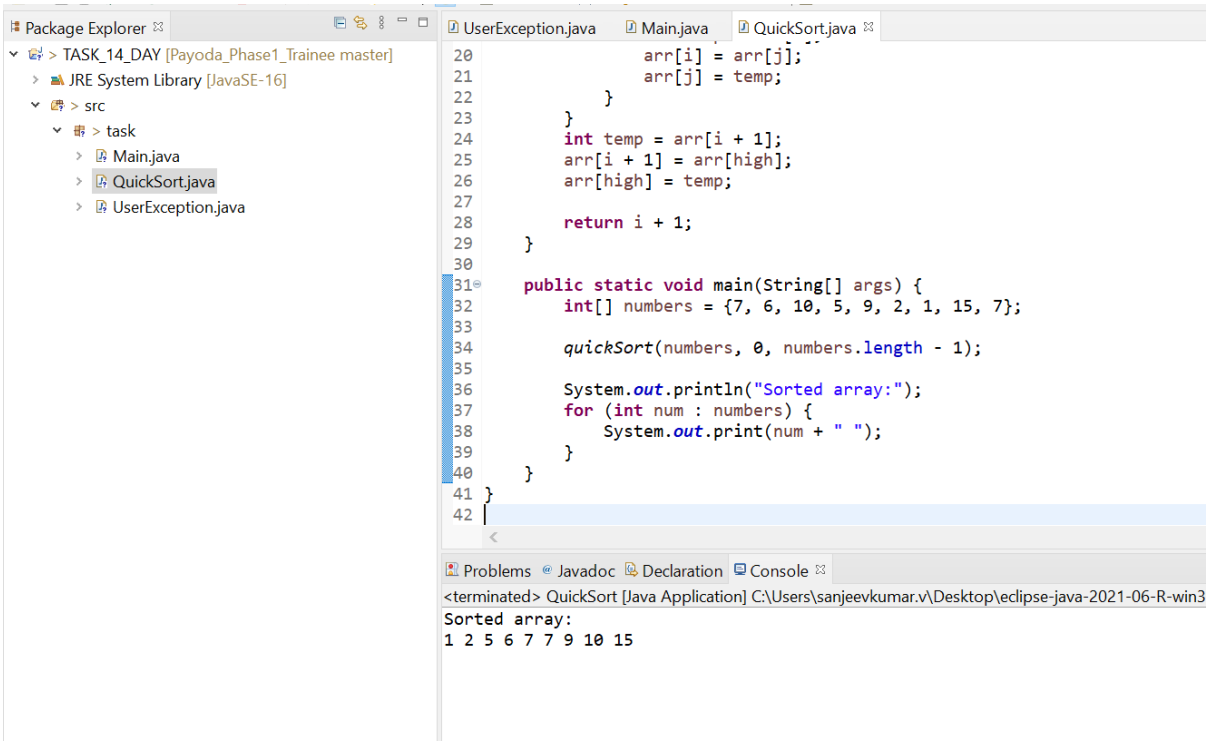
3. Implement quick sort and display sorted values for [7,6,10,5,9,2,1,15,7] using java or python

Code:

```
package task;

public class QuickSort {

  public static void quickSort(int[] arr, int low, int high) {
    if (low < high) {
      int pi = partition(arr, low, high);
      quickSort(arr, low, pi - 1);
      quickSort(arr, pi + 1, high);
    }
  }

  private static int partition(int[] arr, int low, int high) {
```

```
    int pivot = arr[high];
    int i = low - 1;
    for (int j = low; j < high; j++) {
      if (arr[j] <= pivot) {
        i++;
        int temp = arr[i];
        arr[i] = arr[j];
        arr[j] = temp;
      }
    }
    int temp = arr[i + 1];
    arr[i + 1] = arr[high];
    arr[high] = temp;

    return i + 1;
  }

  public static void main(String[] args) {
    int[] numbers = {7, 6, 10, 5, 9, 2, 1, 15, 7};

    quickSort(numbers, 0, numbers.length - 1);

    System.out.println("Sorted array:");
    for (int num : numbers) {
      System.out.print(num + " ");
    }
  }
}
```

Output:


Package Explorer
> TASK_14_DAY [Payoda_Phase1_Trainee master]
JRE System Library [JavaSE-16]
> src
> task
Main.java
QuickSort.java
UserException.java
UserException.java
Main.java
QuickSort.java
arr[i] = arr[j];
arr[j] = temp;
}
}
int temp = arr[i + 1];
arr[i + 1] = arr[high];
arr[high] = temp;
return i + 1;
}
public static void main(String[] args) {
int[] numbers = {7, 6, 10, 5, 9, 2, 1, 15, 7};
quickSort(numbers, 0, numbers.length - 1);
System.out.println("Sorted array:");
for (int num : numbers) {
System.out.print(num + " ");
}
}
}
Problems
Javadoc
Declaration
Console
<terminated> QuickSort [Java Application] C:\Users\sanjeevkumar.v\Desktop\eclipse-java-2021-06-R-win3
Sorted array:
1 2 5 6 7 7 9 10 15