DATE : 13.08.2024

1. Create a Java class with user defined exception handling

CODE:

person.java:

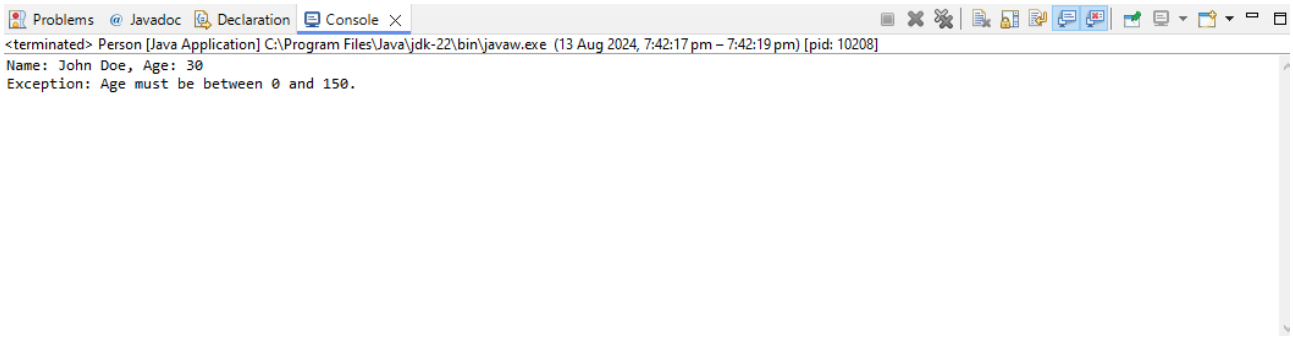
```
package com.task;
//Person.java
public class Person {
 private String name;
 private int age;
 // Constructor
 public Person(String name, int age) throws InvalidAgeException {
    this.name = name;
    setAge(age); // Set age with validation
 }
 // Getter for age
 public int getAge() {
    return age;
 }
 // Setter for age with exception handling
 public void setAge(int age) throws InvalidAgeException {
    if (age < 0 || age > 150) {
       throw new InvalidAgeException("Age must be between 0 and 150.");
    }
    this.age = age;
 }
 // Getter for name
 public String getName() {
    return name;
 }
 // Method to display person information
 public void displayPersonInfo() {
    System.out.println("Name: " + name + ", Age: " + age);
 }
 public static void main(String[] args) {
    try {
       Person person1 = new Person("John Doe", 30);
       person1.displayPersonInfo();
       // This will throw an InvalidAgeException
       Person person2 = new Person("Jane Doe", 200);
    } catch (InvalidAgeException e) {
       System.out.println("Exception: " + e.getMessage());
    }
 }
```

```
}
```

InvalidAgeException.java :

```
package com.task;
//InvalidAgeException.java
public class InvalidAgeException extends Exception {
 // Constructor that accepts a message
 public InvalidAgeException(String message) {
    super(message);
 }
}
```

OUTPUT:



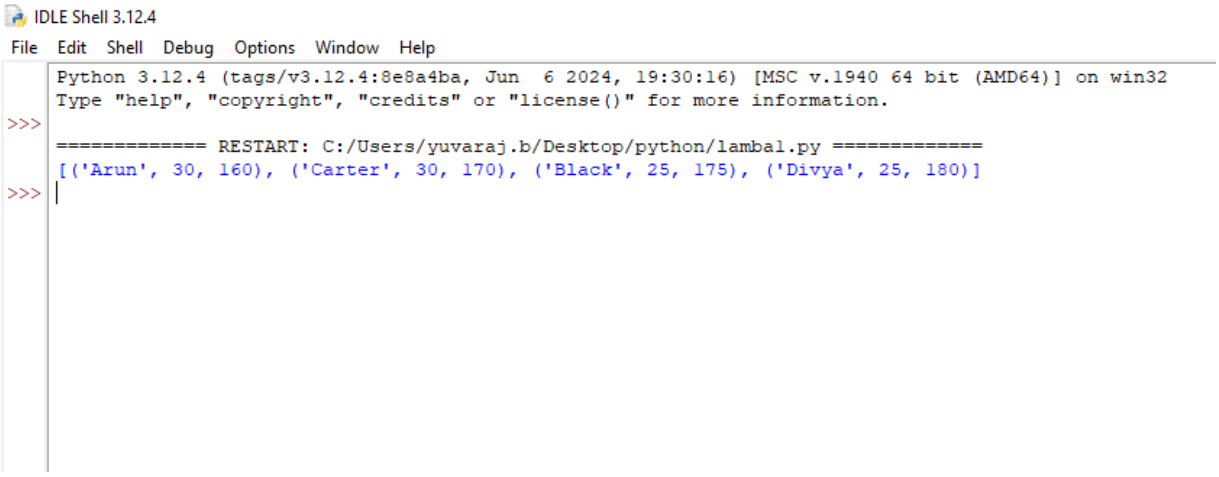
2. Modify below sorted list of user with name, age and height such that age can be descending and height as ascending using python

“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),
]
# Sort by age (descending) and then by height (ascending)
sorted_people = sorted(people, key=lambda x: (-x[1], x[2]))
print(sorted_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:

```
def quick_sort(arr):
    if len(arr) <= 1:
        return arr
    pivot = arr[len(arr) // 2]
    left = [x for x in arr if x < pivot]
    middle = [x for x in arr if x == pivot]
    right = [x for x in arr if x > pivot]
    return quick_sort(left) + middle + quick_sort(right)
# Example usage
array = [7, 6, 10, 5, 9, 2, 1, 15, 7]
sorted_array = quick_sort(array)
print("Sorted array:", sorted_array)
```

OUTPUT: