Assignment – Module 5

1. Create a Java class with user defined exception handling
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),

   ]

   # Sort by age (ascending) and then by height (descending)

   sorted_people = sorted(people, key=lambda x: (x[1], -x[2]))

   print(sorted_people)”

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

Answers:-

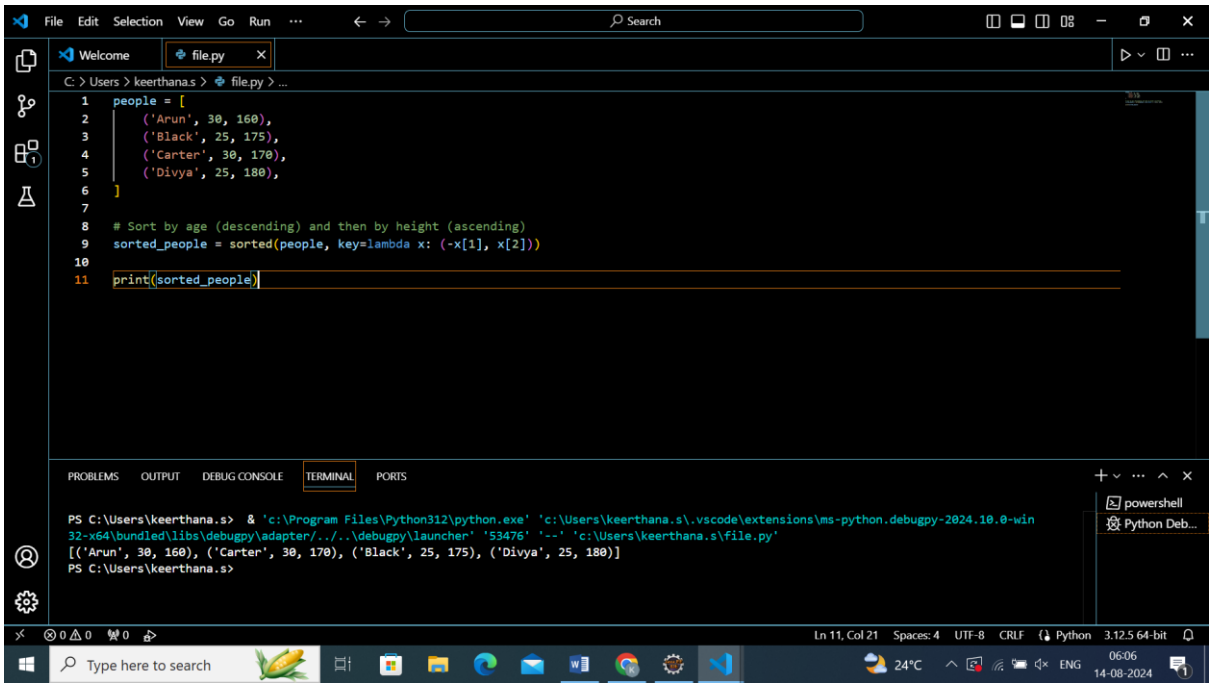
2. “people = [

   ('Arun', 30, 160),

   ('Black', 25, 175),

   ('Carter', 30, 170),

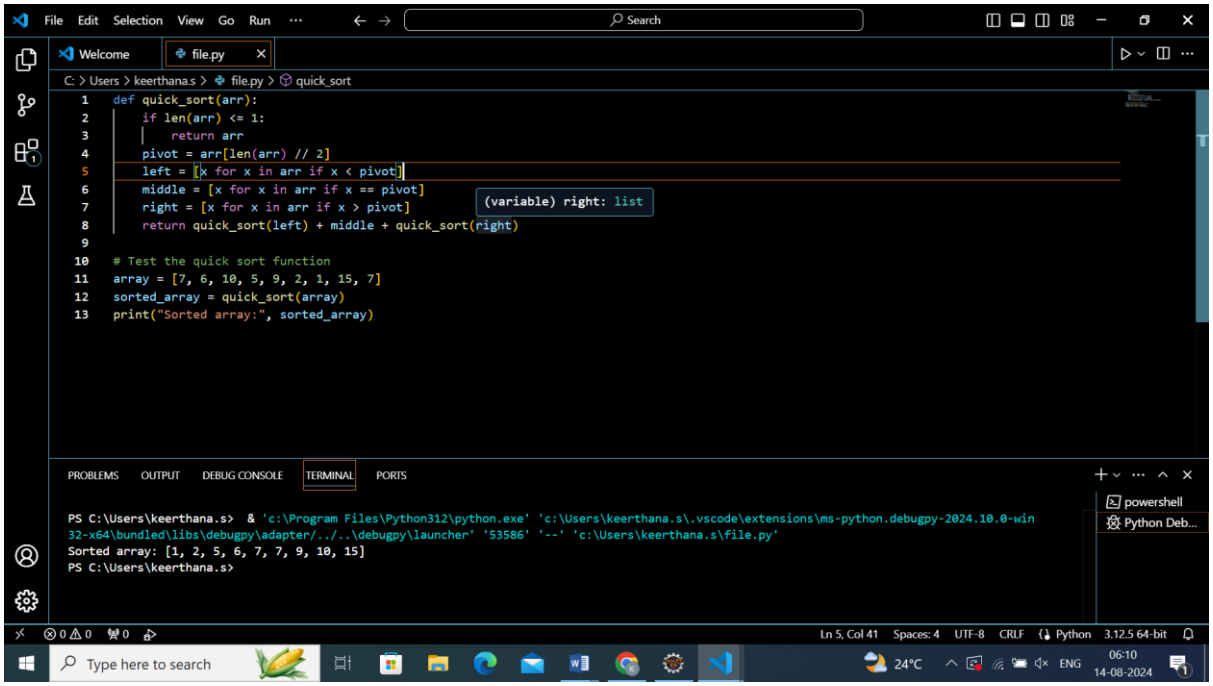
```
    ('Divya', 25, 180),
]
```



3.

```
def quick_sort(arr):
    if len(arr) <= 1:
        return arr
    else:
```

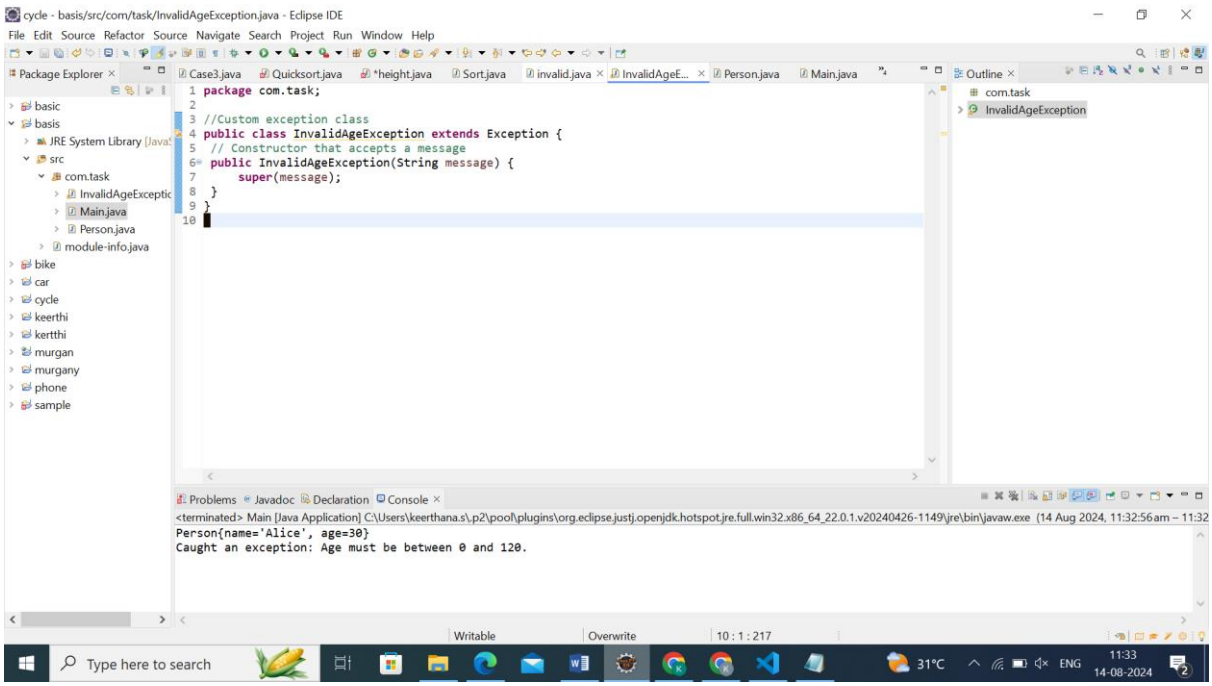
```
    pivot = arr[len(arr) // 2]
    left = [x for x in arr if x < pivot]
    middle = [x for x in arr if x == pivot]
    right = [x for x in arr if x > pivot]
    return quick_sort(left) + middle + quick_sort(right)

# Given list
data = [7, 6, 10, 5, 9, 2, 1, 15, 7]

# Sorting the list using quick sort
sorted_data = quick_sort(data)

# Displaying the sorted values
print("Sorted values:", sorted_data)
```



1. Create a Java class with user defined exception handling

```
package com.task;


//Custom exception class
public class InvalidAgeException extends Exception {
 // Constructor that accepts a message
 public InvalidAgeException(String message) {
    super(message);
 }
}
```

Output:-

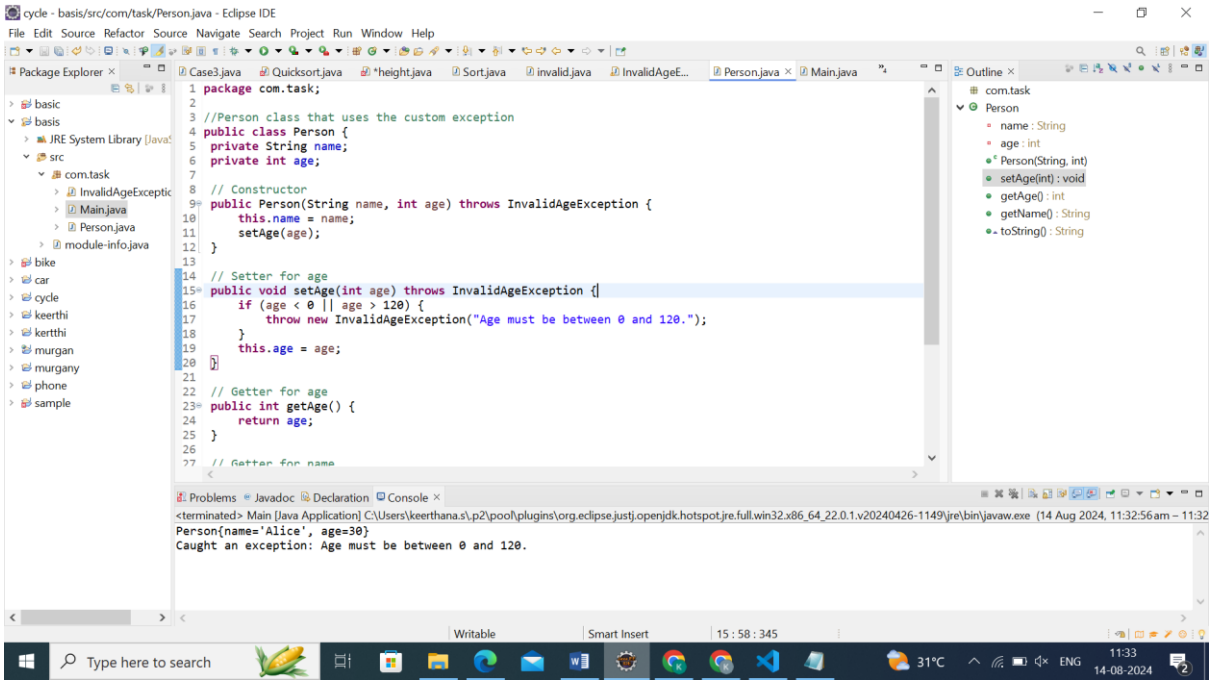



```
package com.task;


//Person class that uses the custom exception
public class Person {
 private String name;
 private int age;


 // Constructor
```

```
 public Person(String name, int age) throws
InvalidAgeException {
    this.name = name;
    setAge(age);
 }

 // Setter for age
 public void setAge(int age) throws InvalidAgeException {
    if (age < 0 || age > 120) {
        throw new InvalidAgeException("Age must be
between 0 and 120.");
    }
    this.age = age;
 }

 // Getter for age
 public int getAge() {
    return age;
 }
```

```
    // Getter for name
    public String getName() {
        return name;
    }

    @Override
    public String toString() {
        return "Person{name='" + name + "', age=" + age + '}';
    }
}
```

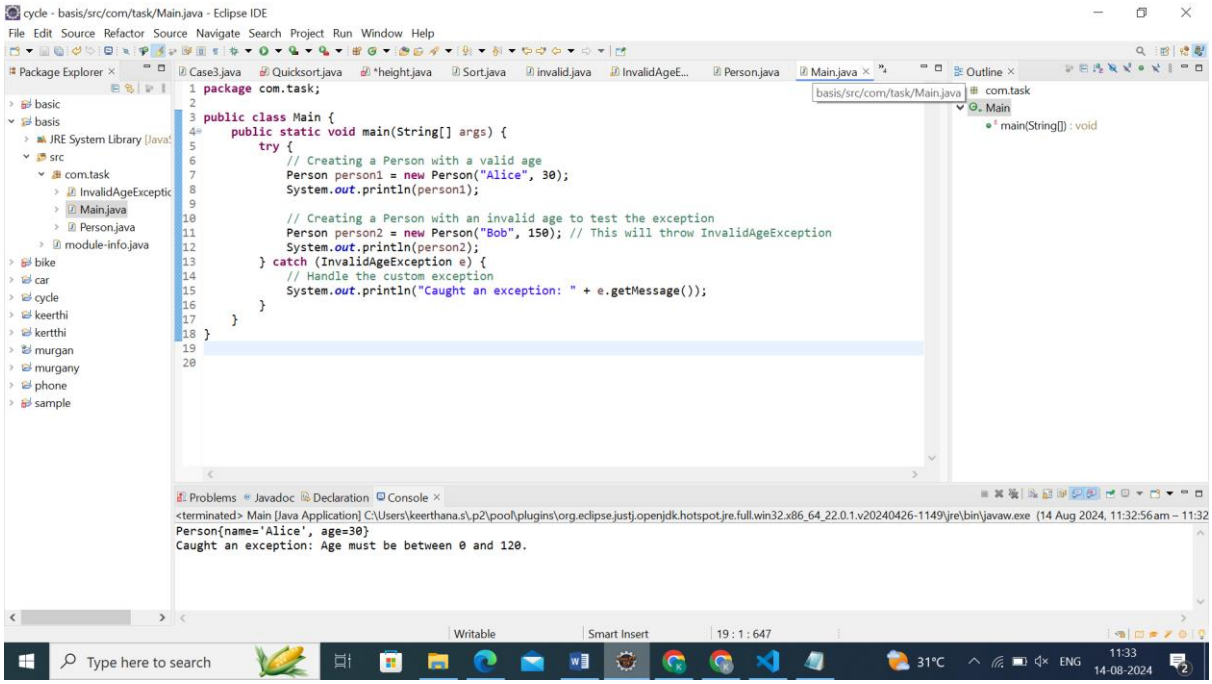
Output:-




```
package com.task;


public class Main {
    public static void main(String[] args) {
        try {
            // Creating a Person with a valid age
            Person person1 = new Person("Alice", 30);
            System.out.println(person1);
```

```
        // Creating a Person with an invalid age to test the exception
        Person person2 = new Person("Bob", 150); // This will throw InvalidAgeException
        System.out.println(person2);
    } catch (InvalidAgeException e) {
        // Handle the custom exception
        System.out.println("Caught an exception: " + e.getMessage());
    }
  }
}
```

Output


cycle - basis/src/com/task/Main.java - Eclipse IDE
File Edit Source Refactor Source Navigate Search Project Run Window Help
Package Explorer
Case3.java
Quicksort.java
*height.java
Sort.java
invalid.java
InvalidAgeE...
Person.java
Main.java
basis/src/com/task/Main.java
Outline
com.task
Main
main(String[]) : void
basic
basis
JRE System Library [Java
src
com.task
InvalidAgeExceptic
Main.java
Person.java
module-info.java
bike
car
cycle
keerthi
kertthi
murgan
murgany
phone
sample
1 package com.task;
3 public class Main {
4 public static void main(String[] args) {
5 try {
6 // Creating a Person with a valid age
7 Person person1 = new Person("Alice", 30);
8 System.out.println(person1);
10 // Creating a Person with an invalid age to test the exception
11 Person person2 = new Person("Bob", 150); // This will throw InvalidAgeException
12 System.out.println(person2);
13 } catch (InvalidAgeException e) {
14 // Handle the custom exception
15 System.out.println("Caught an exception: " + e.getMessage());
16 }
17 }
18 }
Problems
Javadoc
Declaration
Console
<terminated> Main [Java Application] C:\Users\keerthana.s\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_22.0.1.v20240426-1149\jre\bin\javaw.exe (14 Aug 2024, 11:32:56 am – 11:32
Person{name='Alice', age=30}
Caught an exception: Age must be between 0 and 120.
Writable
Smart Insert
19 : 1 : 647
Type here to search
31°C
ENG
11:33
14-08-2024