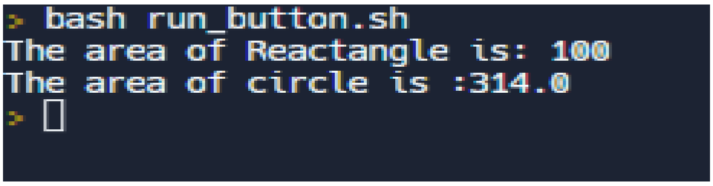
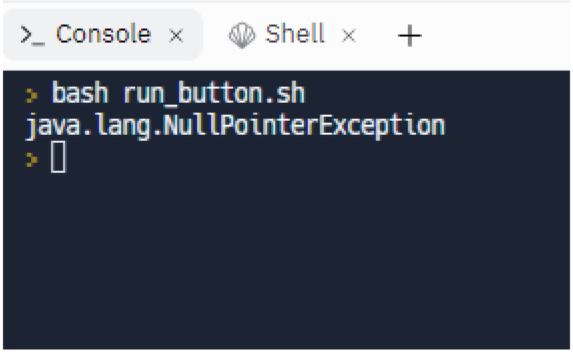
```java
// 1.Write a Java program that demonstrates the use of polymorphism by creating a base class "Shape" and two derived classes "Rectangle" and "Circle", and a method to calculate the area of the shape.


class Shape {
  public void area() {
    System.out.println("This is Parent class");
  }
}


class Reactange extends Shape {
  public void area() {
    int l = 10;
    int b = 10;
    int area = l * b;
    System.out.println("The area of Reactangle is: " + area);
  }
}


class Circle extends Shape {
  public void area() {
    int r = 10;
    double area = (3.14 * r * r);
    System.out.println("The area of circle is :" + area);
  }
}


class ShapePolymorphism{
  public static void main(String args[]){
    Shape s;
    s=new Reactange();
    s.area();
    s=new Circle();
    s.area();
  }
}
```



```
> bash run_button.sh
The area of Reactangle is: 100
The area of circle is :314.0
> 
```

// Write a Java program that uses try-catch blocks to handle a potential null pointer exception when trying to access an element in an array.

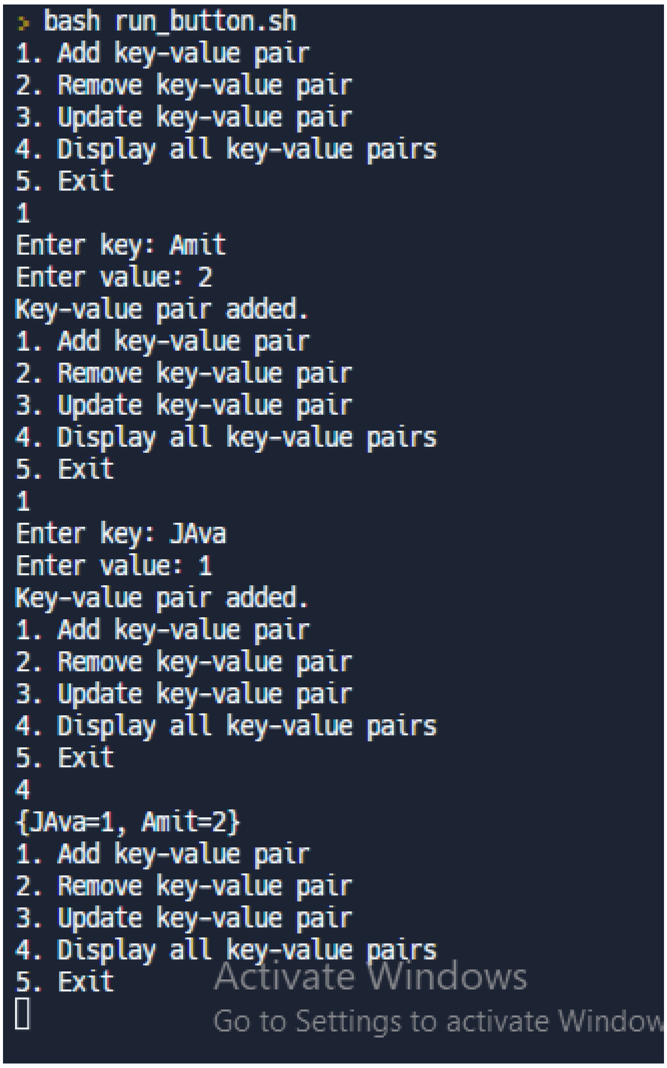
```
public class ExceptionHandling2 {
  public static void main(String[] args) {
   String a[]={"amit","Sharma","Himachal",null};
   String len=a[3];
   try{
    System.out.println(a[3].length());
   }
   catch(Exception e){
        System.out.println(e);

      }


    }

}
```



```
> bash run_button.sh
java.lang.NullPointerException
> 
```

```
// Create a program that uses a HashMap to store data in key-value pairs, where the key is a string and the value is an integer. Allow the user to add, remove and update key-value pairs, and also display the entire map.

import java.util.HashMap;

import java.util.Scanner;


public class HashMap3 {

    public static void main(String[] args) {

        HashMap<String, Integer> map = new HashMap<String, Integer>();

        Scanner sc = new Scanner(System.in);


        while (true) {

            System.out.println("1. Add key-value pair");

            System.out.println("2. Remove key-value pair");

            System.out.println("3. Update key-value pair");
            System.out.println("4. Display all key-value pairs");
            System.out.println("5. Exit");

            int choice = sc.nextInt();
            sc.nextLine();

            switch (choice) {
                case 1:
                    System.out.print("Enter key: ");
                    String key = sc.nextLine();
                    System.out.print("Enter value: ");
                    int value = sc.nextInt();
                    map.put(key, value);
                    System.out.println("Key-value pair added.");
                    break;
                case 2:
                    System.out.print("Enter key: ");
                    key = sc.nextLine();
                    if (map.containsKey(key)) {
                        map.remove(key);
                        System.out.println("Key-value pair removed.");
                    } else {
                        System.out.println("Key not found.");
                    }
                    break;
                case 3:
                    System.out.print("Enter key: ");
```

```
                    key = sc.nextLine();
                    if (map.containsKey(key)) {
                        System.out.print("Enter new value: ");
                        value = sc.nextInt();
                        map.put(key, value);
                        System.out.println("Key-value pair updated.");
                    } else {
                        System.out.println("Key not found.");
                    }
                    break;
                case 4:
                    System.out.println(map);
                    break;
                case 5:
                    System.out.println("Exiting program...");
                    System.exit(0);
                default:
                    System.out.println("Invalid choice.");
            }
        }
    }
}
```



```
> bash run_button.sh
1. Add key-value pair
2. Remove key-value pair
3. Update key-value pair
4. Display all key-value pairs
5. Exit
1
Enter key: Amit
Enter value: 2
Key-value pair added.
1. Add key-value pair
2. Remove key-value pair
3. Update key-value pair
4. Display all key-value pairs
5. Exit
1
Enter key: JAva
Enter value: 1
Key-value pair added.
1. Add key-value pair
2. Remove key-value pair
3. Update key-value pair
4. Display all key-value pairs
5. Exit
4
{JAva=1, Amit=2}
1. Add key-value pair
2. Remove key-value pair
3. Update key-value pair
4. Display all key-value pairs
5. Exit
▯
```

SQL

1.Write a subquery to select the names of all employees who have a salary greater than the average salary of their department

SELECT name FROM employees

WHERE salary > (SELECT AVG(salary) FROM employees WHERE department = employees.department);

2. Write a subquery to select the names of all departments that have at least one employee with a salary greater than $75,000.

SELECT department FROM employees

WHERE salary > 75000

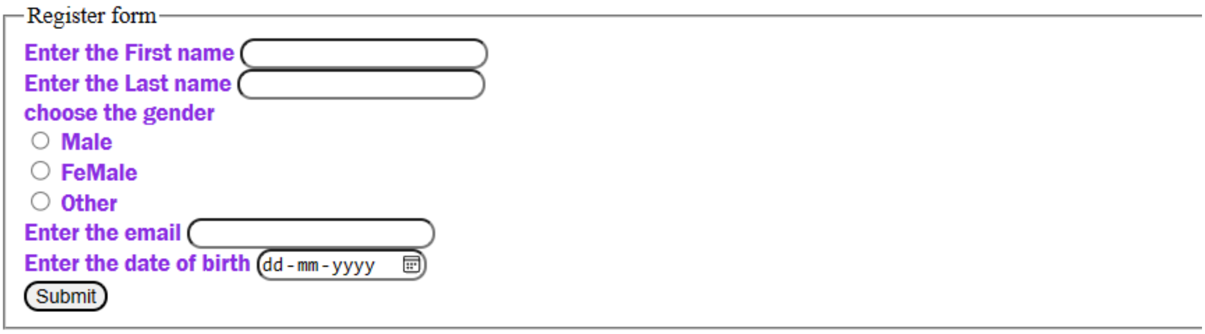
GROUP BY department

HAVING COUNT(*) >= 1

Html

1.create a registration form using html and css.

```
<html>
    <title>Register form</title>
    <head>
        <link rel="StyleSheet" href="Style.css">
    </head>
    <form action="Login.html">
    <body>
        <fieldset>
            <legend>Register form</legend>
            <label>Enter the First name</label>
            <input type="text" name="fname"  id="fname"> <br>
            <label>Enter the Last name</label>
            <input type="text" name="lname"  id="lname"> <br>
            <label>choose the gender</label><br>
            <input type="radio" id="male" value="Male">
            <label>Male</label> <br>
            <input type="radio" id="female" value="FeMale">
            <label>FeMale</label> <br>
            <input type="radio" id="other" value="Other">
            <label>Other</label> <br>
            <label>Enter the email</label>
            <input type="email" id="email" name="email"> <br>
            <label>Enter the date of birth</label>
            <input type="date" id="dob" name="Dob"> <br>
            <input type="submit">
        </fieldset>
    </body>
</form>
</html>
```



Register form

Enter the First name

Enter the Last name

choose the gender

○ Male

○ FeMale

○ Other

Enter the email

Enter the date of birth dd-mm-yyyy