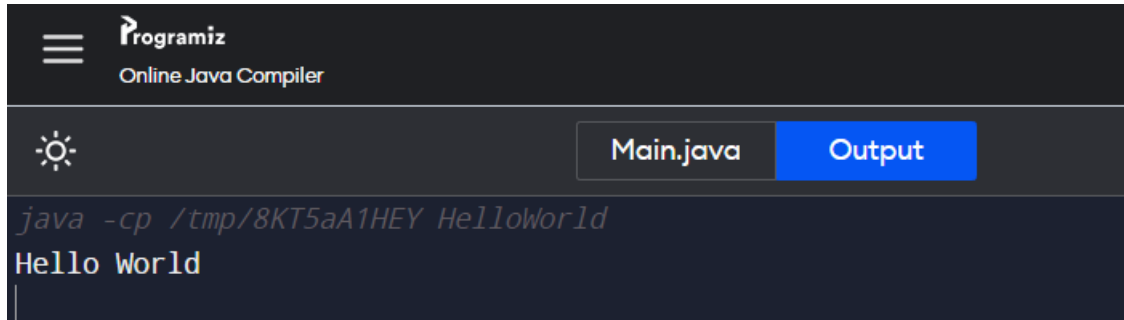1. Implement a Java program "Hello World" with javap command.
   **Code:**
   ```java
   public class HelloWorld {
      public static void main(String[] args) {
         System.out.println("Hello World");
      }
   }
   ```
   **Output:**



   ```
   java -cp /tmp/8KT5aA1HEY HelloWorld
   Hello World
   ```
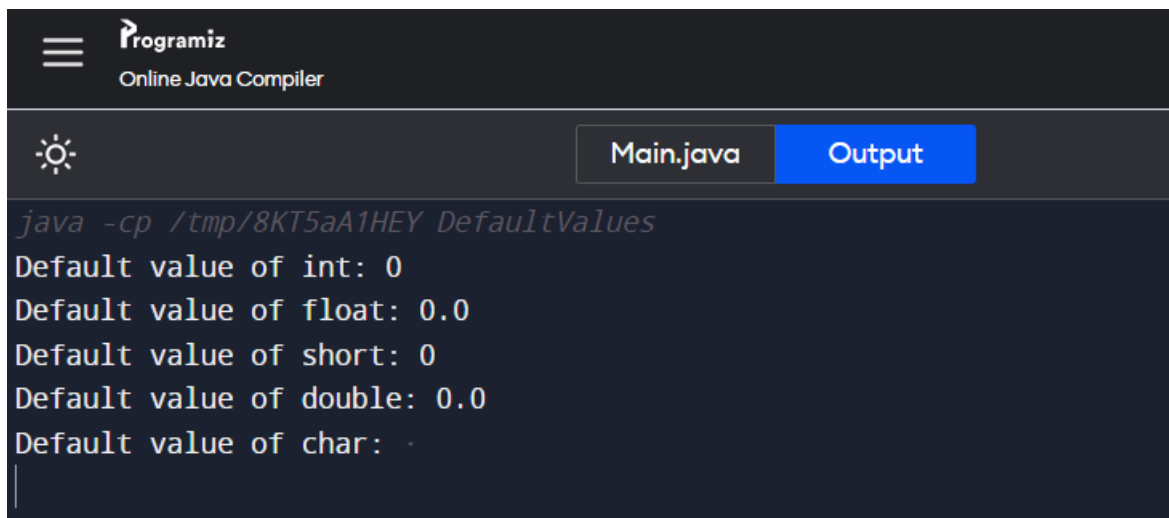
2. Implement a Java program to find the default values of data types.4
   **Code**:
   ```java
   public class DefaultValues {
      static int a;
      static float b;
      static short c;
      static double d;
      static char e;

      public static void main(String[] args) {
         System.out.println("Default value of int: " + a);
         System.out.println("Default value of float: " + b);
         System.out.println("Default value of short: " + c);
         System.out.println("Default value of double: " + d);
         System.out.println("Default value of char: " + e);
      }
   }
   ```
   **Output**:

3. Implement a Java program to find the data type class name as an output.
   **Code**:

```java
public class DataTypeClassName {
    public static void main(String[] args) {
        String s = "welcome";
        System.out.println(s.getClass().getName());
    }
}
```

   **Output**:

4. Implement a Java program on predefined exceptions.
   **Code**:

```java
public class PredefinedExceptions {
    public static void main(String[] args) {
        try {
            String a = "hello";
            System.out.println(a.charAt(6));
        } catch (StringIndexOutOfBoundsException e) {
            System.out.println("String index out of bounds exception caught");
        } finally {
            System.out.println("Completed");
```

```
        }
      }
    }
```

**Output:**
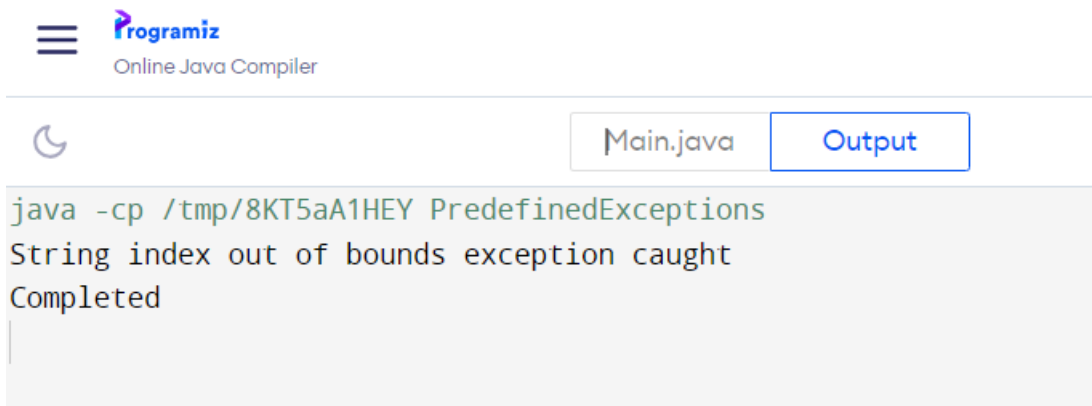
5. Implement a Java program on single inheritance.
   **Code**:
```java
class Single {
   void add(int x, int y) {
      System.out.println(x + y);
   }
}

class Inheritance extends Single {
   void sub(int x, int y) {
      System.out.println(x - y);
   }
}

public class Main {
   public static void main(String[] args) {
      Inheritance ob = new Inheritance();
      ob.add(10, 20);
      ob.sub(10, 20);
   }
}
```
   **Output**:
   30
   -10
6. Implement a Java program on implicit type conversion.
   Code:
```java
public class Implicit {
   public static void main(String[] args) {
      float a = 99.8f;
      int b = (int) a;
```

```
        System.out.println(b);
    }
}
```

Output:



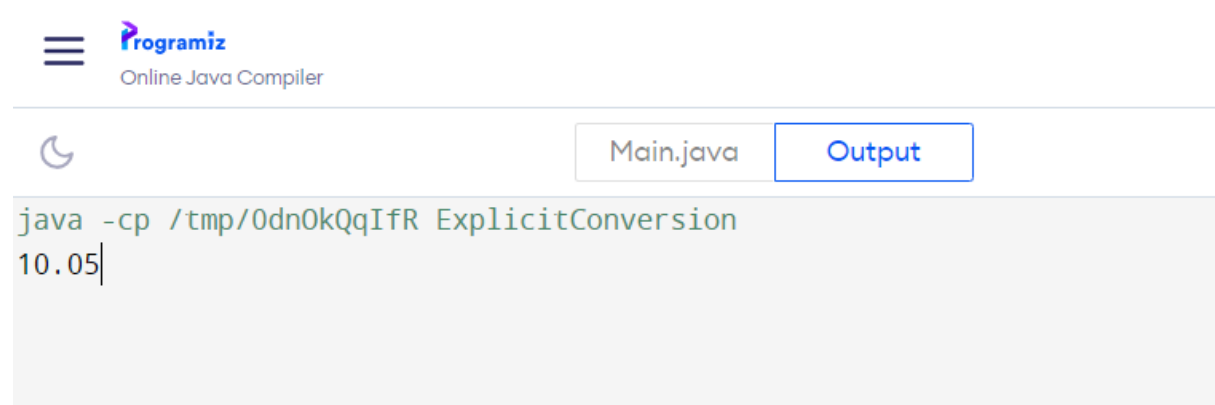7. Implement a Java program on explicit type conversion.

Code:

```
public class ExplicitConversion {
    public static void main(String[] args) {
        int intValue = 10;
        float floatValue = (float) intValue;
        System.out.println(floatValue);

        float floatValue2 = 5.66f;
        int intValue2 = (int) floatValue2;
        System.out.println(intValue2);
    }
}
```

Output:

8. Implement a Java program to show difference between variable declaration and variable initialization.

Code:
```java
public class VariableDeclarationAndInitialization {
    public static void main(String[] args) {
        int i; // Declaration of variable i
        i = 5; // Initialization of the variable i
        System.out.println(i);
    }
}
```
Output:

Programiz
Online Java Compiler

Main.java     Output

```
java -cp /tmp/OdnOkQqIfR VariableDeclarationAndInitialization
5
```
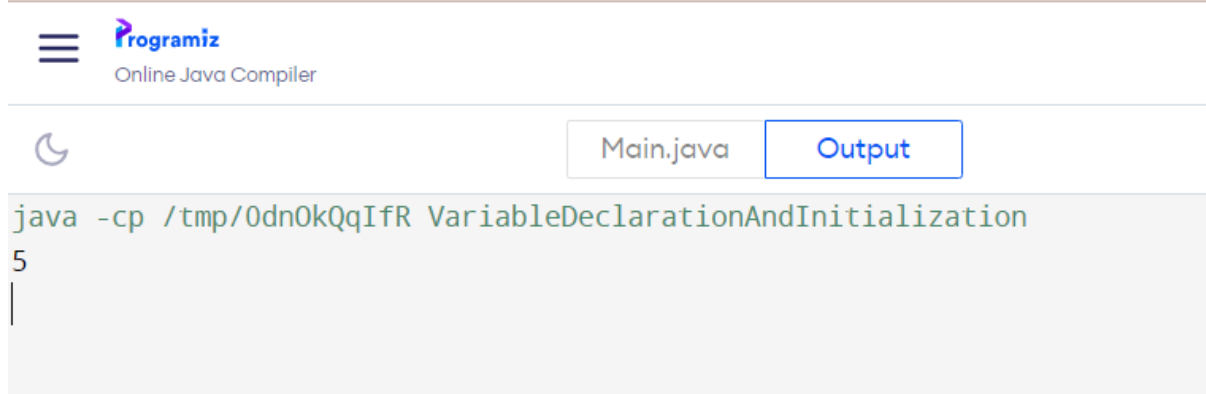
9. Write a java program to implement both actual parameters and formal parameters.

Code:
```java
public class Parameters {
    void sum(int x, int y) {
        System.out.println(x + y);
    }

    public static void main(String[] args) {
        int a = 10, b = 20;
        Parameters obj = new Parameters();
        obj.sum(a, b);
    }
}
```

Output:

Main.java | **Output**

```
java -cp /tmp/0dnOkQqIfR Parameters
30
```

10. Write a java program for variable cases, start with $ symbol.

    Code:
    ```
    import java.util.Scanner;

    public class VariableCases {
        public static void main(String[] args) {
            Scanner sc = new Scanner(System.in);
            System.out.println("Enter the values:");

            int $pascalCase = sc.nextInt();
            float $camelCase = sc.nextFloat();
            String $snake_case = sc.next();

            System.out.println($pascalCase);
            System.out.println($camelCase);
            System.out.println($snake_case);
        }
    }
    ```

    Output:
    Enter the values: 100
    3.14
    Hello World

11. Write a java program on jagged arrays
    Code:
    ```
    import java.util.Scanner;

    public class JaggedArrays {
        public static void main(String[] args) {
            int a[][] = new int[3][];
    ```

```java
        a[0] = new int[2];
        a[1] = new int[1];
        a[2] = new int[3];

        Scanner sc = new Scanner(System.in);
        System.out.println("Enter values for the jagged array:");

        for (int i = 0; i < a.length; i++) {
            for (int j = 0; j < a[i].length; j++) {
                a[i][j] = sc.nextInt();
            }
        }

        System.out.println("Values in the jagged array:");

        for (int i = 0; i < a.length; i++) {
            for (int j = 0; j < a[i].length; j++) {
                System.out.println(a[i][j]);
            }
        }
    }
}
```

Output:

if the user enters the following inputs:

1 2

3

4 5 6

The program will print:

1

2

3

4

5

6

12. Write a java program consider a group of elements ,divide those elements as individua elements, exclude the highest value among the list and add remaining elements and find the result and return the result using 1D array.

Code:
```java
import java.util.*;

public class ArraySumExceptHighest {
    public static void main(String[] args) {
```

```java
        int max = Integer.MIN_VALUE;
        int sum = 0;
        int[] arr = new int[4];

        Scanner sc = new Scanner(System.in);
        System.out.println("Enter 4 values:");

        for (int i = 0; i < arr.length; i++) {
            arr[i] = sc.nextInt();
            if (arr[i] > max) {
                max = arr[i];
            }
        }

        for (int num : arr) {
            if (num < max) {
                sum += num;
            }
        }

        System.out.println("Sum of the array elements (excluding the highest
value): " + sum);
    }
}
```
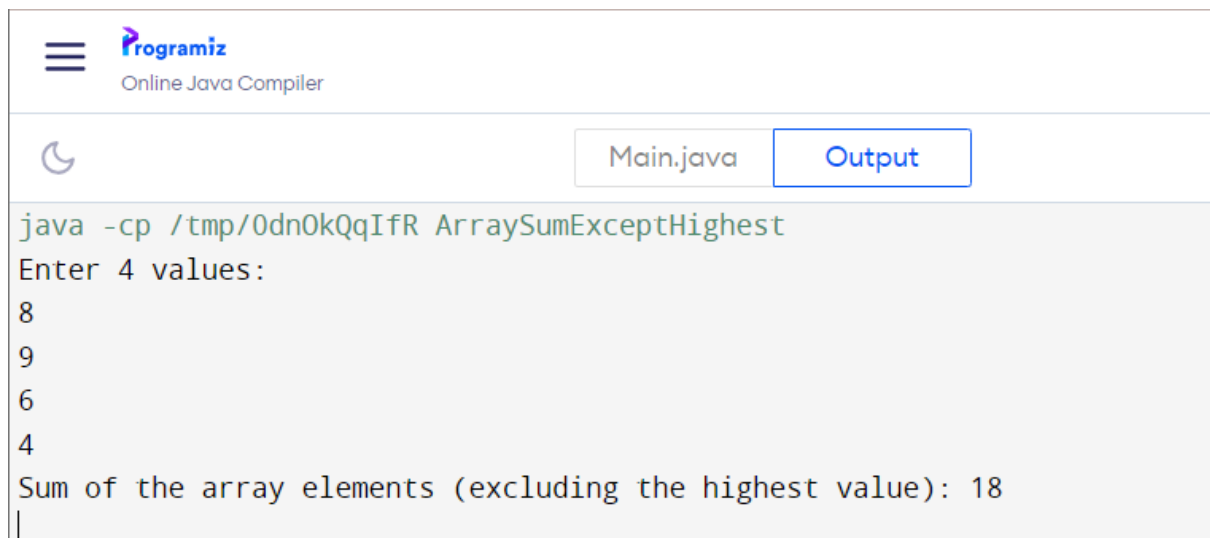
Output:



13. Write a java program on bank for account creation and debit of money and
    provide acct details of user.

    Code:

```java
import java.util.Scanner;

class Bank {
    int balance = 0;

    void credit(int cr) {
        balance = cr + balance;
        System.out.println("Balance: " + balance);
    }

    void debit(int db) {
        balance = balance - db;
        System.out.println("Balance: " + balance);
    }

    void balance() {
        System.out.println("Balance: " + balance);
    }
}

class AccountDetails {
    public int acc(int x) {
        int[] arr = { 345, 346, 347 };
        for (int i = 0; i < arr.length; i++) {
            if (x == arr[i]) {
                System.out.println("Name");
                System.out.println("Account: " + x);
                System.out.println("IFSC");
            }
        }
        return 0;
    }
}

class AccountCreation {
    void details(int ano, int ifsc, String name) {
        System.out.println("Account number is " + ano);
        System.out.println("IFSC code is " + ifsc);
        System.out.println("Name is " + name);
    }
}

public class BankAccount {
    public static void main(String[] args) {
        Bank bank = new Bank();
```

```java
Scanner sc = new Scanner(System.in);
AccountDetails accountDetails = new AccountDetails();
AccountCreation accountCreation = new AccountCreation();

System.out.println("Do you have an account? (yes/no)");
String choice = sc.nextLine();

switch (choice) {
   case "yes":
      System.out.println("Enter your account number:");
      int accNumber = sc.nextInt();
      accountDetails.acc(accNumber);
      break;
   case "no":
      System.out.println("Create account");
      int accountNumber = sc.nextInt();
      int ifscCode = sc.nextInt();
      sc.nextLine();
      String accName = sc.nextLine();
      accountCreation.details(accountNumber, ifscCode, accName);
      break;
   default:
      break;
}

System.out.println("What do you want to do?");
System.out.println("Credit = 1");
System.out.println("Debit = 2");
System.out.println("Check Balance = 3");
int transactionChoice = sc.nextInt();

switch (transactionChoice) {
   case 1:
      System.out.println("Enter the credit amount:");
      int creditAmount = sc.nextInt();
      bank.credit(creditAmount);
      break;
   case 2:
      System.out.println("Enter the debit amount:");
      int debitAmount = sc.nextInt();
      bank.debit(debitAmount);
      break;
   case 3:
      bank.balance();
      break;
```

```
            default:
                break;
        }
    }
}
```

14. write a Java program on Phone password pin check.

Code:

```java
import java.util.Scanner;

public class PhonePasswordPIN {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter PIN:");
        int pin = sc.nextInt();
        int count = 0;

        while (count < 4) {
            if (pin == 1234) {
                System.out.println("Welcome!");
                break;
            } else {
                count++;
                System.out.println("Incorrect PIN. Try again.");
                if (count < 4) {
                    System.out.println("Enter PIN:");
                    pin = sc.nextInt();
                }
            }
        }

        if (count >= 4) {
            System.out.println("Wait for 30 seconds:");
            for (int i = 30; i >= 1; i--) {
                System.out.println(i);
            }
        }
    }
}
```

Output:

Main.java    Output

```
java -cp /tmp/OdnOkQqIfR PhonePasswordPIN
Enter PIN:
4311
Incorrect PIN. Try again.
Enter PIN:
113
Incorrect PIN. Try again.
Enter PIN:
1234
Welcome!
```

15. Write a java program on evaluation of expression.

Code:
```
public class EvaluateExpression {
    public static void main(String[] args) {
        int a = 6, b = 3, c = 4, d = 7;
        int result = (a * b) + b - c + (a * b) + d + 0;
        System.out.println("Result: " + result);
    }
}
```

Output:
Result: 28

16. Write a java program to find Area of square, rectangle by using scanner class in encapsulation.

Code:

```
import java.util.Scanner;

class AreaCalculator {
    void square(int side) {
        System.out.println("Area of square: " + (side * side));
    }

    void rectangle(int length, int width) {
```

```java
            System.out.println("Area of rectangle: " + (length * width));
        }
    }

    public class AreaCalculation {
        public static void main(String[] args) {
            Scanner sc = new Scanner(System.in);

            System.out.print("Enter the side length of the square: ");
            int squareSide = sc.nextInt();

            System.out.print("Enter the length of the rectangle: ");
            int rectangleLength = sc.nextInt();

            System.out.print("Enter the width of the rectangle: ");
            int rectangleWidth = sc.nextInt();

            AreaCalculator areaCalculator = new AreaCalculator();
            areaCalculator.square(squareSide);
            areaCalculator.rectangle(rectangleLength, rectangleWidth);

            sc.close();
        }
    }
```

17. Write a java program on operators.

Code:

```java
import java.util.Scanner;

public class Operators {
    public static void main(String[] args) {
        Scanner s = new Scanner(System.in);
        System.out.println("Enter the first number:");
        int a = s.nextInt();
        System.out.println("Enter the second number:");
        int b = s.nextInt();

        // Arithmetic Operators
        System.out.println("Addition of " + a + " and " + b + " is " + (a + b));
        System.out.println("Subtraction of " + a + " and " + b + " is " + (a - b));
        System.out.println("Multiplication of " + a + " and " + b + " is " + (a *
b));
        System.out.println("Division of " + a + " and " + b + " is " + (a / b));
```

```
System.out.println("Modulo of " + a + " and " + b + " is " + (a % b));

        // Relational Operators
        System.out.println(a + " is greater than " + b + ": " + (a > b));;
        System.out.println(a + " is greater than or equal to " + b + ": " + (a >= b));;
        System.out.println(a + " is less than " + b + ": " + (a < b));;
        System.out.println(a + " is less than or equal to " + b + ": " + (a <= b));;
        System.out.println(a + " is equal to " + b + ": " + (a == b));;
        System.out.println(a + " is not equal to " + b + ": " + (a != b));;

        // Logical Operators (Using boolean variables)
        boolean aGreaterThanB = a > b;
        boolean aLessThanB = a < b;
        boolean aNotEqualToB = a != b;

        System.out.println("Logical AND: " + (aGreaterThanB &&
aLessThanB));
        System.out.println("Logical OR: " + (aGreaterThanB || aNotEqualToB));

        s.close();
    }
}
```
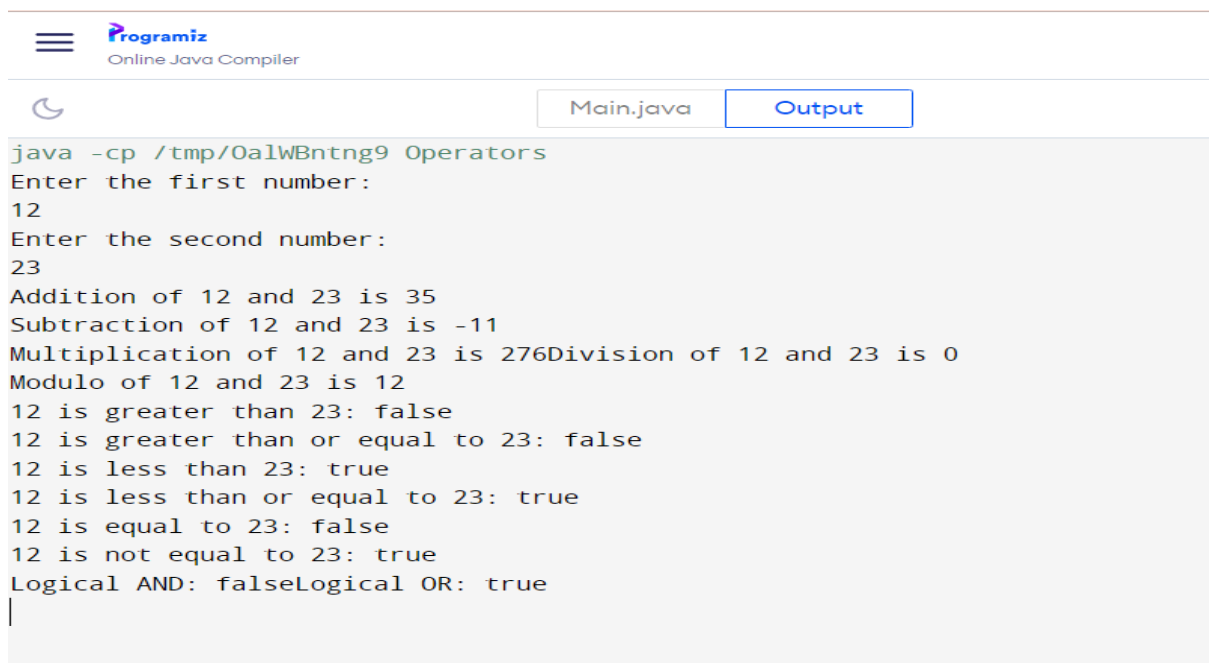
Output:



```
java -cp /tmp/OalWBntng9 Operators
Enter the first number:
12
Enter the second number:
23
Addition of 12 and 23 is 35
Subtraction of 12 and 23 is -11
Multiplication of 12 and 23 is 276Division of 12 and 23 is 0
Modulo of 12 and 23 is 12
12 is greater than 23: false
12 is greater than or equal to 23: false
12 is less than 23: true
12 is less than or equal to 23: true
12 is equal to 23: false
12 is not equal to 23: true
Logical AND: falseLogical OR: true
```
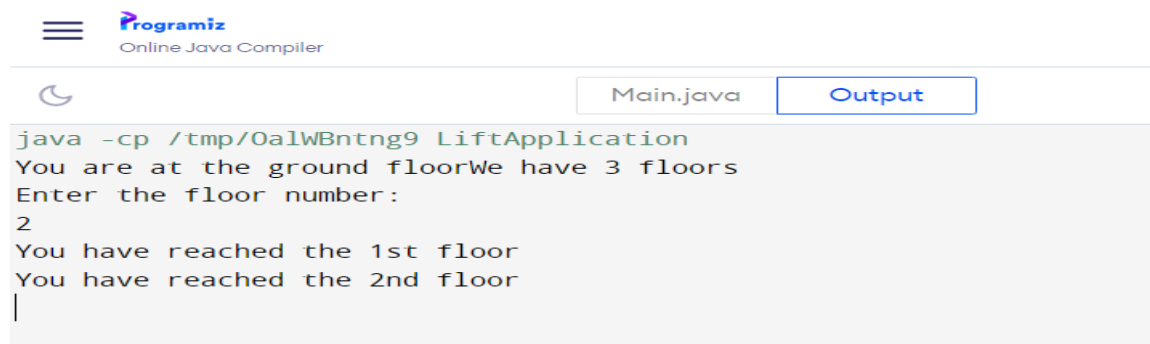
18. write a java program on Lift application.

Code:
```java
import java.util.Scanner;

public class LiftApplication {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("You are at the ground floor");
        System.out.println("We have 3 floors");
        System.out.println("Enter the floor number:");

        int floor = sc.nextInt();

        if (floor > 0) {
            if (floor <= 3) {
                System.out.println("You have reached the 1st floor");
                if (floor > 1) {
                    System.out.println("You have reached the 2nd floor");
                }
                if (floor == 3) {
                    System.out.println("You have reached the 3rd floor");
                }
            } else {
                System.out.println("We don't have the " + floor + "th floor");
            }
        } else {
            System.out.println("Invalid floor number. Please enter a positive floor number.");
        }

        sc.close();
    }
}
```

Output:

19. write a Java program on per-defined Exceptions.

Code:
```java
public class PredefinedExceptions {
    public static void main(String[] args) {
        try {
            String s = "hello";
            System.out.println(s.charAt(7));
        } catch (StringIndexOutOfBoundsException e) {
            System.out.println("StringIndexOutOfBoundsException caught");
        } finally {
            System.out.println("Finally block executed");
        }
    }
}
```

Output:



```
java -cp /tmp/OalWBntng9 PredefinedExceptions
StringIndexOutOfBoundsException caught
Finally block executed
```