Experiment Number : 03 Date: 28/01/2026

Control Statements in Java

Aim:

To understand and implement decision-making and looping control statements in Java.

PRE LAB EXERCISE

QUESTIONS

1. List different control statements in Java

Control statements are used to control the flow of execution of a program.

Types of Control Statements in Java

a) Selection (Decision-making) Statements

Used to make decisions based on conditions.

- if
- if–else
- else–if ladder
- switch

b) Iteration (Looping) Statements

Used to repeat a block of code.

- for
- while
- do–while

c) Jump (Branching) Statements

Used to transfer control from one part of the program to another.

- break

- continue
- return

2. Difference between for, while, and do-while loops

Feature	`for` loop	`while` loop	`do-while` loop
Condition check	Before loop starts	Before loop starts	After loop executes
Minimum execution	May not execute	May not execute	Executes **at least once**
Best used when	Number of iterations is known	Iterations not known	Loop must run once
Syntax complexity	Compact	Simple	Simple

Example:

for loop

```
for(int i = 1; i <= 5; i++) {
    System.out.println(i);
}
```

while loop

```
int i = 1;
while(i <= 5) {
    System.out.println(i);
    i++;
}
```

do-while loop

```
int i = 1;
do {
    System.out.println(i);
    i++;
} while(i <= 5);
```

3. What is the use of break and continue?

break statement

- Used to terminate a loop or switch statement immediately
- Control moves to the statement after the loop

Example:

```
for(int i = 1; i <= 5; i++) {
    if(i == 3) {
        break;
    }
    System.out.println(i);
}
```

Output:

```
1
2
```

continue statement

- Used to skip the current iteration
- Control moves to the next iteration of the loop

Example:

```
for(int i = 1; i <= 5; i++) {
    if(i == 3) {
        continue;
    }
    System.out.println(i);
}
```

Output:

```
1
2
4
5
```

✓

IN LAB EXERCISE

Objective:

To implement if-else and looping statements.

INPUT STATEMENT:

SCANNER CLASS

- ✓ The Scanner class in Java is used to read input from the user through the keyboard.
  It is available in the package java.util.
- ✓ The Scanner object reads different types of input such as integer, float, double, and string and stores them in variables.
- ✓ To use the Scanner class, it must be imported before using it in the program.

SYNTAX:

- ✓ Scanner sc = new Scanner(System.in);

Commonly Used Scanner Methods:

- ✓ nextInt() – reads an integer value
- ✓ nextFloat() – reads a float value
- ✓ nextDouble() – reads a double value
- ✓ next() – reads a single word
- ✓ nextLine() – reads a complete line of text

PROGRAMS:

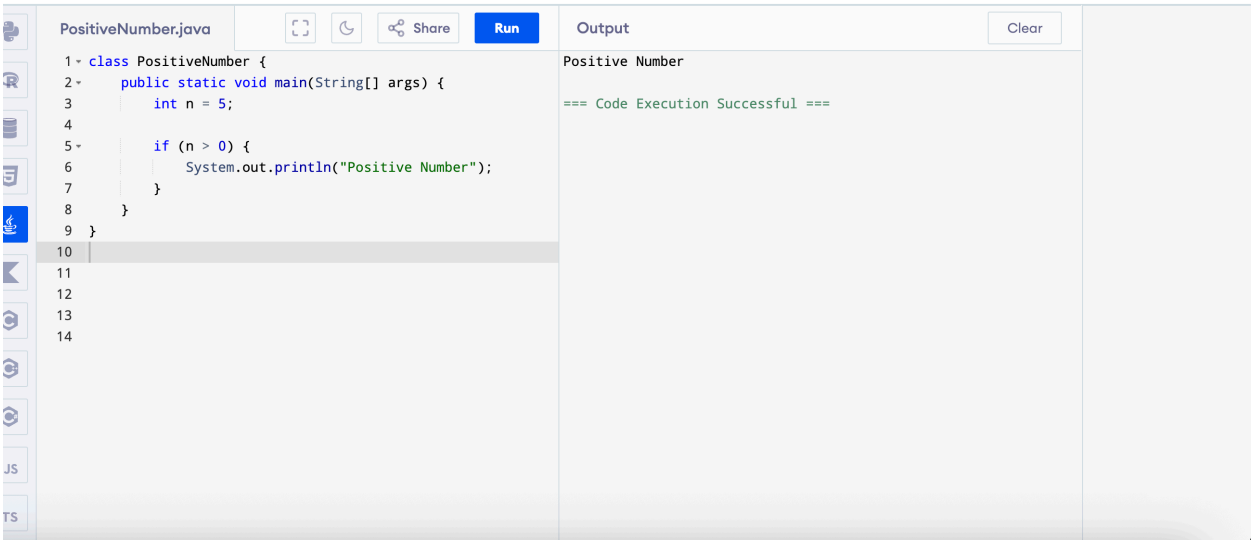
Program 1: Check Whether a Number is Positive

```
class PositiveNumber {
public static void main(String[] args) {
int n = 5;
if (n > 0) {
System.out.println("Positive Number");
}
```

}

}

Output:



Program 2: Check Whether a Number is Even or Odd

class EvenOdd {

public static void main(String[] args) {

int n = 6;

if (n % 2 == 0)

System.out.println("Even Number");

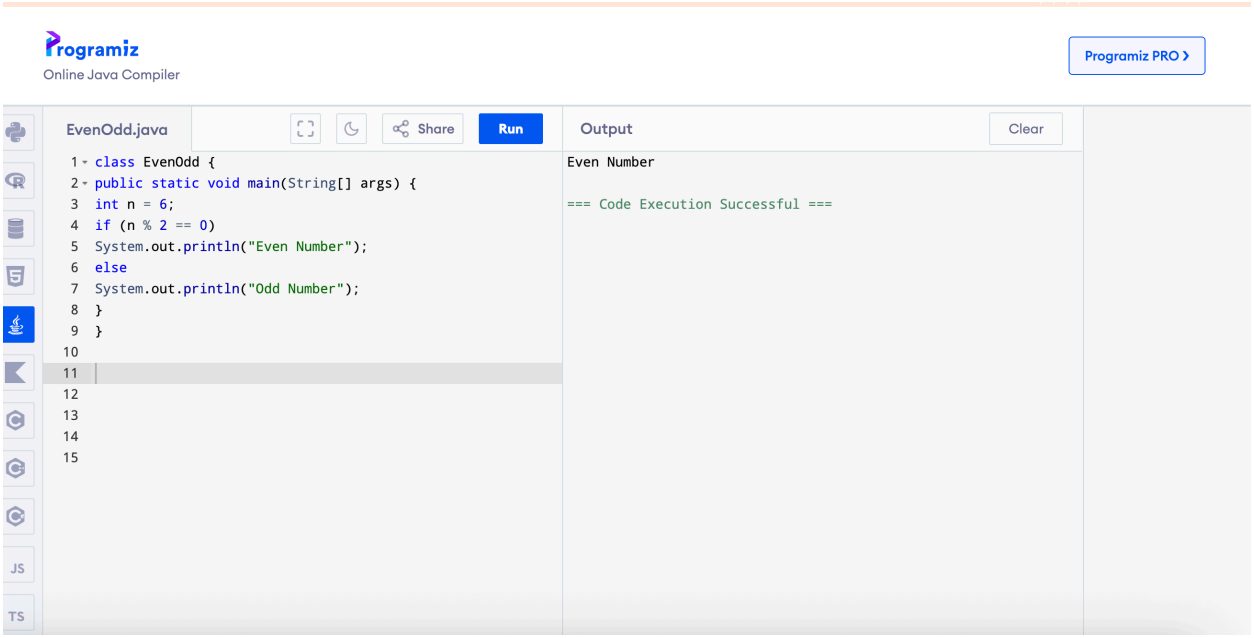
else

System.out.println("Odd Number");

}

}

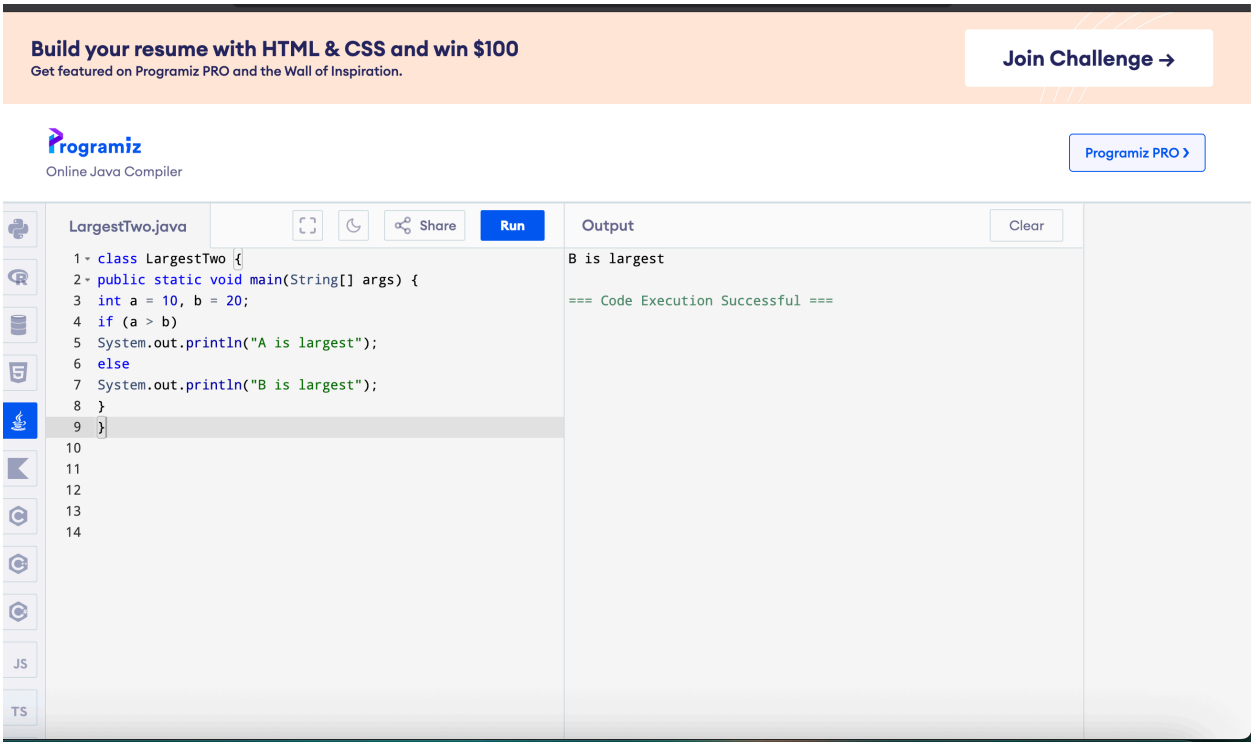
Output:



Program 3: Find Largest of Two Numbers

```
class LargestTwo {
public static void main(String[] args) {
int a = 10, b = 20;
if (a > b)
System.out.println("A is largest");
else
System.out.println("B is largest");
}
}
```

Output:



Program 4: Grade Calculation

```
class Grade {
public static void main(String[] args) {
int marks = 75;
if (marks >= 90)
System.out.println("Grade A");
```

else if (marks >= 75)

System.out.println("Grade B");

else if (marks >= 50)

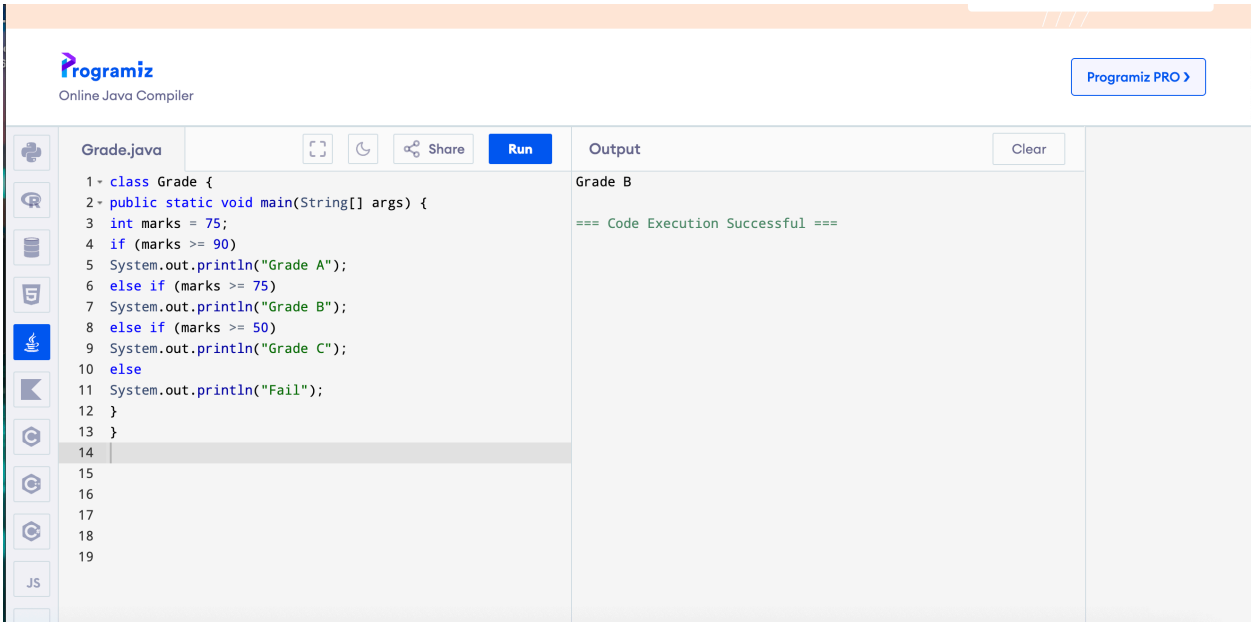
System.out.println("Grade C");

else

System.out.println("Fail");

}

}Output:



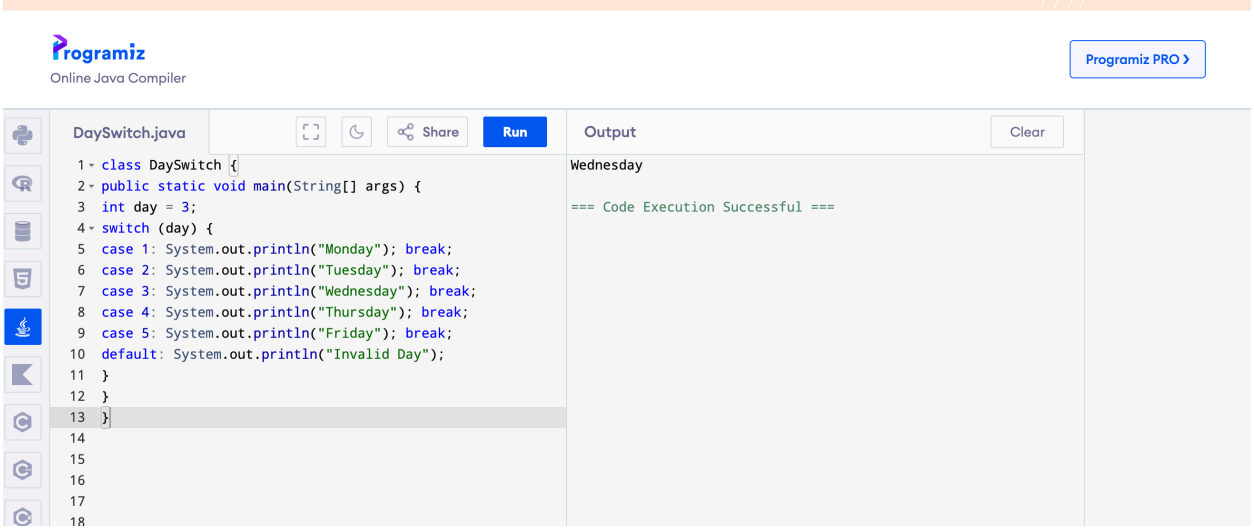
Program 5: Day of the Week

class DaySwitch {

public static void main(String[] args) {

```
int day = 3;
switch (day) {
case 1: System.out.println("Monday"); break;
case 2: System.out.println("Tuesday"); break;
case 3: System.out.println("Wednesday"); break;
case 4: System.out.println("Thursday"); break;
case 5: System.out.println("Friday"); break;
default: System.out.println("Invalid Day");
}
}
}
```

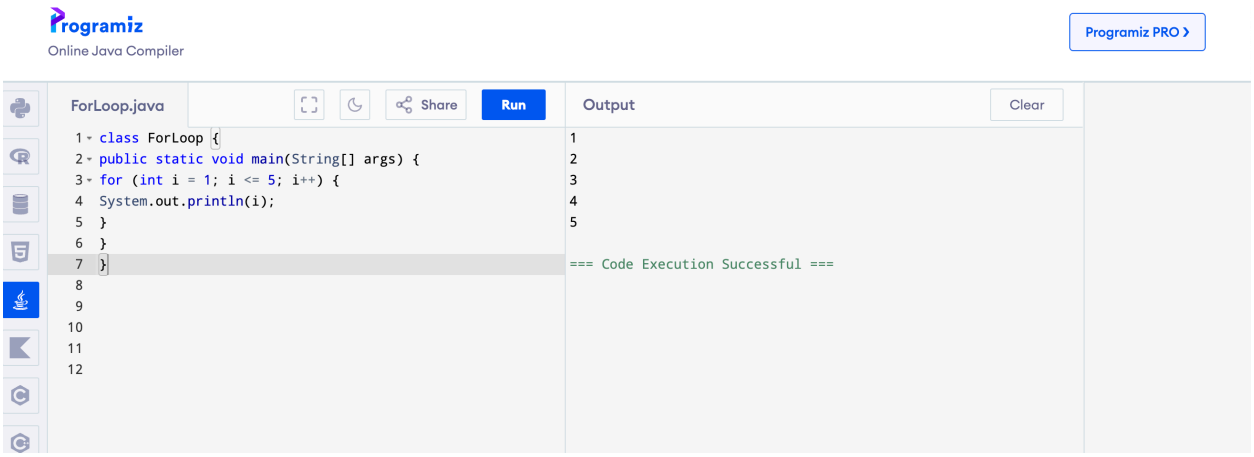
Output:



Program 6: Print Numbers from 1 to 5

```
class ForLoop {
public static void main(String[] args) {
for (int i = 1; i <= 5; i++) {
System.out.println(i);
}
}
}
```

Output:



Program 7: Print Numbers from 1 to 5

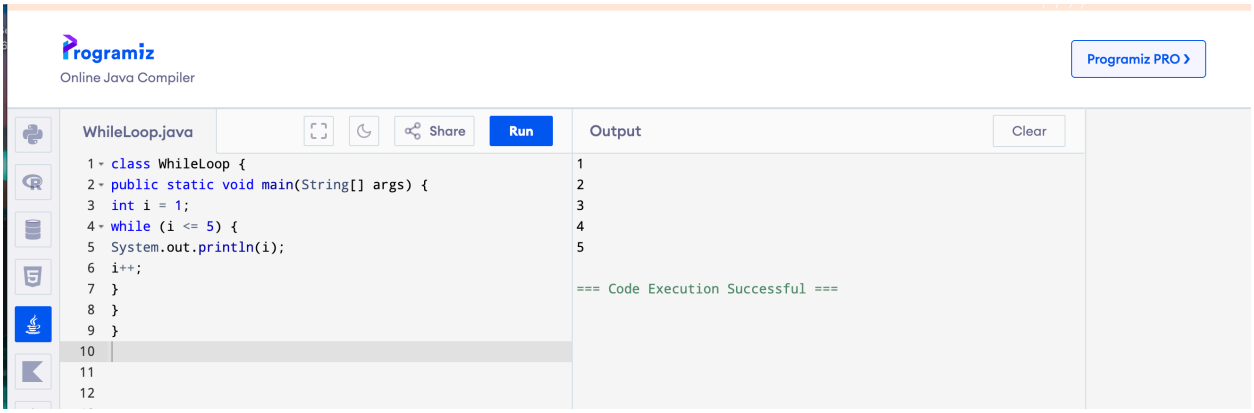
```
class WhileLoop {
public static void main(String[] args) {
int i = 1;
while (i <= 5) {
System.out.println(i);
i++;
```

}

}

}

Output:



Program 8: Print Numbers from 1 to 5

class DoWhileLoop {

public static void main(String[] args) {

int i = 1;

do {

System.out.println(i);

i++;

} while (i <= 5);

}

}

Output:

Program 9: Sum of First 5 Natural Numbers

class SumNumbers {

public static void main(String[] args) {

int sum = 0;

for (int i = 1; i <= 5; i++) {

sum = sum + i;

}

System.out.println("Sum = " + sum);

}

}

Output:

Program 10: Multiplication Table of a Number

class MultiplicationTable {

public static void main(String[] args) {

int n = 5;

for (int i = 1; i <= 10; i++) {

System.out.println(n + " x " + i + " = " + (n * i));

}

}

}

Output:

Postlab

1. What is the use of if statement?

Answer:
The if statement is used to check a condition and execute a block of code only if the condition is true.

2. Difference between if-else and else-if ladder

if-else	else-if ladder
Checks only two conditions	Checks multiple conditions
Has one `if` and one `else`	Has multiple `else-if` conditions
Executes either `if` or `else`	Executes only the first true condition
Used for simple decisions	Used for multiple choices

3. Why is switch statement used?

Answer:
The switch statement is used to select one block of code from multiple options based on the value of a variable.

Advantages:

- Cleaner than multiple if-else
- Improves readability
- Faster execution in some cases

4. Difference between for, while, and do-while loops

for loop	while loop	do-while loop
Entry-controlled	Entry-controlled	Exit-controlled
Condition checked first	Condition checked first	Condition checked after execution
Used when iterations are known	Used when iterations are unknown	Used when loop must run at least once

5. Which loop executes at least once?

Answer:
The do-while loop executes at least once, even if the condition is false.

Reason:

- The condition is checked after executing the loop body.

Result:

Thus the different control statements were executed successfully with expected output.

ASSESSMENT

Description	Max Marks	Marks Awarded
Pre Lab Exercise	**5**	
In Lab Exercise	**10**	
Post Lab Exercise	**5**	
Viva	**10**	
Total	**30**	
	Faculty Signature	