Experiment Number: 03 **Date: 29/01/2026**

Control Statements in Java

Aim:

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

PRE LAB EXERCISE

QUESTIONS

- ✓ List different control statements in Java.

Selection statements

- if
- if-else
- switch

Iteration (looping) statements

- for
- while
- do-while

Jump statements

- break
- continue
- return

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

Loop	**Condition Check**	**Execution**
for	Before loop starts	Used when number of iterations is known
while	Before loop starts	Used when iterations are not fixed
do-while	After loop executes	Executes **at least once**

What is the use of break and continue?

break: Stops the loop or switch statement **completely**.

continue: Skips the current iteration and moves to the **next iteration** of the loop.

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:

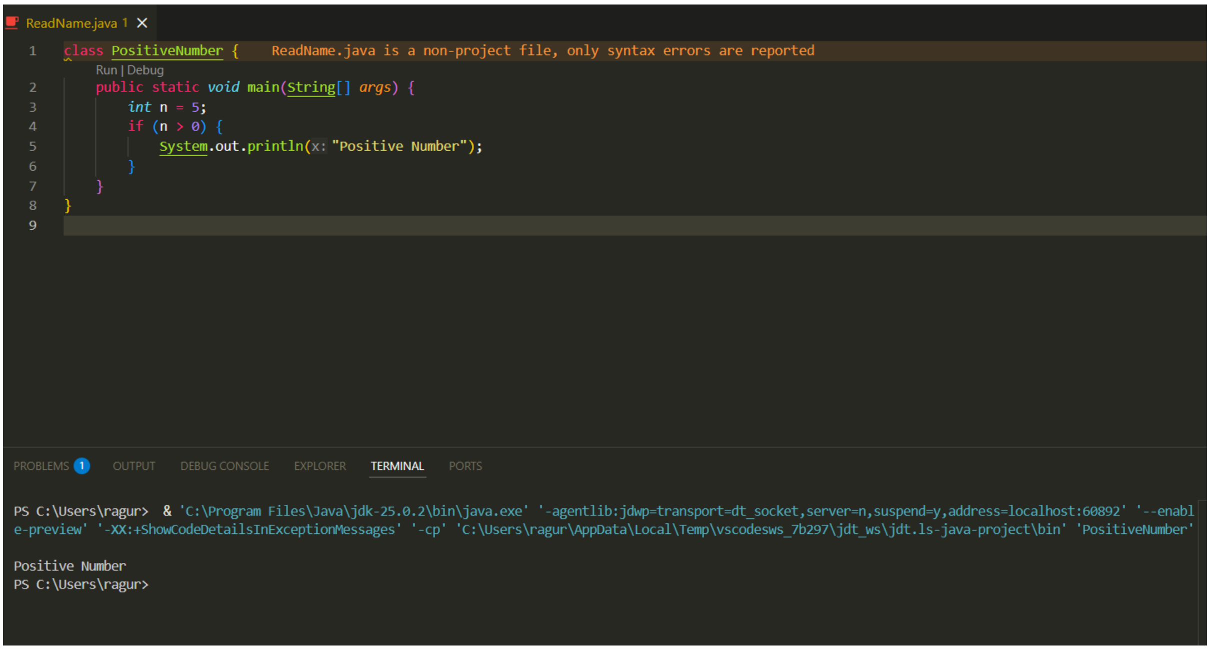
Program 1: Check Whether a Number is Positive

```
class PositiveNumber {
```

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

int n = 5;

if (n > 0) {

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

}

}

}
```

Output:

```
Positive Number
```



```java
class PositiveNumber {    ReadName.java is a non-project file, only syntax errors are reported
    Run | Debug
    public static void main(String[] args) {
        int n = 5;
        if (n > 0) {
            System.out.println(x: "Positive Number");
        }
    }
}
```

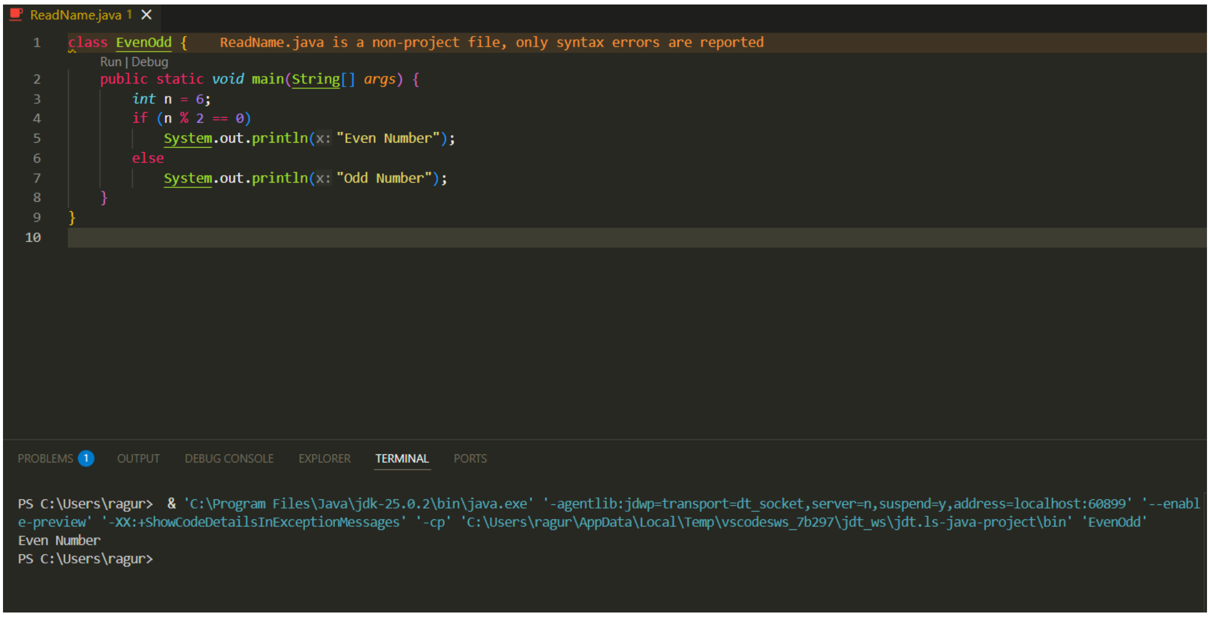
```
PS C:\Users\ragur>  & 'C:\Program Files\Java\jdk-25.0.2\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:60892' '--enable-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\ragur\AppData\Local\Temp\vscodesws_7b297\jdt_ws\jdt.ls-java-project\bin' 'PositiveNumber'

Positive Number
PS C:\Users\ragur>
```

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:

```
Even Number
```



ReadName.java is a non-project file, only syntax errors are reported

```
class EvenOdd {
    public static void main(String[] args) {
        int n = 6;
        if (n % 2 == 0)
            System.out.println(x: "Even Number");
        else
            System.out.println(x: "Odd Number");
    }
}
```

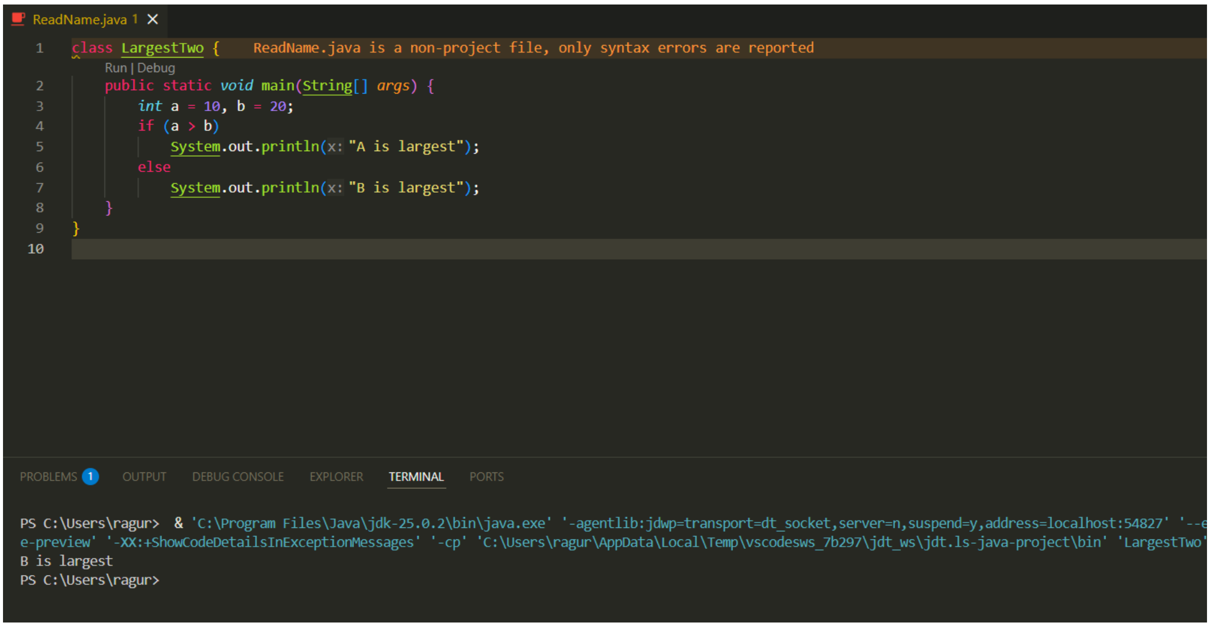
```
PS C:\Users\ragur>  & 'C:\Program Files\Java\jdk-25.0.2\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:60899' '--enabl
e-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\ragur\AppData\Local\Temp\vscodesws_7b297\jdt_ws\jdt.ls-java-project\bin' 'EvenOdd'
Even Number
PS C:\Users\ragur>
```

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:

```
B is largest
```



```
class LargestTwo {    ReadName.java is a non-project file, only syntax errors are reported
    Run | Debug
    public static void main(String[] args) {
        int a = 10, b = 20;
        if (a > b)
            System.out.println(x: "A is largest");
        else
            System.out.println(x: "B is largest");
    }
}
```

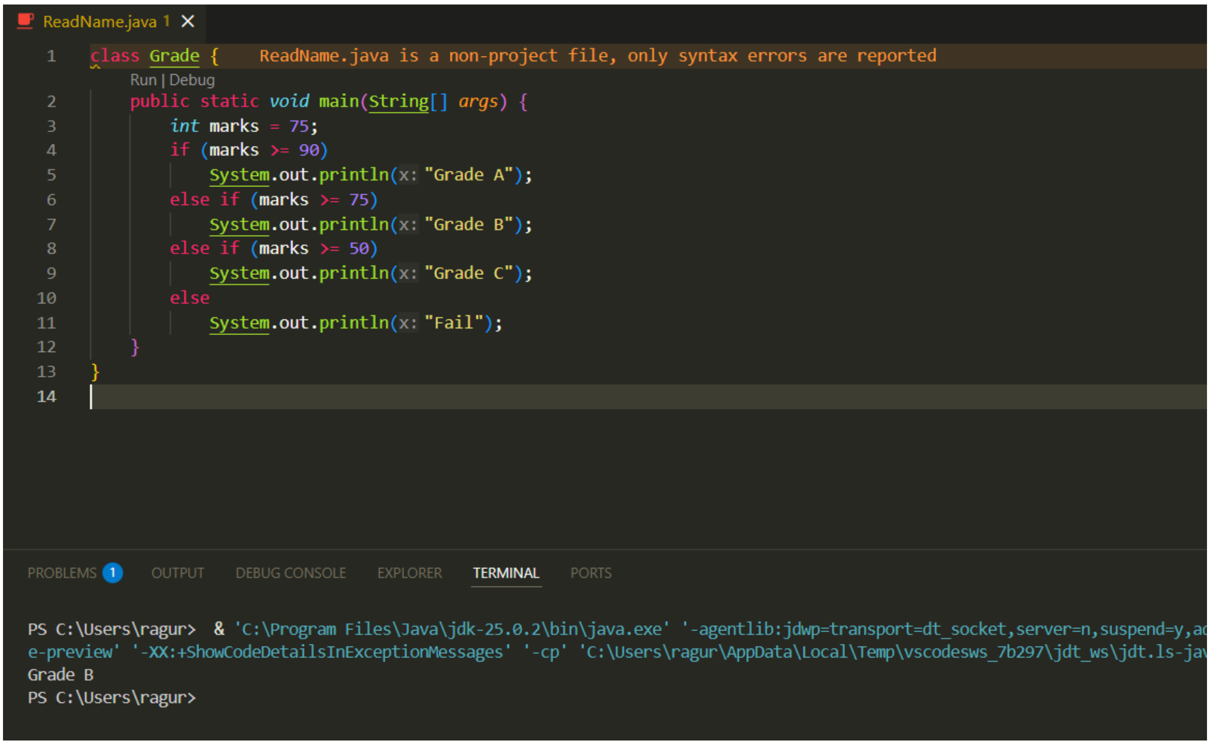
```
PS C:\Users\ragur>  & 'C:\Program Files\Java\jdk-25.0.2\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:54827' '--e
e-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\ragur\AppData\Local\Temp\vscodesws_7b297\jdt_ws\jdt.ls-java-project\bin' 'LargestTwo'
B is largest
PS C:\Users\ragur>
```

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:

```
Grade B
```



ReadName.java is a non-project file, only syntax errors are reported

```java
class Grade {
    public static void main(String[] args) {
        int marks = 75;
        if (marks >= 90)
            System.out.println(x: "Grade A");
        else if (marks >= 75)
            System.out.println(x: "Grade B");
        else if (marks >= 50)
            System.out.println(x: "Grade C");
        else
            System.out.println(x: "Fail");
    }
}
```

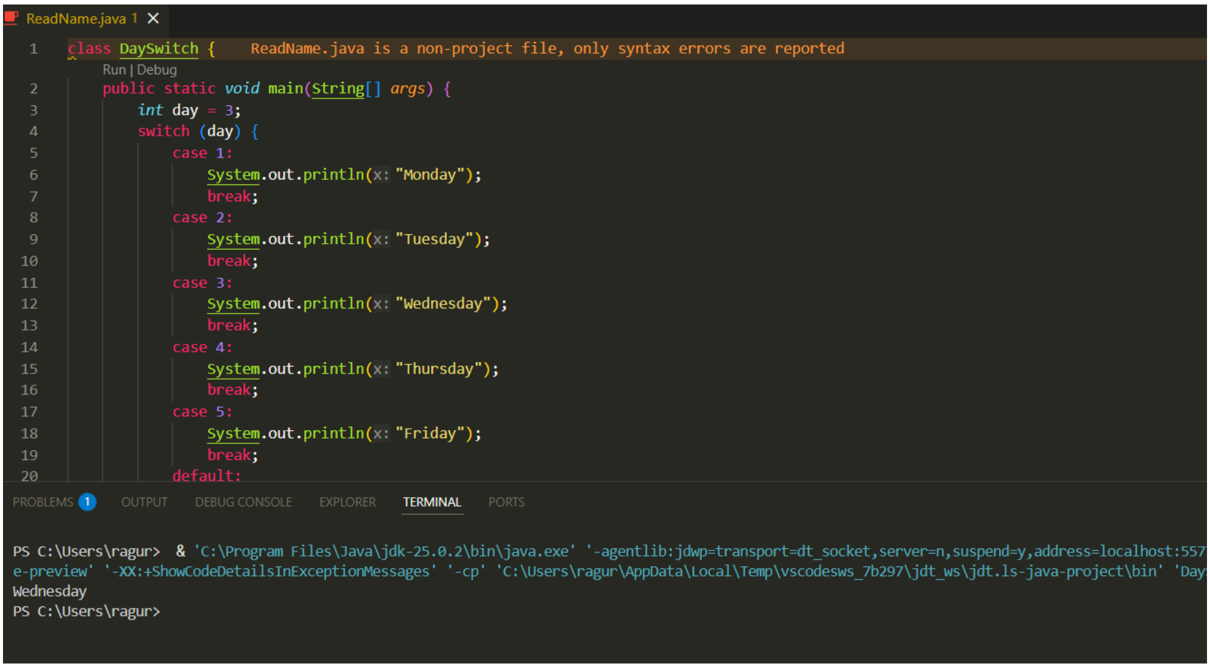
```
PS C:\Users\ragur>  & 'C:\Program Files\Java\jdk-25.0.2\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,ad
e-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\ragur\AppData\Local\Temp\vscodesws_7b297\jdt_ws\jdt.ls-jav
Grade B
PS C:\Users\ragur>
```

Program 5: Day of the Week

```java
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:

```
Wednesday
```



```
class DaySwitch {    ReadName.java is a non-project file, only syntax errors are reported
    public static void main(String[] args) {
        int day = 3;
        switch (day) {
            case 1:
                System.out.println(x: "Monday");
                break;
            case 2:
                System.out.println(x: "Tuesday");
                break;
            case 3:
                System.out.println(x: "Wednesday");
                break;
            case 4:
                System.out.println(x: "Thursday");
                break;
            case 5:
                System.out.println(x: "Friday");
                break;
            default:
```

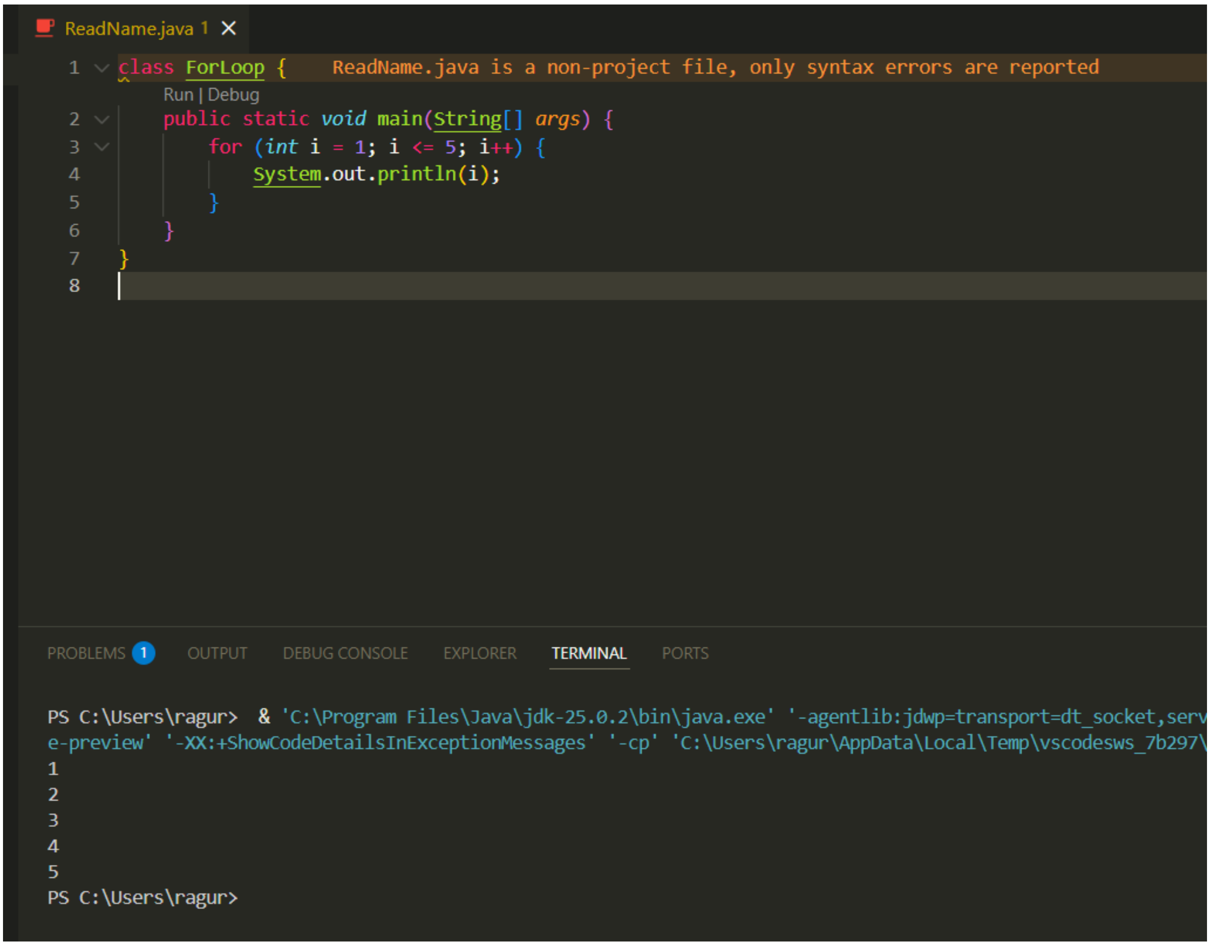
```
PS C:\Users\ragur>  & 'C:\Program Files\Java\jdk-25.0.2\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:557
e-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\ragur\AppData\Local\Temp\vscodesws_7b297\jdt_ws\jdt.ls-java-project\bin' 'Day
Wednesday
PS C:\Users\ragur>
```

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:

```
1

2

3

4

5
```



```
class ForLoop {     ReadName.java is a non-project file, only syntax errors are reported
    Run | Debug
    public static void main(String[] args) {
        for (int i = 1; i <= 5; i++) {
            System.out.println(i);
        }
    }
}
```

```
PS C:\Users\ragur>  & 'C:\Program Files\Java\jdk-25.0.2\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,serv
e-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\ragur\AppData\Local\Temp\vscodesws_7b297\
1
2
3
4
5
PS C:\Users\ragur>
```

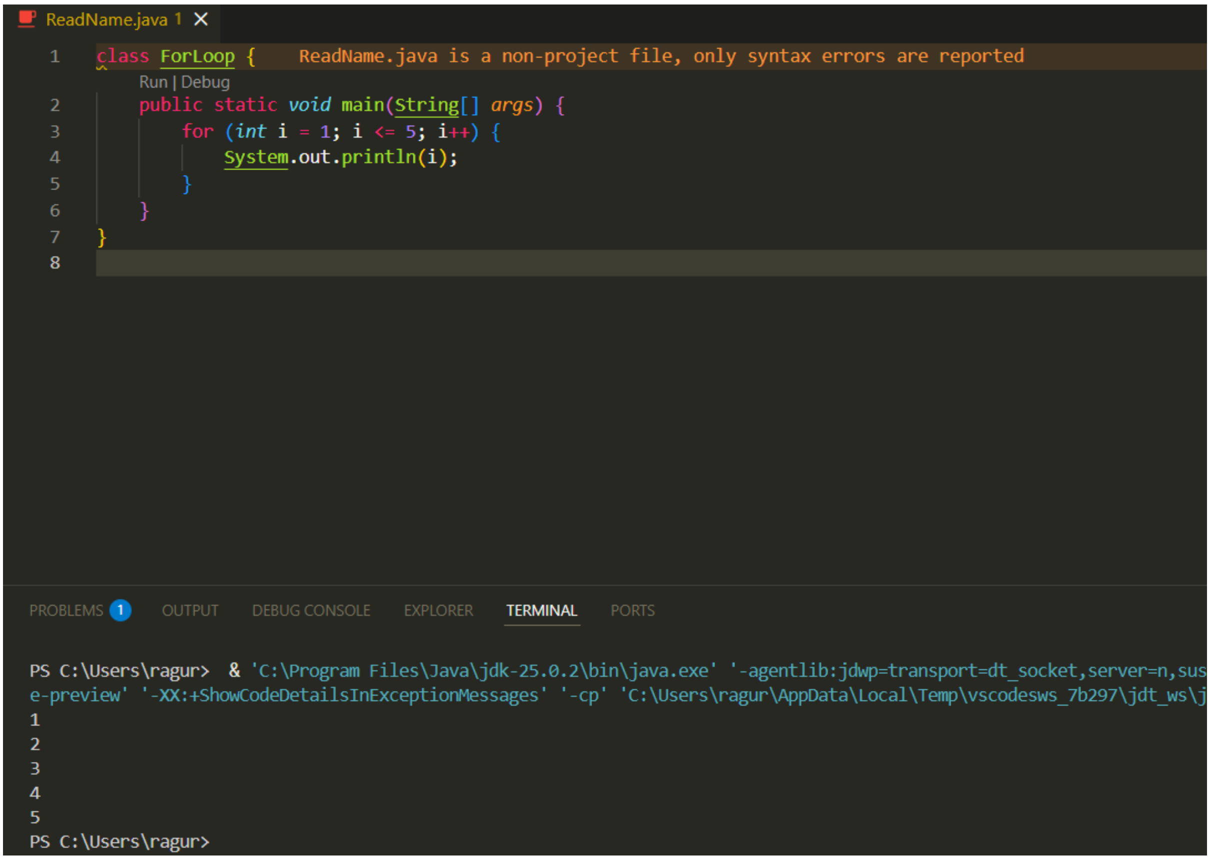
Program 7: Print Numbers from 1 to 5

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

Output:

1

```
2

3

4

5
```



```java
class ForLoop {    ReadName.java is a non-project file, only syntax errors are reported
    public static void main(String[] args) {
        for (int i = 1; i <= 5; i++) {
            System.out.println(i);
        }
    }
}
```

```
PS C:\Users\ragur>  & 'C:\Program Files\Java\jdk-25.0.2\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,sus
e-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\ragur\AppData\Local\Temp\vscodesws_7b297\jdt_ws\j
1
2
3
4
5
PS C:\Users\ragur>
```

Program 8: Print Numbers from 1 to 5

```java
class DoWhileLoop {

public static void main(String[] args) {

int i = 1;

do {

System.out.println(i);

i++;

} while (i <= 5);

}

}
```

Output:

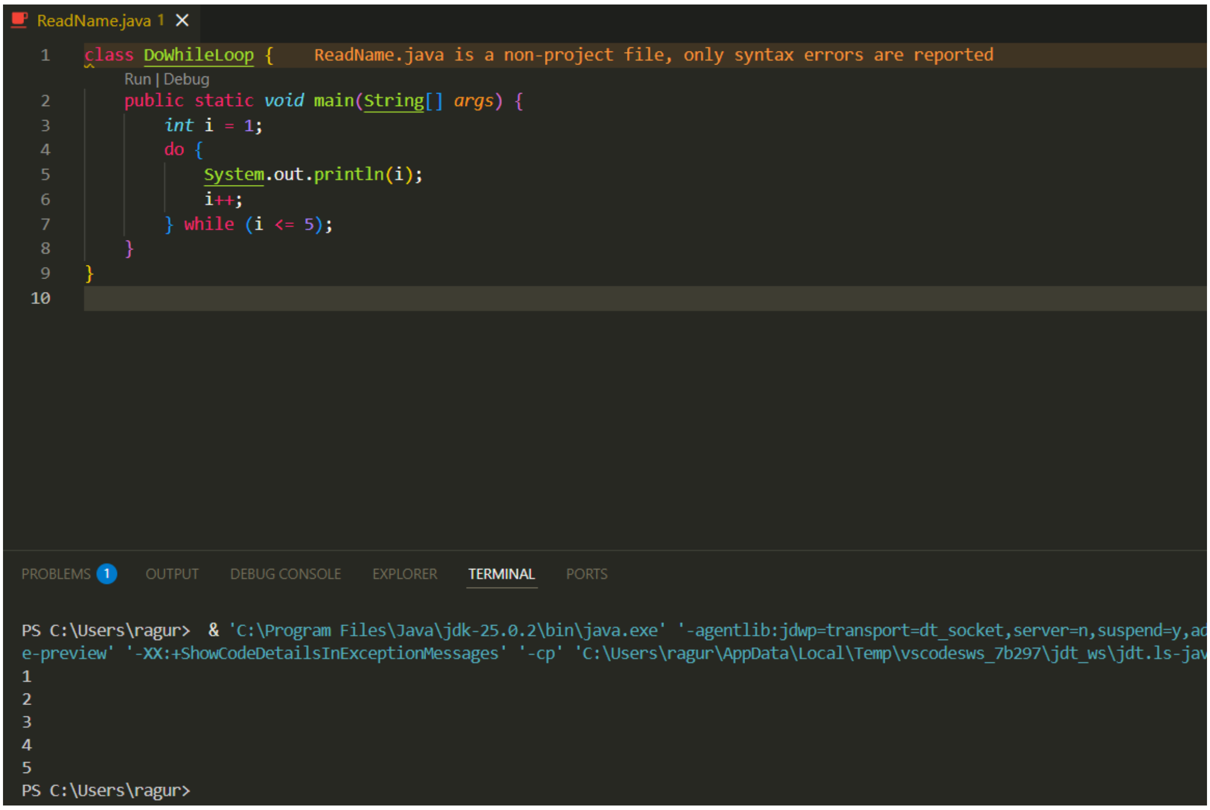
1

2

3

4

5



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

```
PS C:\Users\ragur>  & 'C:\Program Files\Java\jdk-25.0.2\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,ad
e-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\ragur\AppData\Local\Temp\vscodesws_7b297\jdt_ws\jdt.ls-jav
1
2
3
4
5
PS C:\Users\ragur>
```

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;

}

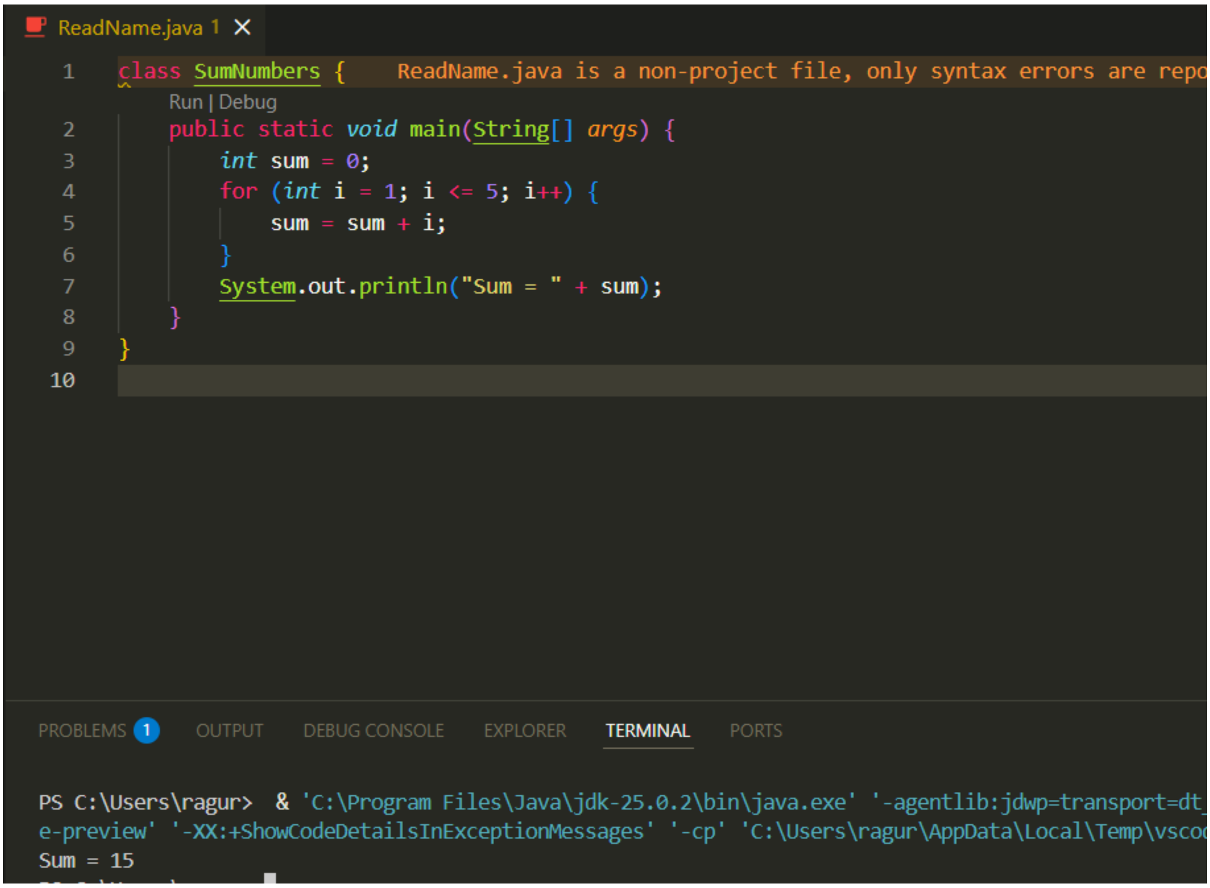
System.out.println("Sum = " + sum);

}

}

Output:

Sum = 15



```
class SumNumbers {    ReadName.java is a non-project file, only syntax errors are repo
    Run | Debug
    public static void main(String[] args) {
        int sum = 0;
        for (int i = 1; i <= 5; i++) {
            sum = sum + i;
        }
        System.out.println("Sum = " + sum);
    }
}
```

```
PS C:\Users\ragur>  & 'C:\Program Files\Java\jdk-25.0.2\bin\java.exe' '-agentlib:jdwp=transport=dt_
e-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\ragur\AppData\Local\Temp\vscod
Sum = 15
```

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:

5 x 1 = 5

5 x 2 = 10

5 x 3 = 15

5 x 4 = 20

5 x 5 = 25

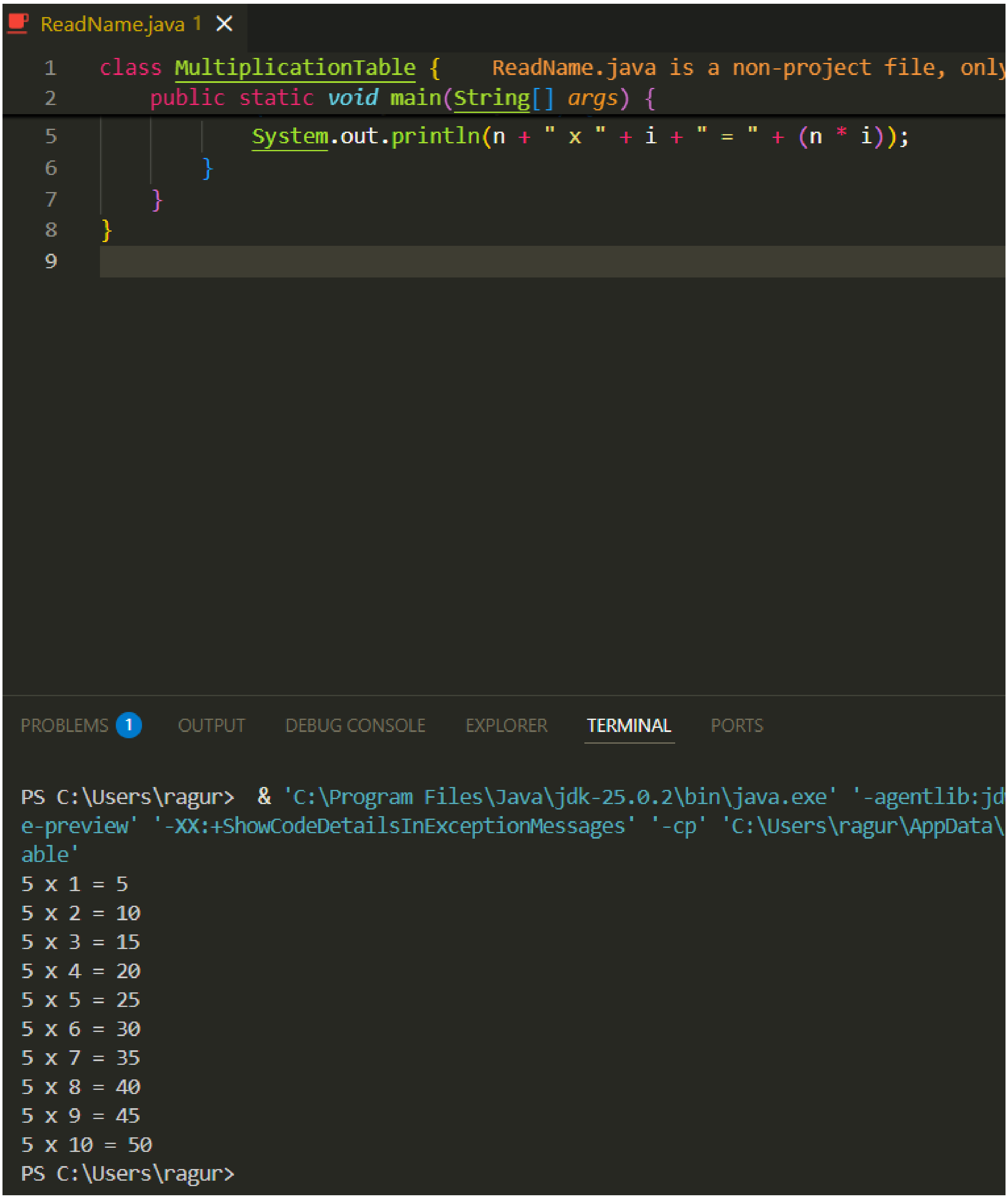
5 x 6 = 30

5 x 7 = 35

5 x 8 = 40

5 x 9 = 45

5 x 10 = 50



```
class MultiplicationTable {     ReadName.java is a non-project file, only
    public static void main(String[] args) {
                System.out.println(n + " x " + i + " = " + (n * i));
            }
        }
}
```

```
PS C:\Users\ragur>  & 'C:\Program Files\Java\jdk-25.0.2\bin\java.exe' '-agentlib:jd
e-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\ragur\AppData\
able'
5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
5 x 4 = 20
5 x 5 = 25
5 x 6 = 30
5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50
PS C:\Users\ragur>
```

POST LAB EXERCISE

- ✓ What is the use of if statement?

  It is used to check a condition and execute a block of code.

- ✓ Difference between if-else and else-if ladder?
  - o If-else checks only one condition and execute the block meanwhile the if-else ladder check multiple if conditions and execute one if block and skips the rest.
- ✓ Why is switch statement used?
  - o It is used when we have to select one from many choices.
  - o It is easier and cleaner than if else.
- ✓ Difference between for, while, and do-while loops.

Loop	**Condition Check**	**Usage**
for	Before loop starts	When number of iterations is known
while	Before loop starts	When iterations are not known
do-while	After loop runs	When loop must run at least once

- ✓ Which loop executes at least once?
  - o Do-while loop executes at least once because it checks condition after the loop enters the 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		