## //snippt1

```
public class NestedLoopOutput {
    public static void main(String[] args) {
        for (int i = 1; i <= 3; i++) {
            for (int j = 1; j <= 2; j++) {
                System.out.print(i + " " + j + " ");
            }
            System.out.println();
        }
    }
}
```

## Explanation:

1.The outer loop runs 3 times (i from 1 to 3).

2.The inner loop runs 2 times for each value of i (j from 1 to 2).

3.Each iteration of the inner loop prints i j, followed by a space.

4.end of the inner loop, a System.out.println(); moves to the next line.

**Output:**

```
1 1 1 2

2 1 2 2

3 1 3 2
```

## //Snippt2

```
public class DecrementingLoop {
    public static void main(String[] args) {
        int total = 0;
        for (int i = 5; i > 0; i--) {
            total += i;
            if (i == 3) continue;
            total -= 1;
        }
        System.out.println(total);
    }
}
```

## Explanation:

1.The loop runs from i = 5 to i = 1 (decrementing).

Each iteration:

2.Adds i to total.

If i == 3, the continue statement skips total -= 1.

Otherwise, total -= 1 is executed.

3.At i = 3, continue skips the subtraction (-1).

4.Final value of total is 11.

**output:**

```
11
```

## //snippt3

```
public static void main(String[] args) {
 int count = 0;
 while (count < 5) {
 System.out.print(count + " ");
 count++;
 if (count == 3) break;
 }
 System.out.println(count);
 }
}
```

```
// Guess the output of this while loop
```

## Explanation:

1.The while loop runs as long as count < 5.

2.Each iteration:

Prints the value of count.

Increments count (count++).

If count becomes 3, the break statement terminates the loop immediately.

3.At count == 3, the loop exits.

4.Since count is 3 when the loop exits, System.out.println(count); prints 3 on a new line.

## output:

```
 0 1 2 3
```

## Snippet 4:

```
public class DoWhileLoop {
 public static void main(String[] args) {
 int i = 1;
 do {
 System.out.print(i + " ");
 i++;
 } while (i < 5);
 System.out.println(i);
 }
}
// Guess the output of this do-while loop
```

## Explanation:

1.The do-while loop runs at least once, even if the condition is false at the start.

2.Loop executes while i < 5, printing i and incrementing it.

3.When i = 5, the condition fails (5 < 5 is false), and the loop exits.

4.The final value of i (which is 5) is printed on a new line.

## Output :

```
1 2 3 4 5
```

## //Snippet 5:

```
public class ConditionalLoopOutput {
 public static void main(String[] args) {
 int num = 1;
 for (int i = 1; i <= 4; i++) {
 if (i % 2 == 0) {
 num += i;
 } else {
 num -= i;
 }
 }
 System.out.println(num);
 }
}
// Guess the output of this loop
```

## Explanation:

1.The loop runs from i = 1 to i = 4.

2.If i is odd, subtract i from num.

3.If i is even, add i to num.

4.Final value of num after the loop is

**output:**

3

## //Snippet 6:

```
public class IncrementDecrement {
 public static void main(String[] args) {
 int x = 5;
 int y = ++x - x-- + --x + x++;
 System.out.println(y);
 }
}
// Guess the output of this code snippet.
```

## Explanation:

1.++x increments x first, so x becomes 6 and returns 6.

2.x-- returns 6, but x then decreases to 5.

3.--x decreases x first, so x becomes 4 and returns 4.

4.x++ returns 4, but x then increases to 5.

5.The final calculated value of y is 8.

**output:**

```
8
```

## //Snippet 7:

```
public class NestedIncrement {
 public static void main(String[] args) {
 int a = 10;
 int b = 5;
 int result = ++a * b-- - --a + b++;
 System.out.println(result);
 }
}
// Guess the output of this code snippet.
```

## Explanation:

1.Initialization:

a = 10

b = 5

2.Expression:

result = ++a * b-- - --a + b++;

1.++a (Pre-increment) :a becomes 11, so ++a = 11

2.b-- (Post-decrement) : b-- retaurns 5, then b becames 4

3.--a (Pre-decrement) :a becomes 10, so --a = 10

4.b++ (Post-increment) : b++ returns 4, then b becomes 5

3.Substituting the values:

result = 11 * 5 - 10 + 4;

4.Solving:

(first solve multiplication)

result = 55 - 10 + 4;

result = 45 + 4;

result = 49;

**output:**

```
49
```

## //Snippet 8:

```
public class LoopIncrement {
 public static void main(String[] args) {
 int count = 0;
 for (int i = 0; i < 4; i++) {
```

```
 count += i++ - ++i;
 }
 System.out.println(count);
 }
}
```

**output:**

```
-4
```