Assignment No 3

Stage 2

Snippet No 1

```
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();
        }
    }
}
```

Dry Run

→ Output

i	j	
1	1	→ 1st run of loop
2	2	→ 2nd run of loop
		→ 3rd run of loop

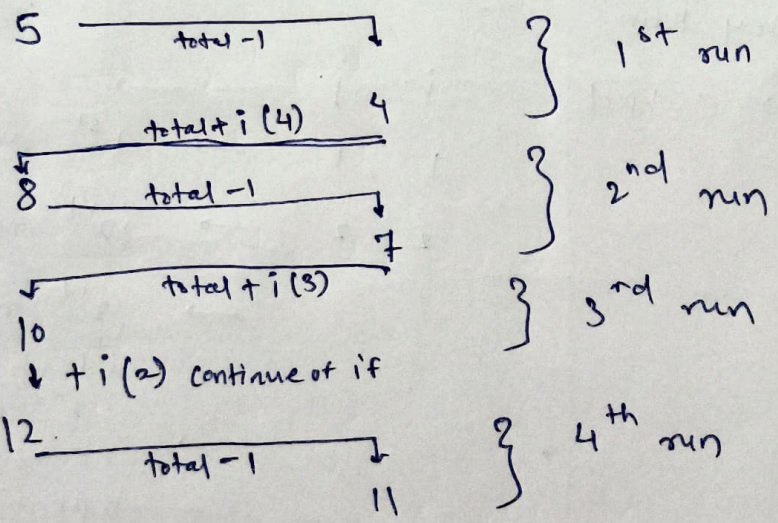
(~~fail~~ failed to execute 2nd for loop due to false condition. so no data to print expect single sop statement)

Snippet 2

```
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);
    }
}
```

Dry Run

Output → total += i total --= 1



final output → total = 11

Snippet 3

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

Dry Run

output :-

count

0 ⟶ initially

output ⟶ 0 ⟶ 1st sop

1 ⟶ count increment

} 1st run

1

output ⟶ 1

2

} 2nd run

2

output ⟶ 2

3

} 3rd run

break the loop

output ⟶ 3

final output :- 0 1 2 3

Snippet 4

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

Dry Run

i

i = 1 ⟶ initially

i = 1 ⟶ 1st print

i = 2 ⟶ increment

i = 2 ⟶ 2nd print

i = 3 ⟶ increment

i = 3 ⟶ 3rd print

i = 4 ⟶ increment

i = 4 ⟶ 4th print

4 ⟶ 5th print (out of the do while loop)

final output :- 1 2 3 4 4

Snippet 5

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

Dry Run

	num	i
	1	1
num-1 = 0		1
num+1 = 1		2
num-1 = 0		3
num+1 = 1		4

output = 1

final output = 1

Snippet 6

```
public class IncrementDecrement {
    public static void main (String[] args) {
        int x=5;
        int y = ++x - x-- + --x + x++;
        System.out.println(y);
    }
}
```

Dry Run

x

5 ⟷ initially

6 ⟶ ++x

\-

6 ⟶ x--

\+

4 ⟶ --x

\+

4 ⟶ x++

(5) ⟶ Final 'x' not in arithmetic operations

8

final 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);
    }
}
```

Dry Run

a	b	
10	5	⟶ initially.

```
  11   *   5
(++a)    (b--)

       -

  10        4
(--a)

       +

  10        4
            (b++)
```

```
++a  *  b--  -  --a  +  b++
 ↓
[11   *   5]  -  10  +  4

   55         - 6

   = 49
```

final 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);
    }
```

Dry Run :-

for i=0

0 += 0 - 2 } 1st

count = -2

for i=1

-2 += 1 - 3 } 2nd

count = -4

for i=2

-4 += 2 - 4 } 3rd

-6 = count

for i = 3

-6 += 3 - 5 } 4th

count = -8

final output = count = -8