NAME: _____

DATE: _____

TRISECT INSTITUTE

Job Oriented Java

J1D1

PATTERNS 2: IF ELSE

Using if-else

We can use if-else to make decision inside a program.

Syntax:

```
if(condition)
{
        //block 1
}
else
{
        //block 2
}
```

Note: Statements inside block 1 executes when condition is true otherwise block 2 is executed.

Example 1: Simple if-else

```
1  int n = 6;
2
3  if(n%2 == 0)
4  {
5      System.out.println("Even Number");
6  }
7  else
8  {
9      System.out.println("Odd Number");
10 }
11 System.out.println("Outside");
```

Input	Output
n = 6	Even Number
	Outside
n = 9	Odd Number
	Outside

Problem 1	Give output of following code.

```
1  int m = 2;
2  int n = 0;
3
4  if(m <= 3)
5  {
6      n = m * m * m;
7  }
8  else
9  {
10     n = m * m;
11 }
```

```
12
13 System.out.println(n);
```

Problem 2	Give output of following code.

```
1   String str = "apple##";
2   int z = 12;
3
4   if(z%5 == 0)
5   {
6       str = str + "shake";
7   }
8   else
9   {
10      str = str + "juice";
11  }
12
13  System.out.println(str);
```

Example 2: Working with if-else inside a loop

```
1   int n = 4;
2   String str = "";                        //empty string
3   String pattern = "a";
4   for(int i = 1; i <= n; i++)
5   {
6       if(i%3 == 0)
7       {
8               str = str + pattern;
9       }
10      else
11      {
12              str = str + "X";
13      }
14  }
15  System.out.println(str);
```

Dry Run:

Current value of loop variable	Loop Condition	Condition(if)	else	Print
int i = 1 [initialization]	⇨ 1 <= 4 ⇨ true	⇨ false	str = "" + "X"	-
i = 2	⇨ 2 <= 4 ⇨ true	⇨ false	str = "X" + "X"	-
i = 3	⇨ 3 <= 4 ⇨ true	⇨ true ⇨ str = "XX" + "a"		-

i = 4	⇨ 4 <= 4 ⇨ true	⇨ false	str = "XXa" + "X"	-
i = 5	⇨ 5 <= 4 ⇨ false	-	-	-
Outside Loop	-	-	-	XXaX

Problem 3	Give output of following code.

```
1  int n = 5;
2  int m = 3;
3  String str = "";
4  String ptr = "x";
5
6  for(int i = 1; i <= n; i++)
7  {
8      if(i < m)
9      {
10          str = str + ptr;
11     }
12     else
13     {
14          str = str + "Y";
15     }
16 }
17 System.out.println(str);
```

Using simple if without else

While writing decisions in our program we can skip the else block (it is optional). So if block will run if the condition is true and if it is false then if block is skipped.

Syntax:

```
if(condition)
{
      //block
}
```

Example 3: Simple if without else

```
1  int players = 10;
2
3  if(players < 11)
4  {
5      System.out.println("Need more players");
6  }
7  System.out.println("Trisect Team");
```

Input	Output
players = 7	Need more players
	Trisect Team
players = 11	Trisect Team

Problem 4	Give output of following code for each input given under the code.

```
1   int x = 25;
2   int y = 100;
3   if(x < y)
4   {
5       System.out.println(x);
6   }
7   System.out.println(y);
```

Output when:
```
x = 25, y = 100
x = 20, y = 10
```

Problem 5	Give output of following code for each input given under the code.

```
1   int x = 22;
2   int y = 10;
3   int z = x % y;
4
5   if(z <= 2)
6   {
7       System.out.println(x);
8   }
9   System.out.println(y);
```

Output when:
```
x = 22, y = 10
x =  6, y = 3
x = 10, y = 7
```

Problem 6	Give output of following code for each input given under the code.

```
1   int x = 125;
2   int y = 100;
3   if(x > y)
4   {
5       x = x + y;
6       y = y + 10;
7   }
8   x = 100;
9   System.out.println(x);
10  System.out.println(y);
```

Output when:
```
x = 125, y = 100
x =  10, y = 20
x =  30, y = 30
```

Example 4: Working with single if inside a loop

```
1  int n = 4;
2  String str = "";                     //empty string
3  for(int i = 1; i <= n; i++)
4  {
5     if(i%2==0)
6     {
7           str = str + i + "A";
8     }
9  }
10 System.out.println(str);
```

Dry Run:

Current value of loop variable	Loop Condition	Condition(if)	Print
int i = 1 [initialization]	⇨ 1 <= 4 ⇨ true	⇨ false	-
i = 2	⇨ 2 <= 4 ⇨ true	⇨ true ⇨ str = "" + 2 + "A"	-
i = 3	⇨ 3 <= 4 ⇨ true	⇨ false	-
i = 4	⇨ 4 <= 4 ⇨ true	⇨ true ⇨ str = "2A" + 4 + "A"	-
i = 5	⇨ 4 <= 5 ⇨ false	-	-
Outside Loop	-	-	2A4A

Problem 7	Give output of following code.

```
1  int z = 3;
2  int m = 4;
3  String str = "";
4  String qstr = "T";
5
6  for(int i = 1; i <= m; i++)
7  {
8     if(i < z)
9     {
10          str = str + "risect";
11    }
12    str = str + qstr;
13 }
14 System.out.println(str);
```