PRACTICE SET-1 (Java Basics)

Predict the output for following code fragments:

1.
```java
int ++a = 100;
System.out.println(a);
```

2.
```java
String s1 = "true";
if(s1)
      System.out.println("In the loop");
```

3.
```java
System.out.println(""== "");
System.out.println("a"== "A");
System.out.println("a==A");
```

4.
```java
String s1 = "Example";
String s2 = "Example";
String s3 = new String("Example");
System.out.println(s1 == s2);
System.out.println(s3 == s4);
System.out.println(s3.equals(s4));
System.out.println(s1.equals(s2));
```

5.
```java
String s  = "hello";
int x = 9;
System.out.println(x += 9);
```

6.
```java
int x = 10;
int y = ~x;
System.out.println(x + "  " + y);
```

7.
```java
int a = 3;
int b = 6;
System.out.println((a|b) + " "  + (a&b));
```

8.
```java
int a = 3;
int b = 6;
```

```
System.out.println((a||b) + " " + (a&&b));
```

9. Which of the following is false about arrays on Java
   ○ A java array is always an object.
   ○ Length of array can be changed after creation of array.
   ○ Arrays in Java are always allocated on heap.
   ○ int[][] a = new int[10][]

10.
```
int[][] arr = new int[][]{{1,2,3},{3,4,5}};
for (int[] i : arr)
      for(int j : i)
            System.out.print(l);
```

11.
```
int i=7;
loop1:
while(i<20)
{
      if(i==10)
            break loop1;

      System.out.println("i ="+i);
      i++;
}
System.out.println("Out of the loop");
```

Implement the following problems. Wherever required, take input from user through command line.

Use inbuilt method of String class wherever needed.

1. You are given a string *s*. Perform the following operations on it. Use switch case of selecting option.
   a) remove all the leading and trailing white spaces in string
   b) replace all the single spaces in string with *
   c) print length of the string
   d) check if string is empty
   e) print the entire string in uppercases
   f) print the entire string in lowercases
2. Given a string *s,* and two indices, *start* and *end*, print a substring consisting of all characters in the inclusive range from 0 to end-1.
3. Given two strings, *s* = *"University Coding Academy"*, and *m* = *"ing Aca"*
   a) check if m comes lexicographically before s.

b) Check if string s contains the character sequence represented by m in as a substring.

c) Append string *s* to string *m*

4. Given a string *s*, print all the characters of *s*. Do it without creating a character array. (Hint: charAt() method)

Use inbuilt methods of StringBuilder Class.

5. Given a string, *s* as *"University Coding Academy",* perform the following operations sequentially:

a) delete the substring from index 3 to 6.

b) insert the string - "---" after 2nd index.

c) reverse the string

Misc.

6. Write a Java program to print the diamond pattern.