CS4001NT Programming

ASSIGNMENT WEEK-1

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Section:L1C1

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Qsn 1.Write a program TenHelloWorlds.java that prints "Hello, World"; ten times.

```java
public class TenHelloWorlds {
    public static void main(String[] args) {
        System.out.println("Hello, World");
        System.out.println("Hello, World");
        System.out.println("Hello, World");
        System.out.println("Hello, World");
        System.out.println("Hello, World");
        System.out.println("Hello, World");
        System.out.println("Hello, World");
        System.out.println("Hello, World");
        System.out.println("Hello, World");
        System.out.println("Hello, World");
    }
}
```

```
iic_assignments/programming/TenHelloWorlds
→ javac TenHelloWorlds.java

iic_assignments/programming/TenHelloWorlds took 3s
→ java TenHelloWorlds
Hello, World
Hello, World
Hello, World
Hello, World
Hello, World
Hello, World
Hello, World
Hello, World
Hello, World
Hello, World
```

Qsn.2 Write 18 different programs that print the following patterns shown below.

```java
public class PatternOne {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("1");
        print("1 2");
        print("1 2 3");
        print("1 2 3 4");
        print("1 2 3 4 5");

    }

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

```
iic_assignments/programming/Pattern1
→ javac PatternOne.java

iic_assignments/programming/Pattern1
→ java PatternOne
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

```java
public class PatternTwo {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("A");
        print("A B");
        print("A B C");
        print("A B C D");
        print("A B C D E");
    }

    public static void main(String[] args) {
        printPattern();
    }

}
```

```
iic_assignments/programming/Pattern2
→ javac PatternTwo.java

iic_assignments/programming/Pattern2
→ java PatternTwo
A
A B
A B C
A B C D
A B C D E
```

```java
public class PatternThree {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("*");
        print("* *");
        print("* * *");
        print("* * * *");
        print("* * * * *");
    }

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

```
iic_assignments/programming/Pattern3
→ javac PatternThree.java

iic_assignments/programming/Pattern3
→ java PatternThree
*
* *
* * *
* * * *
* * * * *

iic_assignments/programming/Pattern3
→
```

```java
public class PatternFour {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("1");
        print("2 2");
        print("3 3 3");
        print("4 4 4 4");
        print("5 5 5 5 5");
    }

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

```
iic_assignments/programming/Pattern4
→ javac PatternFour.java

iic_assignments/programming/Pattern4
→ java PatternFour
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

```java
public class PatternFive {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("A");
        print("B B");
        print("C C C");
        print("D D D D");
        print("E E E E E");
    }

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

```
iic_assignments/programming/Pattern5
→ javac PatternFive.java

iic_assignments/programming/Pattern5
→ java PatternFive
A
B B
C C C
D D D D
E E E E E
```

```java
public class PatternSix {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("        *");
        print("      * *");
        print("    * * *");
        print("  * * * *");
        print("* * * * *");
    }

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

```
iic_assignments/programming/Pattern6
→ javac PatternSix.java

iic_assignments/programming/Pattern6
→ java PatternSix
        *
      * *
    * * *
  * * * *
* * * * *
```

```java
public class PatternSeven {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("    1    ");
        print("   1 2   ");
        print("  1 2 3  ");
        print(" 1 2 3 4 ");
        print("1 2 3 4 5");
    }

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

```
iic_assignments/programming/Pattern7
→ javac PatternSeven.java

iic_assignments/programming/Pattern7
→ java PatternSeven
    1
   1 2
  1 2 3
 1 2 3 4
1 2 3 4 5
```

```java
public class PatternEight {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("    5    ");
        print("   4 5   ");
        print("  3 4 5  ");
        print(" 2 3 4 5 ");
        print("1 2 3 4 5");
    }

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

```
iic_assignments/programming/Pattern8
→ javac PatternEight.java

iic_assignments/programming/Pattern8
→ java PatternEight
    5
   4 5
  3 4 5
 2 3 4 5
1 2 3 4 5
```

```java
public class PatternNine {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("    A    ");
        print("   A B   ");
        print("  A B C  ");
        print(" A B C D ");
        print("A B C D E");
    }

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

```java
public class PatternTen {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("    E    ");
        print("   D E   ");
        print("  C D E  ");
        print(" B C D E ");
        print("A B C D E");
    }

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

```
iic_assignments/programming/Pattern10
→ javac PatternTen.java

iic_assignments/programming/Pattern10
→ java PatternTen
    E
   D E
  C D E
 B C D E
A B C D E
```

```java
public class PatternEleven {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("    *    ");
        print("   ***   ");
        print("  *****  ");
        print(" ******* ");
        print("*********");
    }

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

```
iic_assignments/programming/Pattern11
→ javac PatternEleven.java

iic_assignments/programming/Pattern11
→ java PatternEleven
    *
   ***
  *****
 *******
*********
```

```java
public class PatternTwelve {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("    1    ");
        print("   2 2   ");
        print("  3 3 3  ");
        print(" 4 4 4 4 ");
        print("5 5 5 5 5");
    }

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

```
iic_assignments/programming/Pattern12
→ javac PatternTwelve.java

iic_assignments/programming/Pattern12
→ java PatternTwelve
    1
   2 2
  3 3 3
 4 4 4 4
5 5 5 5 5
```

```java
public class PatternThirteen {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("    A    ");
        print("   B B   ");
        print("  C C C  ");
        print(" D D D D ");
        print("E E E E E");
    }

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

```
iic_assignments/programming/Pattern13
→ javac PatternThirteen.java

iic_assignments/programming/Pattern13
→ java PatternThirteen
    A
   B B
  C C C
 D D D D
E E E E E
```

```java
public class PatternFourteen {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("1 2 3 4 5");
        print("1 2 3 4  ");
        print("1 2 3    ");
        print("1 2      ");
        print("1        ");
    }

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

```
iic_assignments/programming/Pattern14
→ javac PatternFourteen.java

iic_assignments/programming/Pattern14
→ java PatternFourteen
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
```

```java
PatternFifteen.java

public class PatternFifteen {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("5 4 3 2 1");
        print("5 4 3 2  ");
        print("5 4 3    ");
        print("5 4      ");
        print("5        ");
    }

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

```
iic_assignments/programming/Pattern15
→ javac PatternFifteen.java

iic_assignments/programming/Pattern15
→ java PatternFifteen
5 4 3 2 1
5 4 3 2
5 4 3
5 4
5
```

```java
PatternSixteen.java

public class PatternSixteen {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("5          ");
        print("5 4        ");
        print("5 4 3      ");
        print("5 4 3 2    ");
        print("5 4 3 2 1");
    }

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

```
iic_assignments/programming/Pattern16
→ javac PatternSixteen.java

iic_assignments/programming/Pattern16
→ java PatternSixteen
5
5 4
5 4 3
5 4 3 2
5 4 3 2 1
```

```java
public class PatternSeventeen {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("1");
        print("2 3");
        print("4 5 6");
        print("7 8 9 10");
        print("11 12 13 14 15");
    }

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

```
iic_assignments/programming/Pattern17
→ javac PatternSeventeen.java

iic_assignments/programming/Pattern17
→ java PatternSeventeen
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
```

```java
public class PatternEighteen {
    protected static void print(String s) {
        System.out.println(s);
    }

    public static void printPattern() {
        print("A B C D E");
        print("A B C D");
        print("A B C");
        print("A B");
        print("A");
    }

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

```
iic_assignments/programming/Pattern18
→ javac PatternEighteen.java

iic_assignments/programming/Pattern18 took 3s
→ java PatternEighteen
A B C D E
A B C D
A B C
A B
A
```

Qsn.3 I typed in the following program named Test.java. But I am getting errors while compiling the program. What am I doing wrong?

1. **Public Class Test {}**
2. **public static Void main()(**
3. **system.Out.PrintIn('find the errors")**
4. **)**

Problems:
- Keywords in java, such as: public, class, void, etc, must not be of uppercase. Java is a case-sensitive programming language. Public and public, both have different meanings.
- Any block of instructions/statements must be enclosed inside curly braces.
- "main" method is an execution point for any java apps. "main" method is missing the argument.
- In line 3, the system class is lowercase; field "Out" has its initial letter uppercase; invalid method "PrintIn". String literal must be enclosed with double quotation marks.
- Any block of statement starts with starting curly braces and ends with closing curly braces.

Solutions:
- Line 1:Change "Public" to lowercase "public(access modifier)" and "Class" to lowercase "class"; also, the main method must be of class "Test" enclosed with curly braces. Remove closing curly brace in line 1 and add closing curly braces at the end; either in line 4 or line 5.
- Line 2: Change "Void" to lowercase void(data type); main method is missing argument. It must have an argument of 'array of string type': String[] args. Token "(" is invalid. It must be curly brace "{"

- In line 3: system class must have its initial character capitalized. "Out" field must be of lowercase, "out", and "PrintIn" must be changed with "println". Change single quote(') to double quote (").
- Line 4 has invalid token "(". Change it to "}", closing curly braces.

code without bug:

```
public class Test {
    public static void main(String[] args) {
        System.out.println("find the errors");
    }
}
```

```
iic_assignments/program
→ javac Test.java

iic_assignments/program
→ java Test
find the errors

iic_assignments/program
→
```