ASSIGNMENT-3 DATE:10/7/24

1. Write a program to print the following pattern
   Sample Input:
   Enter the Character to be printed: %
   Max Number of time printed: 3
   %
   % %
   % % %

CODE:

```
public class main {
 public static void main(String[] args) {
 int n = 5;
 for (int i = 0; i < n; i++) {
 for (int j = 0; j < n - i - 1; j++) {
 System.out.print("");
 }
 for (int k = 0; k <= i; k++) {
 System.out.print("% ");
 }
 System.out.println();
 }
 }
}
```

OUTPUT:

2. Write a program to print hollow square symbol pattern?

CODE:

```
public class HollowSquarePattern {
    public static void main(String[] args) {
        int rows = 5;
        for (int i = 1; i <= rows; i++) {
```

```
            for (int j = 1; j <= rows; j++) {
                if (i == 1 || i == rows || j == 1 || j == rows) {
                    System.out.print("* ");
                } else {
                    System.out.print("  ");
                }
            }
            System.out.println();
        }
    }
}
```

OUTPUT:

3. Write a program to print the below pattern

```
1
2  2
3  3  3

4  4   4   4
```

CODE:

```
public class NumberPattern {
    public static void main(String[] args) {
        int rows = 4;

        for (int i = 1; i <= rows; i++) {
            for (int j = 1; j <= i; j++) {
                System.out.print(i + " ");
            }
            System.out.println();
        }
    }
}
```

OUTPUT:

4. Write a program to print the below pattern

```
1
4    9
16   25    36
49   64    81    100
```

CODE:

```
public class NumberPattern {
    public static void main(String[] args) {
        int rows = 4;
        int num = 1;

        for (int i = 1; i <= rows; i++) {
            for (int j = 1; j <= i; j++) {
                System.out.print(num * num + " ");
                num++;
            }
            System.out.println();
        }
    }
}
```

OUTPUT:

5. Write a program to print the below pattern

```
1
2 2
3  3  3
4  4   4   4
```

3 3 3
2 2
1

CODE:

```
public class NumberPattern {
    public static void main(String[] args) {
        int n = 4;
        for (int i = 1; i <= n; i++) {
            for (int j = 1; j <= i; j++) {
                System.out.print(i + " ");
            }
            System.out.println();
        }
        for (int i = n - 1; i >= 1; i--) {
            for (int j = 1; j <= i; j++) {
                System.out.print(i + " ");
            }
            System.out.println();
        }
    }
}
```

OUTPUT:

6. Write a program to print hollow Square Dollar pattern?

CODE:

```
public class HollowSquarePattern {
   public static void main(String[] args) {
      int rows = 5;
      for (int i = 1; i <= rows; i++) {
         for (int j = 1; j <= rows; j++) {
            if (i == 1 || i == rows || j == 1 || j == rows) {
               System.out.print("$ ");
            } else {
               System.out.print("  ");
            }
         }
         System.out.println();
      }
   }
}
```

OUTPUT:

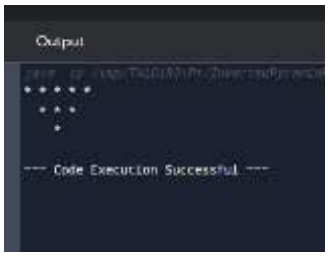
7. Write a program to print inverted pyramid pattern.
Input: no of rows: 3
Output

```
*****
 ***
  *
```

CODE:

```
public class InvertedPyramidPattern {
    public static void main(String[] args) {
        int rows = 3;
        for (int i = rows; i >= 1; --i) {
            for (int j = 1; j <= rows - i; ++j) {
                System.out.print("  ");
            }
            for (int k = 1; k <= 2 * i - 1; ++k) {
                System.out.print("* ");
```

```
                }
                System.out.println();
            }
        }
    }
    OUTPUT:
```

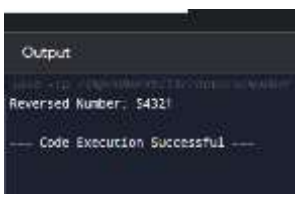


8. Write a program to reverse a number using loop?(Get the input from user)
Sample Input:
Number: 14567
Sample Output:
Reverse Number: 76541

CODE:

```
public class ReverseNumber {
   public static void main(String[] args) {
      int number = 12345;
      int reversedNumber = 0;
      while(number != 0) {
         int digit = number % 10;
         reversedNumber = reversedNumber * 10 + digit;
         number /= 10;
      }
      System.out.println("Reversed Number: " + reversedNumber);
   }
}
```

OUTPUT:



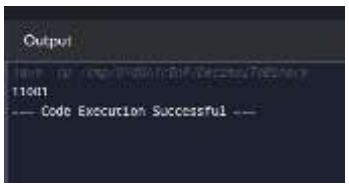
9. Write a program to convert the given decimal to binary and print the reverse of the binary decimal.

Input: 11
Output: 13

CODE:

```
public class DecimalToBinary {
   public static void main(String[] args) {
      int decimal = 25;
      int[] binary = new int[40];
      int index = 0;
      while (decimal > 0) {
         binary[index++] = decimal % 2;
         decimal = decimal / 2;
      }
      for (int i = index - 1; i >= 0; i--) {
         System.out.print(binary[i]);
      }
   }
}
```

OUTPUT:



10. Write a program to find whether the person is eligible for vote or not. And if that particular person is not eligible, then print how many years are left to be eligible.

Sample Input:
Enter your age:7
Sample output:
You are allowed to vote after 11 years

CODE:

```
public class VoterEligibility {
    public static void main(String[] args) {
        int age = 17;
        if (age >= 18) {
            System.out.println("You are eligible to vote.");
        } else {
            int yearsLeft = 18 - age;
```

```
            System.out.println("You are not eligible to vote. You
need to wait for " + yearsLeft + " more years to be eligible.");
        }
    }
}
```

OUTPUT:

11. Find the LCM and GCD of n numbers?

Sample Input:

N value = 2

Number 1 = 16

Number 2 = 20

Sample Output:

LCM = 80

GCD = 4

CODE:

```
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.print("Enter the number of elements: ");
        int n = input.nextInt();
        int[] numbers = new int[n];
        System.out.println("Enter the numbers:");
        for (int i = 0; i < n; i++) {
            numbers[i] = input.nextInt();
        }
        int gcd = numbers[0];
        int lcm = numbers[0];
        for (int i = 1; i < n; i++) {
            gcd = findGCD(gcd, numbers[i]);
            lcm = findLCM(lcm, numbers[i]);
        }
        System.out.println("GCD of the numbers is: " + gcd);
        System.out.println("LCM of the numbers is: " + lcm);
    }
    public static int findGCD(int a, int b) {
        if (b == 0) {
```

```
            return a;
        }
        return findGCD(b, a % b);
    }
    public static int findLCM(int a, int b) {
        return (a * b) / findGCD(a, b);
    }
}
```

OUTPUT: