Q1. Write a program to calculate the sum of the first 50 natural numbers.

```
public class Sum {
   public static void main(String[] args) {
      int sum = 0;
      for (int i = 1; i <= 50; i++) {
         sum += i;
      }
      System.out.println("The sum of first 50 natural numbers is: " + sum);
   }
}
```

Q2. Write a program to compute the factorial of the number 10.

```
public class Factorial {
   public static void main(String[] args) {
      int number = 10; // Number to compute the factorial of
      long factorial = 1;
      for (int i = 1; i < number; i++) {
         factorial *= i; // Multiply factorial by the current number
      }
      System.out.println("The factorial of " + number + " is: " + factorial);
   }
}
```

3. Write a program to print all multiples of 7 between 1 and 100.

```
public class Multiples {
   public static void main(String[] args) {
      System.out.println("Multiples of 7 are:");
      for (int i = 1; i <=100; i++) {
         if (i %7 == 0){
        System.out.println(i);
   }
}
}
}
```

4. Write a program to reverse the digits of the number 1234. The output should be 4321.

```
public class Reversedigit {
public static void main(String args[])  {
 int number = 1234;
       int reversed = 0;
       while (number != 0) {
          int digit = number % 10;
          reversed = reversed * 10 + digit;
          number /= 10;
       }
       System.out.println("Reversed Number: " + reversed);
  }
 }
```

5. Write a program to print the Fibonacci sequence up to the number 21.

```
class Fibonacci {
  public static void main(String[] args) {
    int n = 21, first = 0, second = 1;
    System.out.println("Fibonacci Series till " + n + " terms:");
    for (int i = 1; i <= n; ++i) {
      System.out.print(first + ", ");
      int next = first + second;
      first = second;
      second = next;
    }
  }
}
```

6. Write a program to find and print the first 5 prime numbers.

```
public class PrimeNumbers {
    public static boolean isPrime(int N) {
       for (int i = 2; i < N; i++) {
          if (N % i == 0) {
             return false;
```

```
        }
      }
      return true;
    }
    public static void main(String[] args) {
      int count = 0;
      int num = 2;
      while (count < 5) {
        if (isPrime(num)) {
          System.out.println(num);
          count++;
        }
        num++;
      }
    }
}
```

7. Write a program to calculate the sum of the digits of the number 9876. The output should be 30 (9 + 8 + 7 + 6).

```
public class SumOfDigits {
    public static void main(String[] args) {
      int number = 9876;
      int sum = 0;
      String breakdown = "";
      while (number > 0) {
        int digit = number % 10; // Extract the last digit
        sum += digit; // Add the digit to the sum
        breakdown = digit + (breakdown.isEmpty() ? "" : " + ") + breakdown;
        number = number / 10;
      }
      System.out.println(sum + " (" + breakdown + ")");
    }
}
```

8. Write a program to count down from 10 to 0, printing each number.

```
import java.util.Scanner;
public class Count{
   public static void main(String[] args) {
          for (int i=10;  i >= 0; i--) {
          System.out.println("The numbers are: " +i);
          }
}
}
```

9. Write a program to find and print the largest digit in the number 4825.

```
public class LargestDigit {
   public static void main(String[] args) {
      int number = 4825;
      int largest = 0;

      while (number > 0) {
         int digit = number % 10; // Extract the last digit
         if (digit > largest) {
            largest = digit; // Update the largest digit found
         }
         number = number / 10; // Remove the last digit
      }
      System.out.println("The largest digit is: " + largest);
   }
}
```

10. Write a program to print all even numbers between 1 and 50.

```
public class Even {
   public static void main(String[] args) {
          for (int i=1; i<=50; i+=2){
          System.out.println(i);
          }
  }
```

```
}
```

11. Write a Java program to demonstrate the use of both pre-increment and post-decrement operators in a single expression

```
public class Increment {
 public static void main(String[] args) {
 int a = 7;
 int b = 11;
 int result = ++a + b--;
 System.out.println(result);
 }
}
```

12. Write a program to draw the following pattern:

```
*****
*****
*****
*****
*****
import java.util.Scanner;
public class Pattern{

   public static void main(String[] args) {

         for (int i=0;  i < 5; i++) {
         System.out.println(" * * * * *");
         }
}
}
```

13. Write a program to print the following pattern:

1

2*2

3*3*3

4*4*4*4

5*5*5*5*5

5*5*5*5*5

4*4*4*4

3*3*3

2*2

1

```
public class Pattern {
   public static void main(String[] args) {
      int n = 5;

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

      for (int i = n; i >= 1; i--) {
         for (int j = 1; j <= i; j++) {
            System.out.print(i);
            if (j < i) {
               System.out.print("*");
            }
         }
         System.out.println();
      }
   }
}
```

14. Write a program to print the following pattern:

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

```
import java.util.Scanner;
public class HalfPyramid2{
      public static void main(String args[]){
```

```
            int n;
             System.out.println("Enter a number");
             Scanner sc = new Scanner(System.in);
             n = sc.nextInt();
             for(int i=1;i<=n;i++){
                    if(i%3==0&&i>3){
                           continue;
                    }
                    for(int j=1;j<=i;j++){
                         System.out.print(" *");
                     }
                     System.out.println();
          }


    }
}
```

15. Write a program to print the following pattern:

```
*
**
***
****
*****
public class Pattern4 {
   public static void main(String[] args) {
      int rows = 5;
      for (int i = 1; i <= rows; i++) {
         for (int j = 1; j <= i; j++) {
            System.out.print("*");
         }
         System.out.println();
      }
   }
}
```

16. Write a program to print the following pattern:

```
*
***
*****
*******
*********
public class StarPattern {
```

```
   public static void main(String[] args) {
      int n = 5; // Number of rows

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

         for (int k = 1; k <= (2 * i - 1); k++) {
            System.out.print("*");
         }
         System.out.println();
      }
   }
}
```

17. Write a program to print the following pattern:

```
*****
****
 ***
  **
   *
public class Pattern3 {
public static void main(String args[])  {
int i, j, row=6;

for(i=0; i<row; i++)
{
for(j=row-i; j>1; j--)
{
System.out.print("*");
}

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

18. Write a program to print the following pattern:

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

public class DiamondPattern {
   public static void main(String[] args) {
      int n = 4;
      for (int i = 1; i <= n; i++) {
         for (int j = i; j < n; j++) {
```

```
            System.out.print(" ");
        }
        for (int k = 1; k <= (2 * i - 1); k++) {
            System.out.print("*");
        }
        System.out.println();
    }
    for (int i = n - 1; i >= 1; i--) {
        for (int j = n; j > i; j--) {
            System.out.print(" ");
        }
        for (int k = 1; k <= (2 * i - 1); k++) {
            System.out.print("*");
        }
        System.out.println();
    }
  }
}
```

19. Write a program to print the following pattern:

1
1*2
1*2*3
1*2*3*4
1*2*3*4*5

```
public class Pattern5 {
   public static void main(String[] args) {
      int rows = 5;

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

20. Write a program to print the following pattern:

5
5*4
5*4*3
5*4*3*2
5*4*3*2*1

```
public class Pattern8 {

  public static void main(String[] args) {
    int rows = 5;
```

```
   for (int i = 1; i <= rows; ++i) {
     for (int j = 5; j >= 6 - i; --j) {
       System.out.print(j);
       if (j > 6 - i) {
         System.out.print("*");
       }
     }
     System.out.println();
   }
  }
}
```

21. Write a program to print the following pattern:

1
1*3
1*3*5
1*3*5*7
1*3*5*7*9

```
public class Pattern9 {

  public static void main(String[] args) {
    int rows = 5;

    for (int i = 1; i <= rows; ++i) {
      int num = 1;
      for (int j = 1; j <= i; ++j) {
        System.out.print(num);
        if (j < i) {
          System.out.print("*");
        }
        num += 2;
      }
      System.out.println();
  }
}
}
```

22. Write a program to print the following pattern:

****
****
****
****
*****
****
****
****
****

```
public class Main {

    public static void main(String[] args) {
        int n = 5;
```

```
        // Upper part of the pattern
        for (int i = 0; i < n; i++) {
            for (int j = 0; j < i; j++) {
                System.out.print(" ");
            }
            for (int j = 0; j < (2 * (n - i) - 1); j++) {
                System.out.print("*");
            }
            System.out.println();
        }

        // Lower part of the pattern
        for (int i = n - 2; i >= 0; i--) {
            for (int j = 0; j < i; j++) {
                System.out.print(" ");
            }
            for (int j = 0; j < (2 * (n - i) - 1); j++) {
                System.out.print("*");
            }
            System.out.println();
        }
    }
}
```

23. Write a program to print the following pattern:

11111
22222
33333
44444
55555

```
class Pattern6 {
public static void main (String ar []){

 for (int i = 1; i <= 5; i++) {  // Loop for rows
            for (int j = 1; j <= 5; j++) {  // Loop for columns
                System.out.print(i);
            }
            System.out.println();
        }
    }
}
```

24. Write a program to print the following pattern:

1
22
333
4444
55555

```
public class Main {
  public static void main(String[] args) {
    int rows = 5;
```

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

25. Write a program to print the following pattern:

1
12
123
1234
12345

```
public class Main1 {

  public static void main(String[] args) {
    int rows = 5;

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

26. Write a program to print the following pattern:

1
2 3
4 5 6
7 8 9 10
11 12 13 14 15

```
public class Pattern7 {
  public static void main(String[] args) {

    int rows = 5, number = 1;
    for(int i = 1; i <= rows; i++) {
      for(int j = 1; j <= i; j++) {
        System.out.print(number + " ");
        ++number;
      }

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