

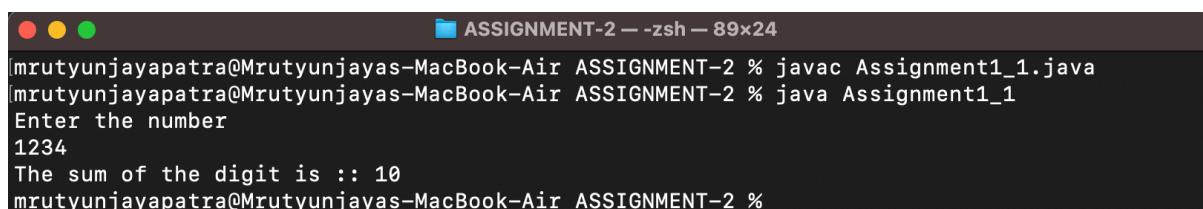
ASSIGNMENT-2

1. Write a java program to find following using looping and decision making without function

- i. Sum of all digits of any numbers

```
2. import java.util.Scanner;
3.
4.
5. public class Assignment1_1{
6.     public static void main(String[] args) {
7.         Scanner sc=new Scanner(System.in);
8.         int num,rem,sum=0;
9.         System.out.println("Enter the number");
10.        num=sc.nextInt();
11.        while (num>0) {
12.            rem=num%10;
13.            sum+=rem;
14.            num/=10;
15.        }
16.        System.out.println("The sum of the
    digit is :: "+sum);
17.    }
18. }
```

Output :-



A screenshot of a terminal window titled "ASSIGNMENT-2 -- zsh -- 89x24". The window shows the following command-line interaction:

```
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment1_1.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment1_1
Enter the number
1234
The sum of the digit is :: 10
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %]
```

ii. Sum of all even digits of any number

```
import java.util.Scanner;

/*Sum of all even digits of any number */
public class Assignment1_2 {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        int num,rem,sum=0;
        System.out.println("Enter the number ");
        num=sc.nextInt();
        while(num>0){
            rem=num%10;
            if (rem%2==0) {
                sum+=rem;
            }
            num/=10;
        }
        System.out.println("Sum of even digit is :: "+sum);
    }
}
```

Output:-

```
● ● ● ASSIGNMENT-2 --zsh-- 89x24
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment1_2.java
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment1_2
Enter the number
2456
Sum of even digit is :: 12
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %
```

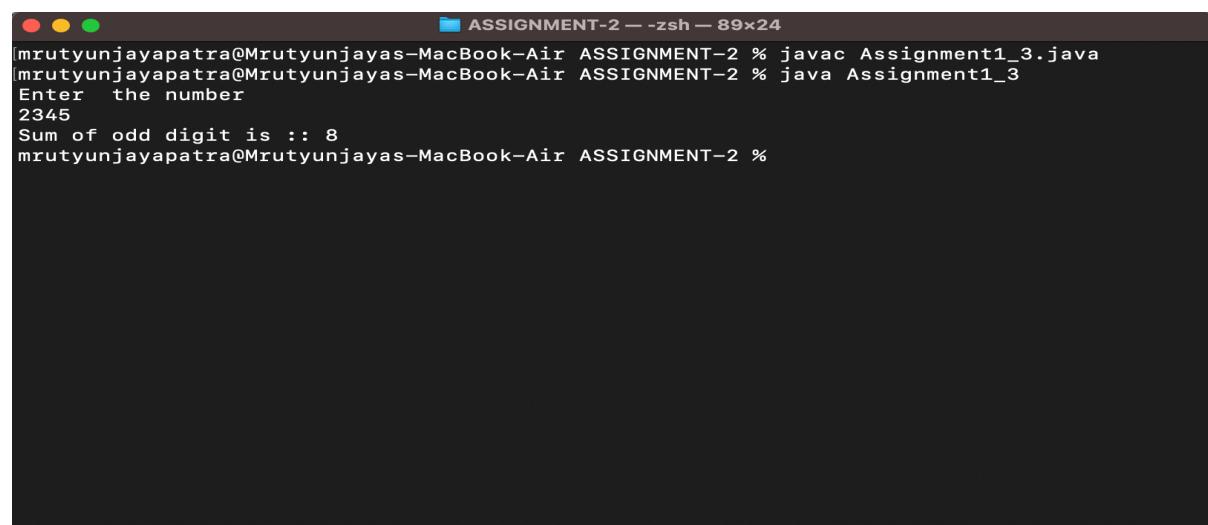
iii. Sum of all odd digits of any number

```
import java.util.Scanner;

/*Sum of all odd digits of any number */

public class Assignment1_3 {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        int num,rem,sum=0;
        System.out.println("Enter the number ");
        num=sc.nextInt();
        while(num>0){
            rem=num%10;
            if (rem%2!=0) {
                sum+=rem;
            }
            num/=10;
        }
        System.out.println("Sum of odd digit is :: "+sum);
    }
}
```

Output:-



```
ASSIGNMENT-2 -- zsh -- 89x24
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment1_3.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment1_3
Enter the number
2345
Sum of odd digit is :: 8
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %
```

iv. Sum of all prime digits

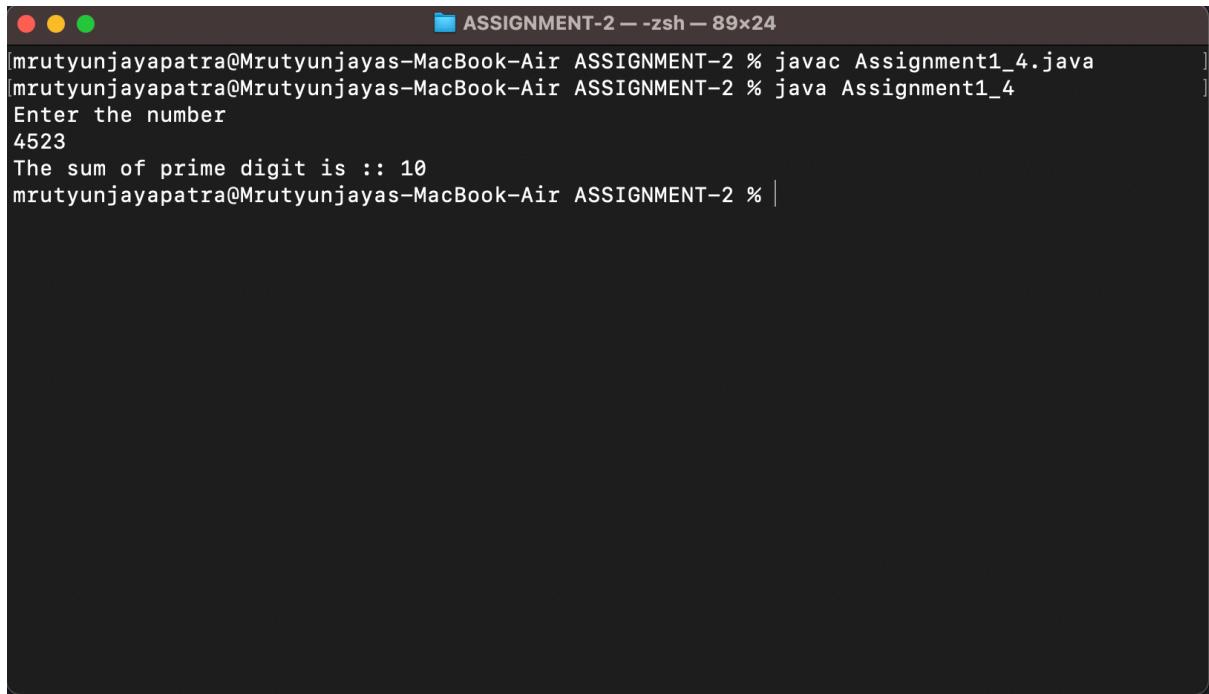
```
import java.util.Scanner;
public class Assignment1_4 {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        int num,rem,sum=0,count=0;
        System.out.println("Enter the number ");
        num=sc.nextInt();

        while (num>0) {
            rem=num%10;
            for(int i=1;i<=rem;i++){
                if (rem%i==0) {
                    count++;
                }
            }
            if (count==2) {
                sum+=rem;
            }
            count=0;
            num/=10;
        }

        System.out.println("The sum of prime digit is
:: "+sum);

    }
}
```

Output :-



```
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment1_4.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment1_4
Enter the number
4523
The sum of prime digit is :: 10
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % |
```

v. Difference between average of all even digits except divisible by 4 and average of all odd digits except divisible by 3

```
import java.util.Scanner;

public class Assignment1_5 {
    public static void main(String[] args) {
        int num, rem, sum1=0, sum2=0, count1=0, count2=0;
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the number");
        num=sc.nextInt();
        while (num>0) {
            rem=num%10;
            if (rem%2==0 && rem%4!=0) {
                sum1+=rem;
                count1++;
            }else if (rem%2!=0 && rem%3!=0) {
                sum2+=rem;
                count2++;
            }
            num/=10;
        }
        System.out.println("The sum of prime digit is :: "+(sum1+sum2));
        System.out.println("The average of even digits is :: "+((sum1+sum2)/(count1+count2)));
        System.out.println("The average of odd digits is :: "+((sum1+sum2)/(count1+count2)));
    }
}
```

```

    }

    System.out.println("Difference is ::

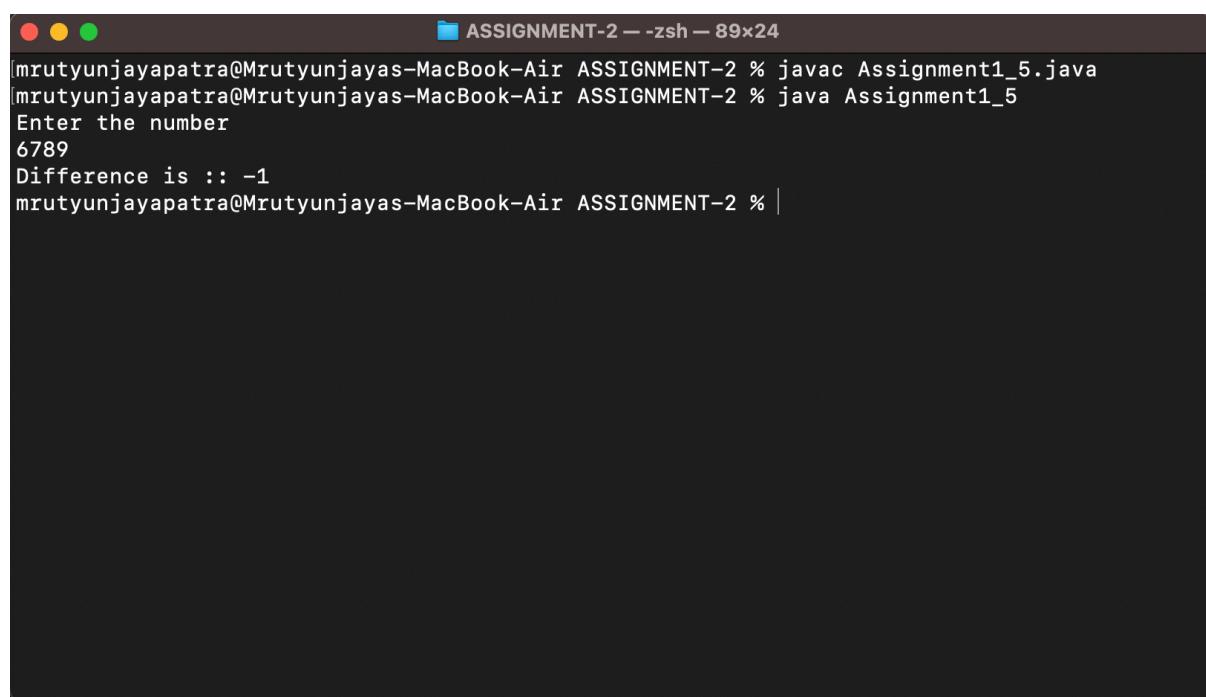
"+((sum1/count1)-(sum2/count2)));

}

}

```

Output:-



A screenshot of a terminal window titled "ASSIGNMENT-2 — zsh — 89x24". The window shows the following interaction:

```

[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment1_5.java
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment1_5
Enter the number
6789
Difference is :: -1
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %

```

vii. Sum of product of consecutive digits of any digit number

```

import java.util.Scanner;
public class Assignment1_7 {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        int num,rem,prod=1;
        System.out.println("Enter a number ");
        num=sc.nextInt();

```

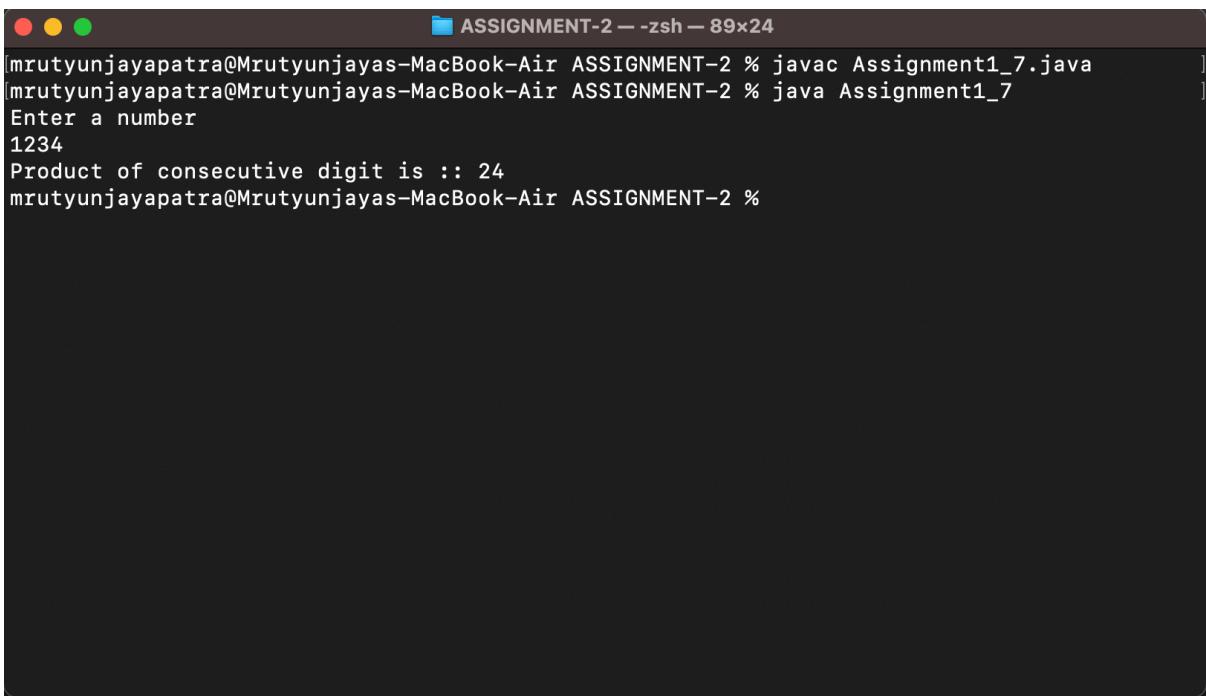
```

        while (num>0) {
            rem=num%10;
            prod*=rem;
            num/=10;
        }
        System.out.println("Product of consecutive
digit is :: "+prod);

    }
}

```

Output:-



A screenshot of a terminal window titled "ASSIGNMENT-2 -- -zsh -- 89x24". The window shows the following interaction:

```

mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment1_7.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment1_7
Enter a number
1234
Product of consecutive digit is :: 24
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %

```

viii. Sum of product of consecutive even digits of any digit number

```

import java.util.Scanner;
public class Assignment1_8 {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        int num,rem1,rem2,sum=0;

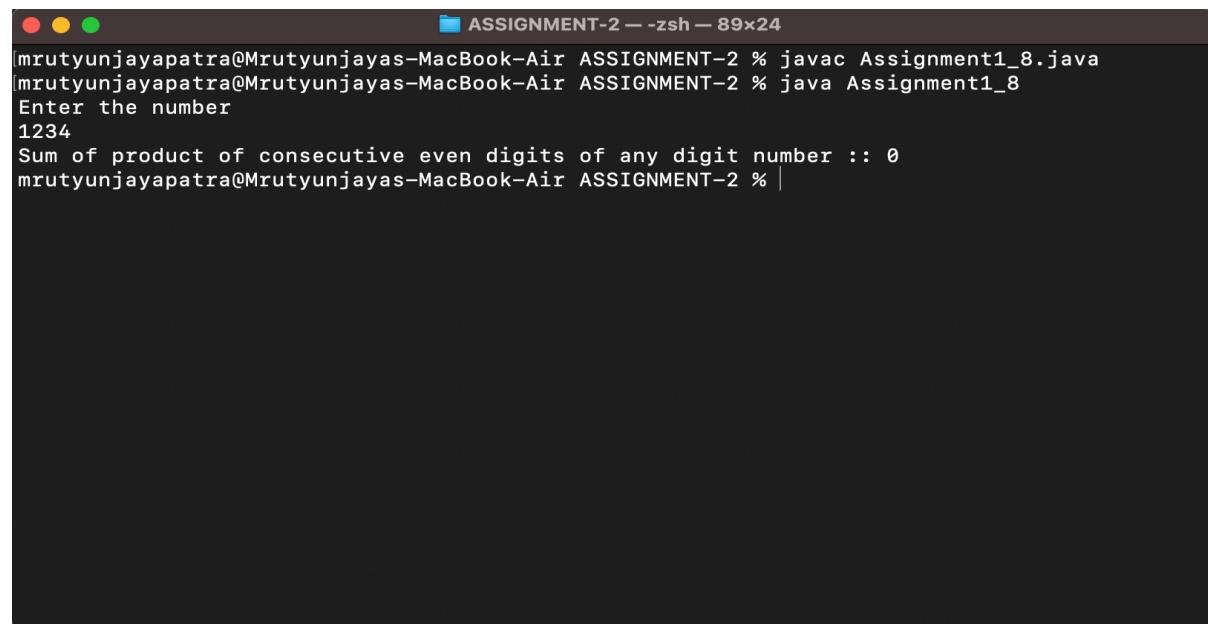
```

```

        System.out.println("Enter the number");
        num=sc.nextInt();
        while (num>0) {
            rem1=num%10;
            rem2=(num/10)%10;
            if (rem1%2==0 && rem2%2==0) {
                sum+=rem1*rem2;
            }
            num/=10;
        }
        System.out.println("Sum of product of
consecutive even digits of any digit number :: "+sum);
    }
}

```

Output:-



```

● ● ● ASSIGNMENT-2 -- zsh -- 89x24
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment1_8.java
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment1_8
Enter the number
1234
Sum of product of consecutive even digits of any digit number :: 0
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %

```

ix. Sum of product of consecutive odd digits of any digit number

```

import java.util.Scanner;

public class Assignment1_9 {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);

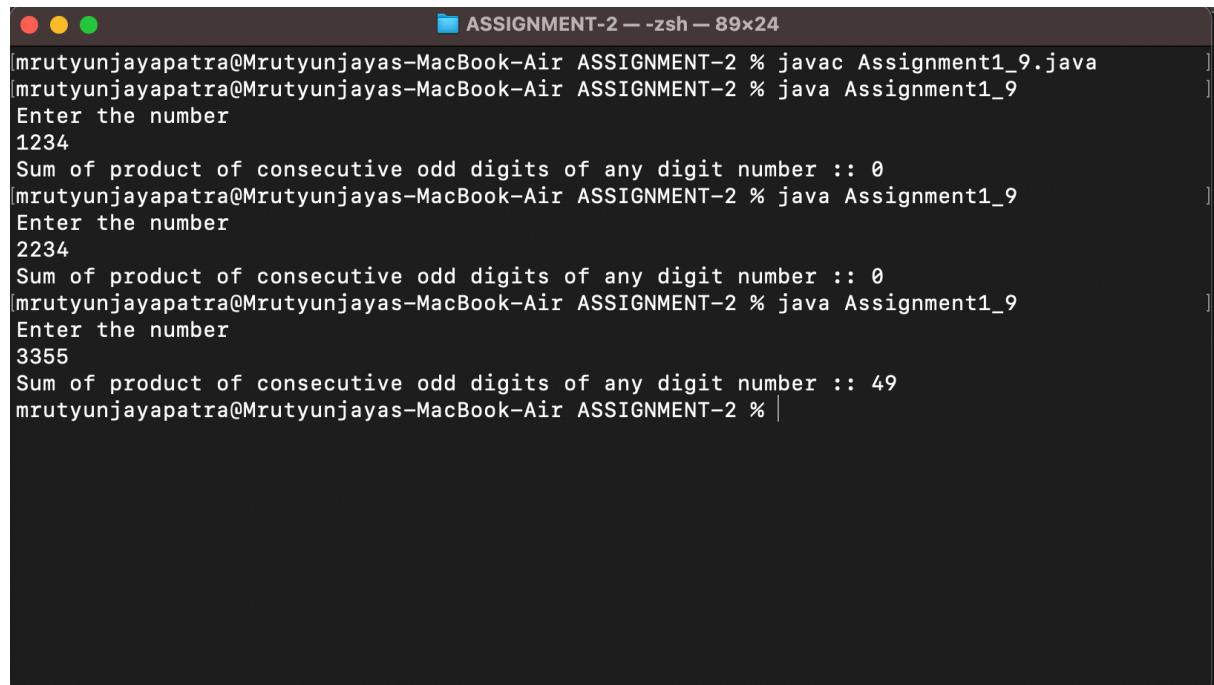
```

```

int num,rem1,rem2,sum=0;

System.out.println("Enter the number");
num=sc.nextInt();
while (num>0) {
    rem1=num%10;
    rem2=(num/10)%10;
    if (rem1%2!=0 && rem2%2!=0) {
        sum+=rem1*rem2;
    }
    num/=10;
}
System.out.println("Sum of product of
consecutive odd digits of any digit number :: "+sum);
}
}

```



The terminal window shows the execution of a Java program named Assignment1_9. It starts with the command `javac Assignment1_9.java`, followed by `java Assignment1_9`. The user then enters three numbers: 1234, 2234, and 3355. For each input, the program calculates the sum of the products of consecutive odd digits. For 1234, the output is 0 because there are no two consecutive odd digits. For 2234, the output is also 0. For 3355, the output is 49, as it calculates $(3 \times 3) + (5 \times 5) = 9 + 25 = 34$.

```

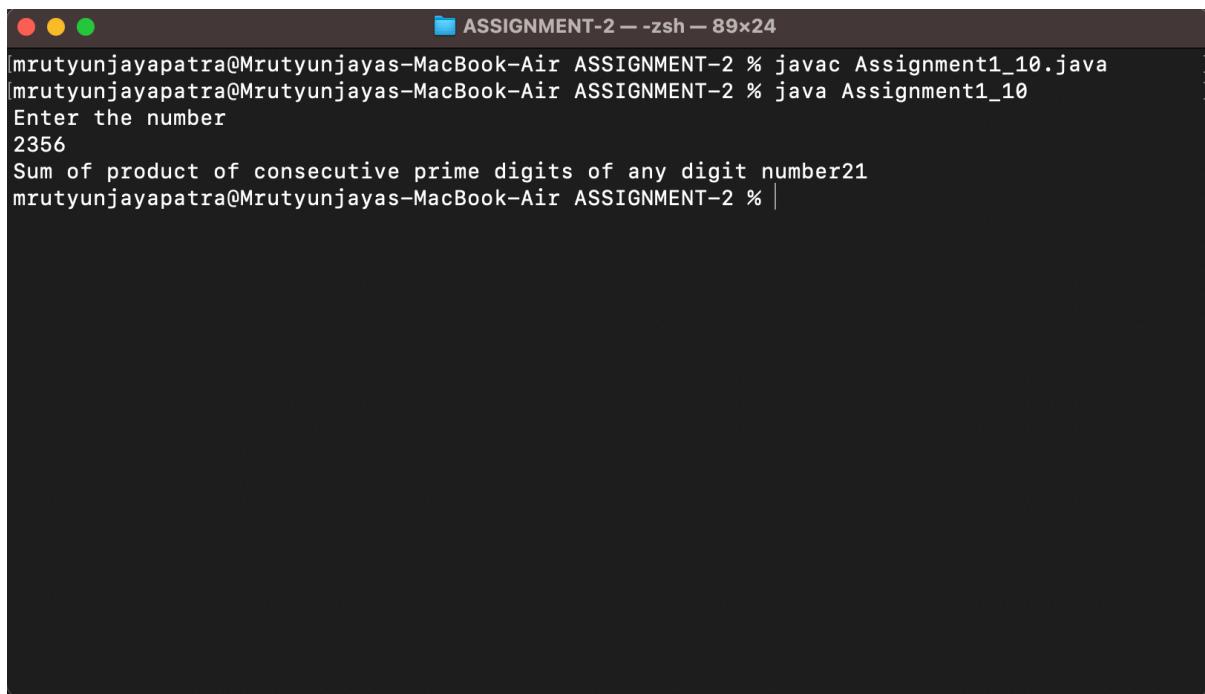
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment1_9.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment1_9
Enter the number
1234
Sum of product of consecutive odd digits of any digit number :: 0
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment1_9
Enter the number
2234
Sum of product of consecutive odd digits of any digit number :: 0
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment1_9
Enter the number
3355
Sum of product of consecutive odd digits of any digit number :: 49
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %

```

x. Sum of product of consecutive prime digits of any digit number

```
import java.util.Scanner;

public class Assignment1_10 {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        int num,rem1,rem2,sum=0,prod=1;
        System.out.println("Enter the number ");
        num=sc.nextInt();
        while (num>0) {
            rem1=num%10;
            rem2=(num/10)%10;
            if ((rem1==2 || rem1==3 || rem1==5 ||
rem1==7) && (rem2==2 || rem2==3 || rem2==5 || rem2==7))
{
                sum+=rem1*rem2;
            }
            num/=10;
        }
        System.out.println("Sum of product of
consecutive prime digits of any digit number"+sum);
    }
}
```



```
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment1_10.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment1_10
Enter the number
2356
Sum of product of consecutive prime digits of any digit number21
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % |
```

xi. Difference between Sum of product of consecutive even digits except 2 and 6 and Sum of product of consecutive odd digits except 3 and 7 of any digit number

```
import java.util.Scanner;

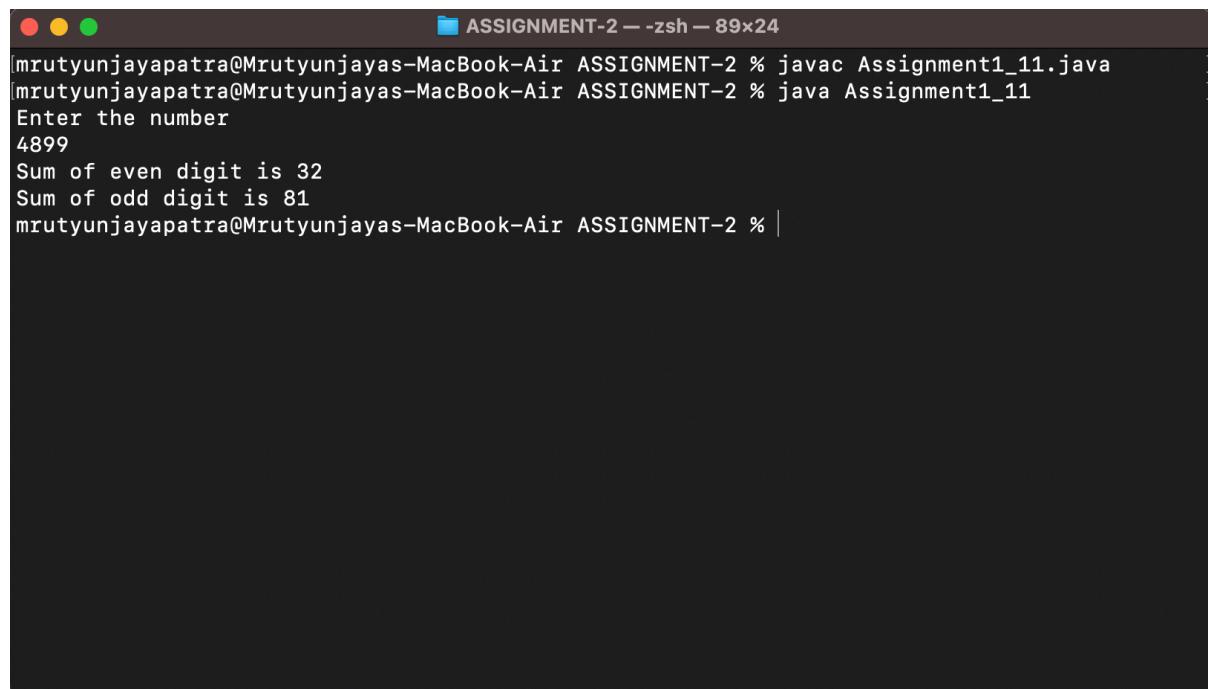
public class Assignment1_11 {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        int num,rem1,rem2,sum1=0,sum2=0;
        System.out.println("Enter the number");
        num=sc.nextInt();
        while (num>0) {
            rem1=num%10;
            rem2=(num/10)%10;
            if ((rem1%2==0 && rem2%2==0) && (rem1!=2 &&
            rem1!=6) && (rem2!=2 && rem2!=6)) {
                sum1+=rem1*rem2;
            }else if ((rem1%2!=0 && rem2%2!=0 )&&
            (rem1!=3 && rem1!=7) && (rem2!=3 && rem2!=7)) {
                sum2+=rem1*rem2;
            }
        }
        System.out.println("Difference is "+(sum1-sum2));
    }
}
```

```

        }
        num/=10;
    }

    System.out.println("Sum of even digit is
"+sum1);
    System.out.println("Sum of odd digit is
"+sum2);
}
}

```



A terminal window titled "ASSIGNMENT-2 -- zsh -- 89x24" showing the execution of a Java program. The user enters the number 4899, and the program outputs the sum of even digits (32) and the sum of odd digits (81).

```

mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment1_11.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment1_11
Enter the number
4899
Sum of even digit is 32
Sum of odd digit is 81
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %

```

2. Write a java program to find sum of product of corresponding digits of two any digit number Such as n=1234 m=7896 output=6*4+9*3+8*2+7*1.

```

import java.util.Scanner;
public class Assignment2 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int m, n, sum = 0, rem1, rem2;
        System.out.println("Enter the first number
(m)");
    }
}

```

```
m = sc.nextInt();
System.out.println("Enter the second number
(n)");
n = sc.nextInt();

while (m > 0 && n > 0) {
    rem1 = m % 10;
    rem2 = n % 10;
    sum+=(rem1*rem2);
    m/=10;
    n/=10;
}
System.out.println("Sum of product of
corresponding digits of two any digit number is "+sum);

}
```

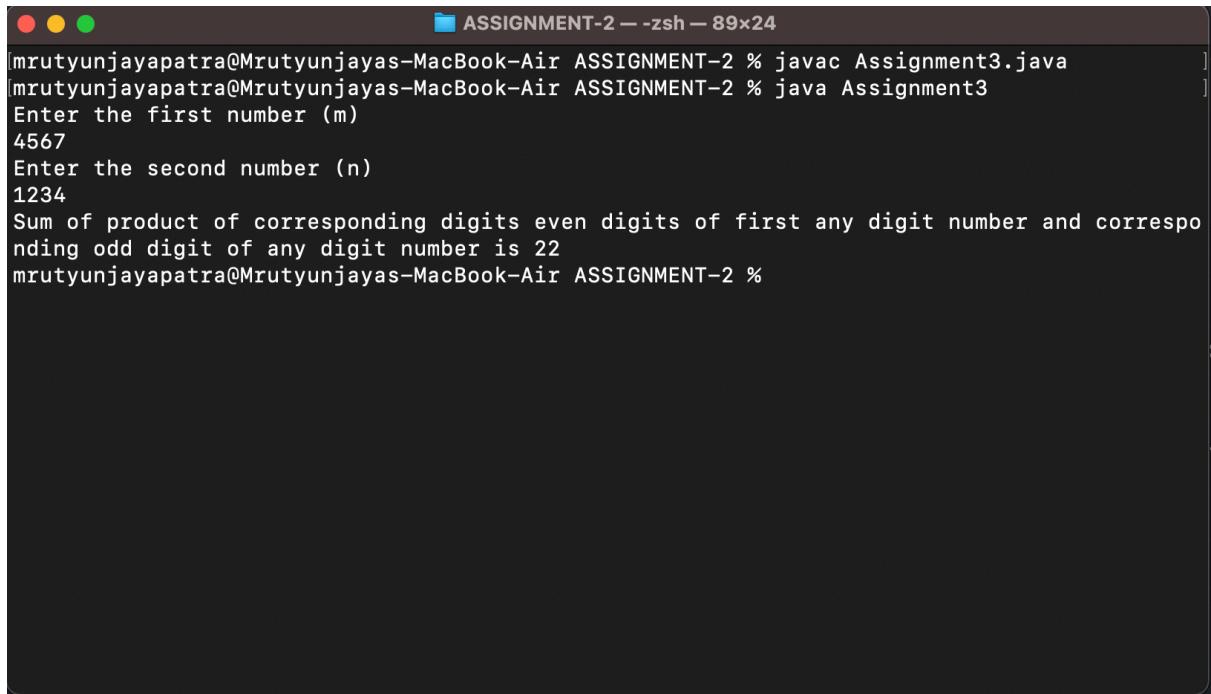
```
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment2.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment2
Enter the first number (m)
7896
Enter the second number (n)
1234
Sum of product of corresponding digits of two any digit number is 74
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %
```

3. Write a java program to find sum of product of corresponding even digits of first any digit number and corresponding odd digit of any digit number Such as
n=1234 m=4567 output=4*7+2*5

```
import java.util.Scanner;

public class Assignment3 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int m, n, sum = 0, prod = 1, rem1, rem2;
        System.out.println("Enter the first number
(m)");
        m = sc.nextInt();
        System.out.println("Enter the second number
(n)");
        n = sc.nextInt();

        while (m > 0 && n > 0) {
            rem1 = m % 10;
            rem2 = n % 10;
            if ((rem1 % 2 == 0 && rem2 % 2 != 0) ) {
                sum += (rem1 * rem2);
            }
            m /= 10;
            n /= 10;
        }
        System.out.println("Sum of product of
corresponding digits even digits of first any digit
number and corresponding odd digit of any digit number
is " + sum);
    }
}
```



```
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment3.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment3
Enter the first number (m)
4567
Enter the second number (n)
1234
Sum of product of corresponding digits even digits of first any digit number and corresponding odd digit of any digit number is 22
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %
```

4. Write a java program to compute following series and take input x and n
1. $1 - \frac{x^2}{2!} + \frac{x^3}{3!} - \frac{x^4}{4!} + \dots + \frac{x^n}{n!}$

```
import java.util.Scanner;
public class Assignment4_1 {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        int x,n,fact=1;
        double sum=1;
        boolean check=false;

        System.out.println("Enter the value of x ");
        x=sc.nextInt();
        System.out.println("Enter the value of n ");
        n=sc.nextInt();

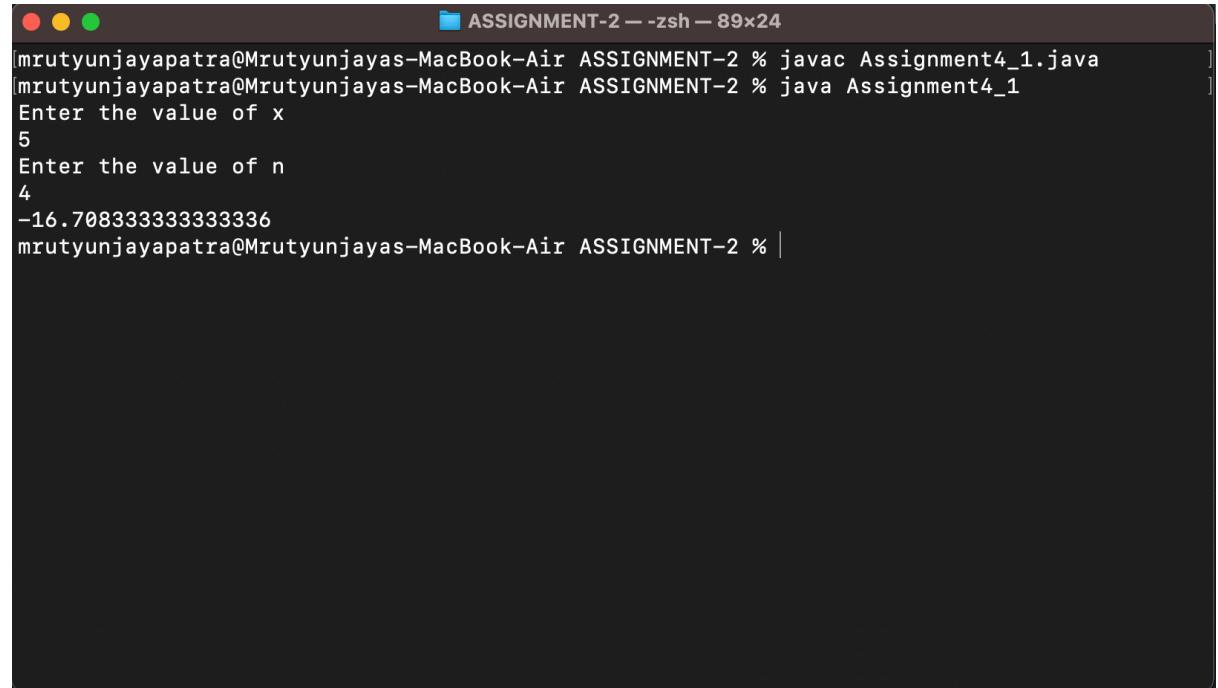
        for (int i = 2; i <=n; i++) {
            for (int j = 1; j <=i; j++) {
                fact*=j;
            }
            if (check) {
```

```

        sum+=(Math.pow(x, i)/fact);
        check=false;
    }else{
        sum-=(Math.pow(x, i)/fact);
        check=true;
    }
    fact=1;
}
System.out.println(sum);

}
}

```



A terminal window titled "ASSIGNMENT-2 -- zsh -- 89x24" showing the execution of a Java program. The user enters "javac Assignment4_1.java" and "java Assignment4_1". They then enter "5" and "4" as values for x and n respectively, resulting in the output "-16.708333333333336".

```

● ● ● ASSIGNMENT-2 -- zsh -- 89x24
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment4_1.java]
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment4_1]
Enter the value of x
5
Enter the value of n
4
-16.708333333333336
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %

```

$$2. \quad x - x^3/3! + x^5/5! - x^7/7! + \dots + x^n/n!$$

```

import java.util.Scanner;

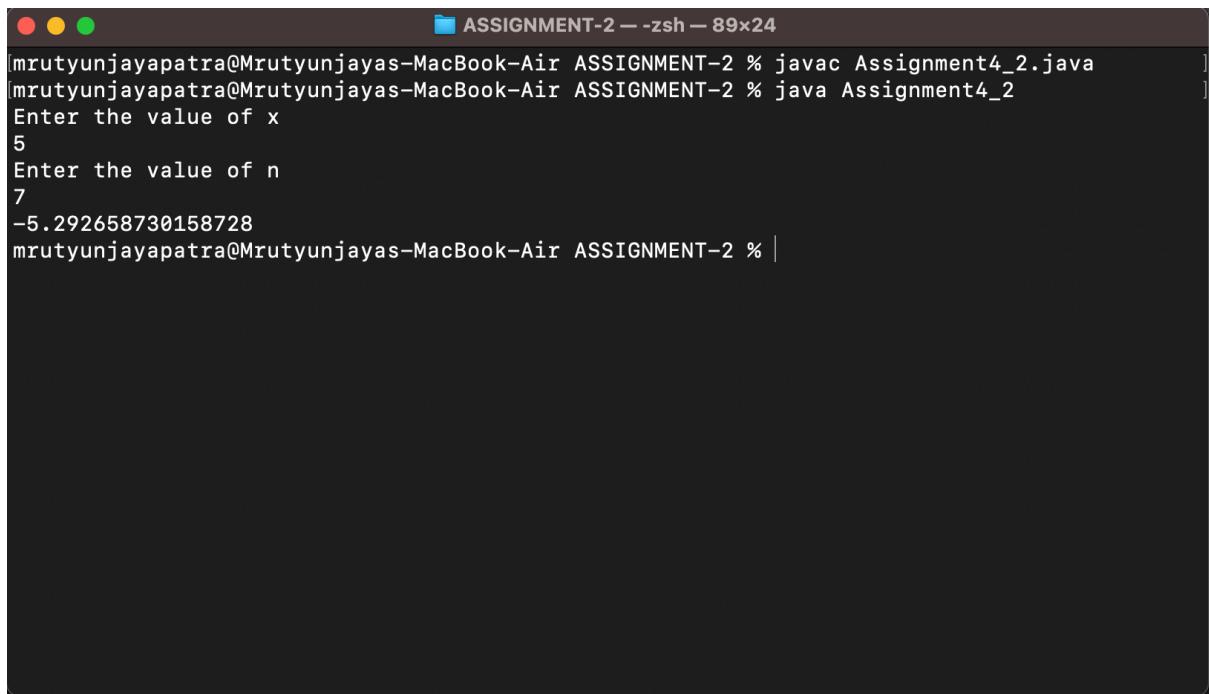
public class Assignment4_2 {
    public static void main(String[] args) {

```

```
Scanner sc = new Scanner(System.in);
int x, n, fact = 1;
boolean check=false;
double sum = 0;
System.out.println("Enter the value of x");
x = sc.nextInt();
System.out.println("Enter the value of n");
n = sc.nextInt();
sum = x;
for (int i = 3; i <= n; i =i+2) {
    for (int j = 1; j <= i; j++) {
        fact = fact * j;
    }

    if (check) {
        sum += Math.pow(x, i) / fact;
        check=false;
    } else {
        sum -= Math.pow(x, i) / fact;
        check=true;
    }
    fact = 1;
}

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



```
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment4_2.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment4_2
Enter the value of x
5
Enter the value of n
7
-5.292658730158728
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % |
```

$$3. \frac{1+x^2}{2!} + \frac{x^4}{4!} + \frac{x^6}{6!} + \dots + \frac{x^n}{n!}$$

```
import java.util.Scanner;

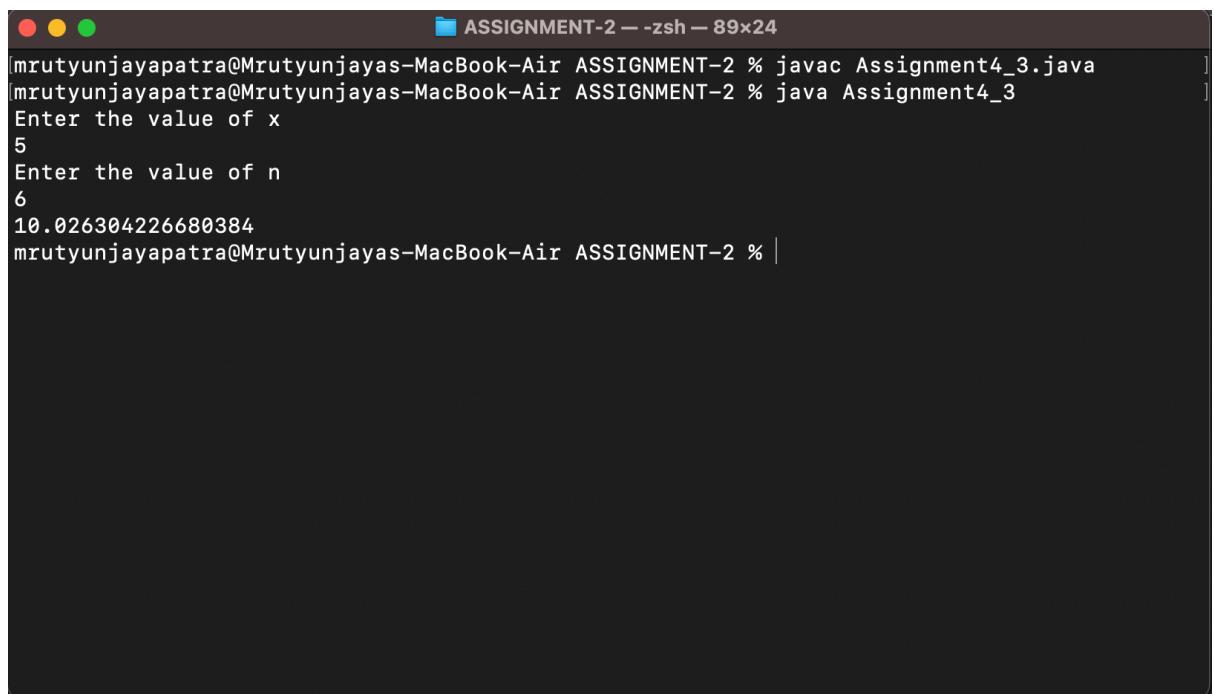
/*1+x^2/2! + x^4/4!+x^6/6!+-----+x^n/n! */

public class Assignment4_3 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int x, n, fact = 1, count = 0;
        double sum = 1;
        System.out.println("Enter the value of x");
        x = sc.nextInt();
        System.out.println("Enter the value of n");
        n = sc.nextInt();
        for(int i=2; i<=n; i=i+2){
            for (int j = 1; j <=i; j++) {
                fact=fact*i;
            }
            sum+=Math.pow(x, i)/fact;
        }
    }
}
```

```

        fact=1;
    }
    System.out.println(sum);
}
}

```



A screenshot of a terminal window titled "ASSIGNMENT-2 -- zsh - 89x24". The window shows the following interaction:

```

mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment4_3.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment4_3
Enter the value of x
5
Enter the value of n
6
10.026304226680384
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %

```

$$4. \quad x - x^3/3! + x^5/5! - x^7/7! + x^{11}/11! - \dots + x^n/n!$$

```

import java.util.Scanner;

/*x-x^3/3! + x^5/5!-x^7/7!+x^11/11!-----+xn/n! */
public class Assignment4_4 {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        int x,n,fact=1;
        double sum;
        System.out.println("Enter the value of x");
        x=sc.nextInt();
        System.out.println("Enter the value of n");

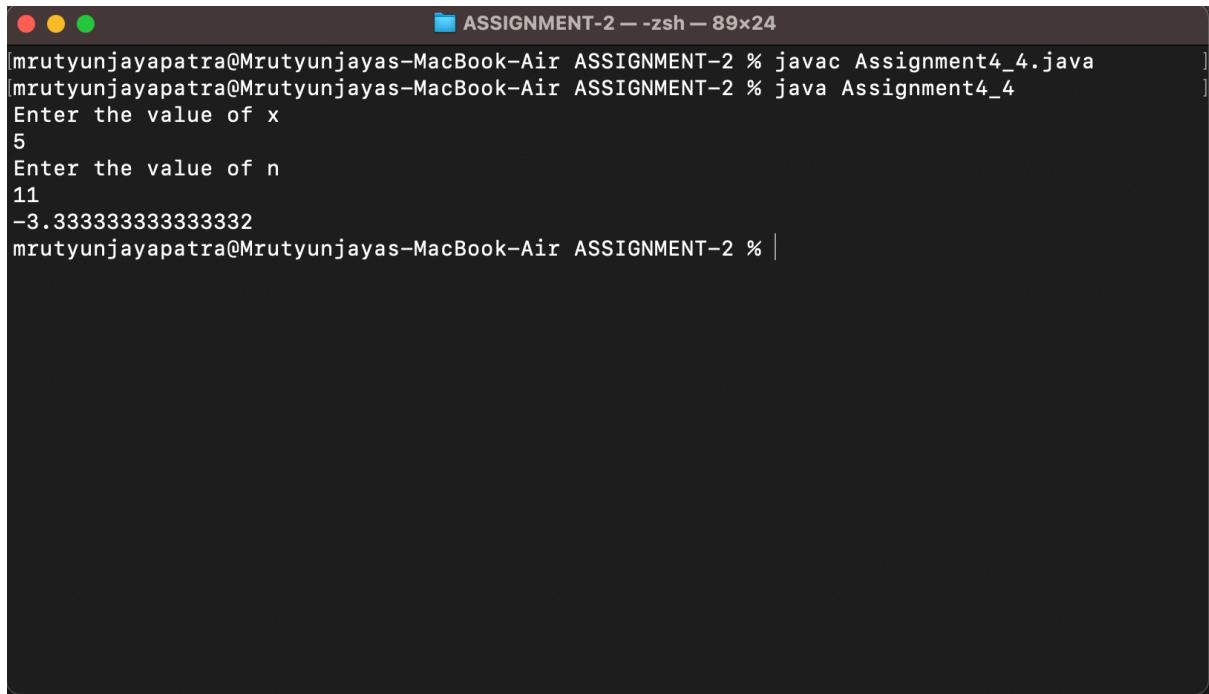
```

```
n=sc.nextInt();
int count=0;
boolean check=false;
sum=x;
for (int i = 3; i <=n; i--) {
    count=0;
    for (int j = 1; j <=i; j++) {
        if (i%j==0) {
            count++;
        }
    }

    if (count==2) {
        for(int k=1;k<=i;k++){
            fact=fact*k;
        }
        if (check) {
            sum+=Math.pow(x, i)/fact;
            fact=1;
            check=false;
        }else {
            sum-=Math.pow(x, i)/fact;
            fact=1;
            check=true;
        }
    }
}

System.out.println(sum);

}
```



A screenshot of a terminal window titled "ASSIGNMENT-2 -- zsh -- 89x24". The window shows the following interaction:

```
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment4_4.java]
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment4_4
Enter the value of x
5
Enter the value of n
11
-3.33333333333332
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % |
```

5. Write a java program compute following series and take a numbers num as input

$x - x^3/3! + x^5/5! - x^7/7! + \dots + x^n/n!$ where $x = \text{sum of all even digits except 2 and 8}$
and $n = \text{sum of all odd digits except 1 and 3}$

```
import java.util.Scanner;

public class Assignment5 {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        int x=0, n=0, num, fact=1, rem, count=0;
        double sum;
        System.out.println("Enter the number ");
        num=sc.nextInt();
        while (num>0) {
            rem=num%10;
            if (rem%2==0 && rem!=2 && rem!=8) {
                x+=rem;
            }else if(rem%2!=0 && rem!=1 && rem!=3){
                n+=rem;
            }
        }
    }
}
```

```
        num/=10;
    }

    sum=x;
    boolean check=false;
    for (int i = 3; i<=n; i--) {
        count=0;
        for (int j = 1; j <=i; j++) {
            if (i%j==0) {
                count++;
            }
        }

        if (count==2) {
            for(int k=1;k<=i;k++){
                fact=fact*k;
            }
            if (check) {
                sum+=Math.pow(x, i)/fact;
                fact=1;
                check=false;
            }else {
                sum-=Math.pow(x, i)/fact;
                fact=1;
                check=true;
            }
        }
    }

    System.out.println(sum);
    System.out.println("Assignment5.main()");
}
```

```
}
```

ASSIGNMENT-2 — zsh — 89x24

```
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment5.java
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment5
Enter the number
4567
-106.66666666666666
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %
```

6. Write a java program to check weather the given number is palindrome and prime or not?

```
import java.util.Scanner;

public class Assignment6 {
    public static void main(String[] args) {
        int r, sum = 0, temp;
        int n ;
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the number");
        n=sc.nextInt();
        temp = n;
        while (temp > 0) {
            r = temp % 10; // getting remainder
            sum = (sum * 10) + r;
            temp = temp / 10;
```

```

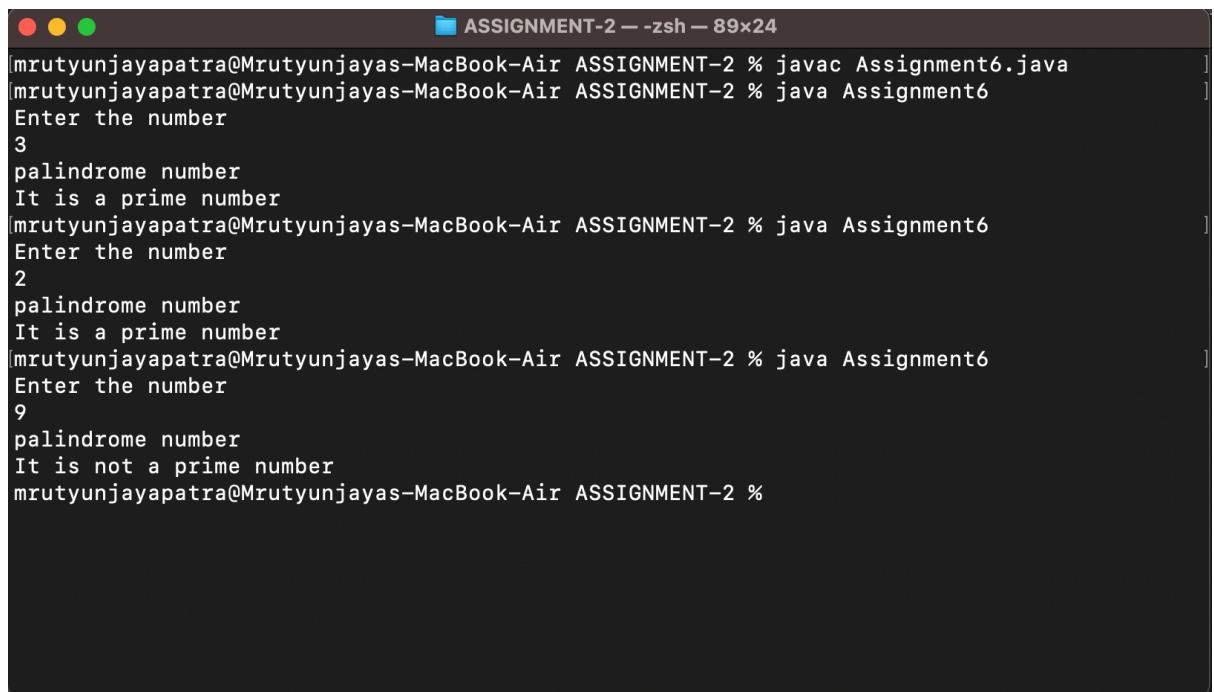
    }

    if (n == sum)
        System.out.println("palindrome number ");
    else
        System.out.println("not palindrome");

    int count=0;
    for(int i=1;i<=n;i++){
        if (n%i==0) {
            count++;
        }
    }
    if(count==2){
        System.out.println("It is a prime number");
    }else{
        System.out.println("It is not a prime
number");
    }

}
}

```



The screenshot shows a terminal window titled "ASSIGNMENT-2 — zsh — 89x24". The user has run the command `javac Assignment6.java` and then `java Assignment6`. The program prompts the user to enter a number. When the user enters "3", it outputs "palindrome number" and "It is a prime number". When the user enters "2", it outputs "palindrome number" and "It is a prime number". Finally, when the user enters "9", it outputs "palindrome number" and "It is not a prime number". The terminal window has a dark background with light-colored text.

```

mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment6.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment6
Enter the number
3
palindrome number
It is a prime number
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment6
Enter the number
2
palindrome number
It is a prime number
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment6
Enter the number
9
palindrome number
It is not a prime number
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %

```

7. Write a java program to find factorial of a number using while loop, do while loop and for loop all in one program?[hint use switch block]?

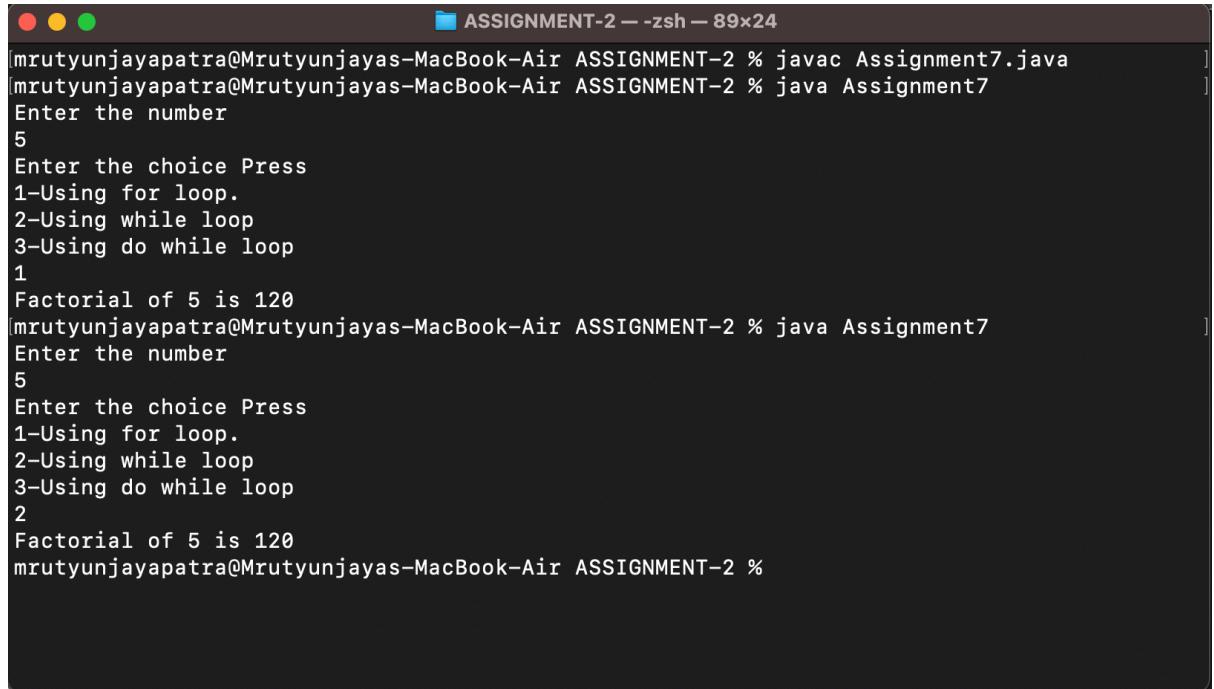
```
import java.util.Scanner;

public class Assignment7 {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        int num,fact=1,choice;
        System.out.println("Enter the number ");
        num=sc.nextInt();
        System.out.println("Enter the choice Press\n1-
Using for loop.\n2-Using while loop\n3-Using do while
loop");
        choice=sc.nextInt();
        switch (choice) {
            case 1:
                for (int i = 1; i <=num; i++) {
                    fact*=i;
                }
                System.out.println("Factorial of
"+num+" is "+fact);
                break;
            case 2:
                int i=1;
                while (i<=num) {
                    fact*=i;
                    i++;
                }
                System.out.println("Factorial of
"+num+" is "+fact);
                break;
        }
    }
}
```

```

        case 3:
            i=1;
            do {
                fact=fact*i;
                i++;
            } while (i<=num);
            System.out.println("Factorial of
"+num+" is "+fact);
            break;
        default:
            System.out.println("Invalid Choice !!");
            break;
    }
}
}

```



The terminal window shows the execution of a Java program named Assignment7. It starts with the command `javac Assignment7.java`, followed by `java Assignment7`. The user is prompted to enter a number (5), and then chooses option 1 (Using for loop). The program calculates the factorial of 5 (120) and prints it. This process is repeated for another input of 5, choosing option 2 (Using while loop).

```

mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment7.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment7
Enter the number
5
Enter the choice Press
1-Using for loop.
2-Using while loop
3-Using do while loop
1
Factorial of 5 is 120
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment7
Enter the number
5
Enter the choice Press
1-Using for loop.
2-Using while loop
3-Using do while loop
2
Factorial of 5 is 120
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %

```

8. Write a program to find following data of student using mark of four subjects like C, C++, Java, and Python. Mark of 4 subjects will be accepted at the run time and credit of all the mentioned subject is 3?
- Grade of 4 subjects?
 - Total Mark and %age of mark secured by Students? c) SGPA of Student?

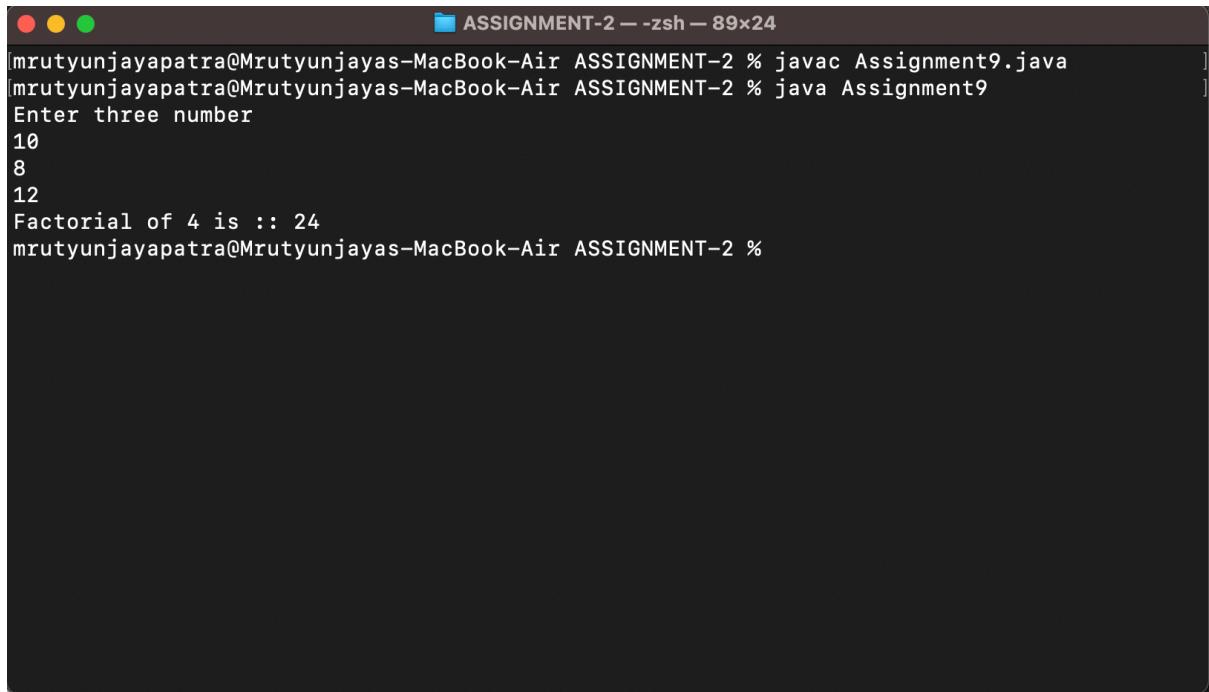
9. Write a program to find factorial of difference between greatest and smallest number among 3 numbers?

```
import java.util.Scanner;

public class Assignment9 {
    public static void main(String[] args) {
        int num,n1,n2,n3,fact=1, largest,smallest;
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter three number");
        n1=sc.nextInt();
        n2=sc.nextInt();
        n3=sc.nextInt();

        largest=(n1>n2)?(n1>n3)?n1:n3:(n2>n3)?n2:n3;
        smallest=(n1<n2)?(n1<n3)?n1:n3:(n2<n3)?n2:n3;
        num=largest-smallest;
        for (int i = 1; i <=num; i++) {
            fact*=i;
        }
        System.out.println("Factorial of "+num+" is :: "+fact);

    }
}
```



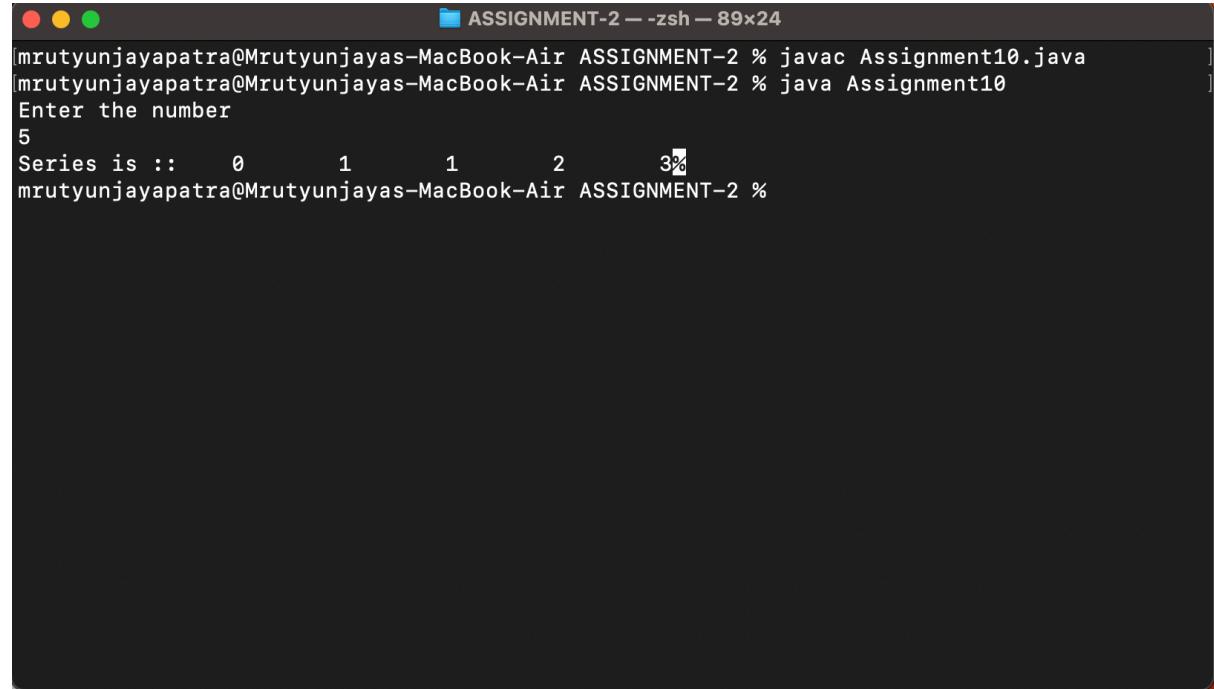
```
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment9.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment9
Enter three number
10
8
12
Factorial of 4 is :: 24
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %
```

10. Write a program to generate Fibonacci series up to n terms? Value of n will be accepted from user?

```
import java.util.Scanner;

public class Assignment10 {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        int num,fib1=0,fib2=1,fib3=fib1+fib2;
        System.out.println("Enter the number");
        num=sc.nextInt();
        System.out.print("Series is ::\n\t"+fib1+"\t"+fib2);
        while (num>2) {
            fib3=fib1+fib2;
            System.out.print("\t"+fib3);
            fib1=fib2;
            fib2=fib3;
```

```
        num--;
    }
}
}
```

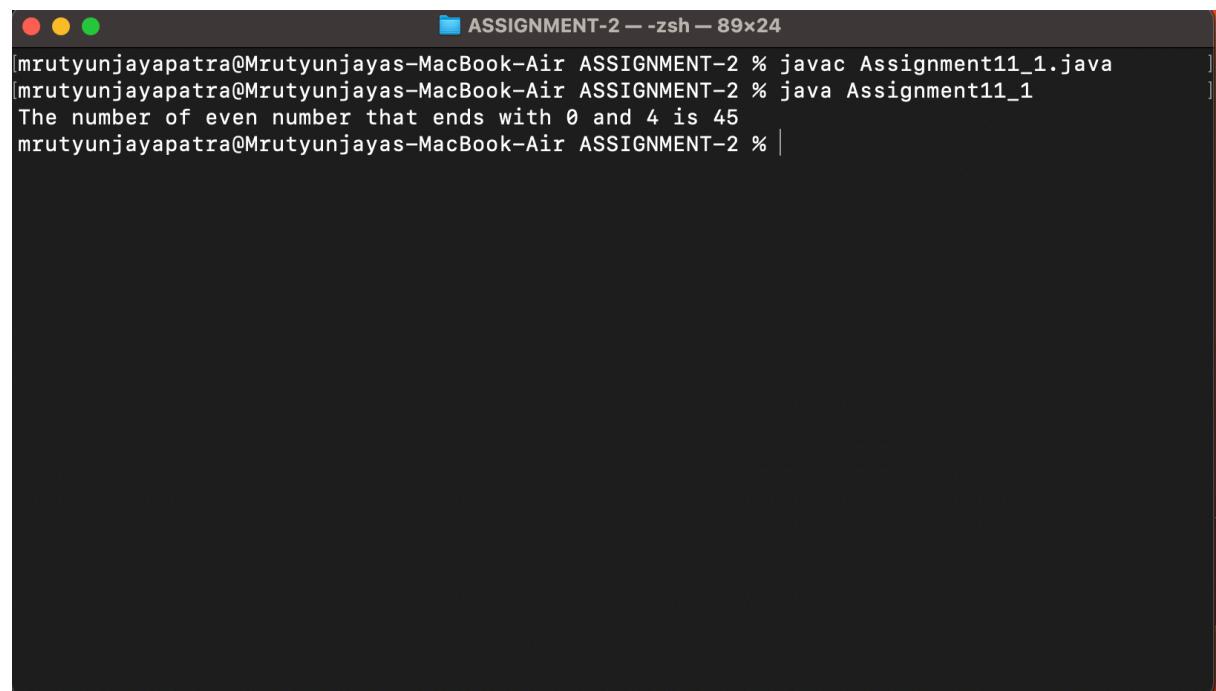


```
● ● ● ASSIGNMENT-2 -- zsh - 89x24
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment10.java
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment10
Enter the number
5
Series is :: 0 1 1 2 3%
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %
```

11. Write a program to perform following using the numbers in between 23 to 249?
a) find number of even numbers that ends with 0 and 4?

```
12. import java.rmi.Remote;
13.
14. public class Assignment11_1 {
15.     public static void main(String[] args) {
16.         int rem, count=0;
17.         for (int i = 24; i < 249; i++) {
18.             rem=i%10;
19.             if (rem==0 || rem==4) {
20.                 count++;
21.             }
22.         }
23.
24.         System.out.println("The number of even
number that ends with 0 and 4 is "+count);
```

```
25.         }
26.     }
27.
```

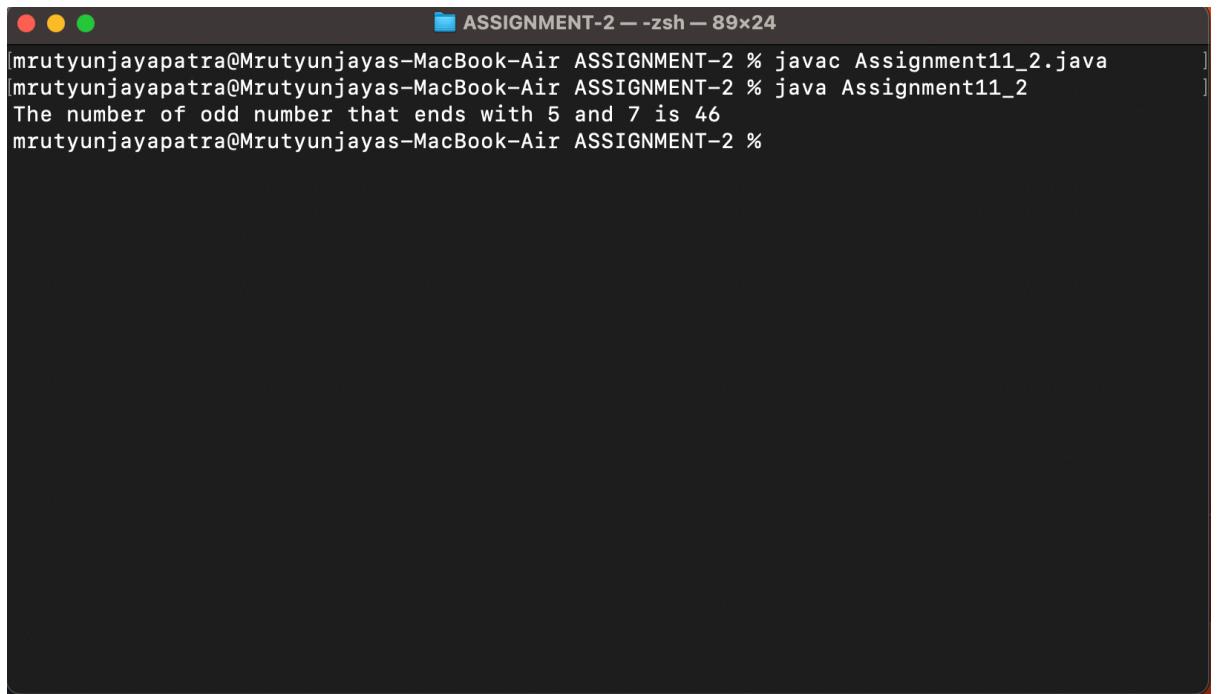


```
ASSIGNMENT-2 -- zsh -- 89x24
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment11_1.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment11_1
The number of even number that ends with 0 and 4 is 45
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %
```

b) find number of odd numbers that ends with 5 and 7?

```
public class Assignment11_2 {
    public static void main(String[] args) {
        int rem,count=0;
        for (int i = 24; i < 249; i++) {
            rem=i%10;
            if (rem==5 || rem==7) {
                count++;
            }
        }
        System.out.println("The number of odd number
that ends with 5 and 7 is "+count);
```

```
    }  
}
```

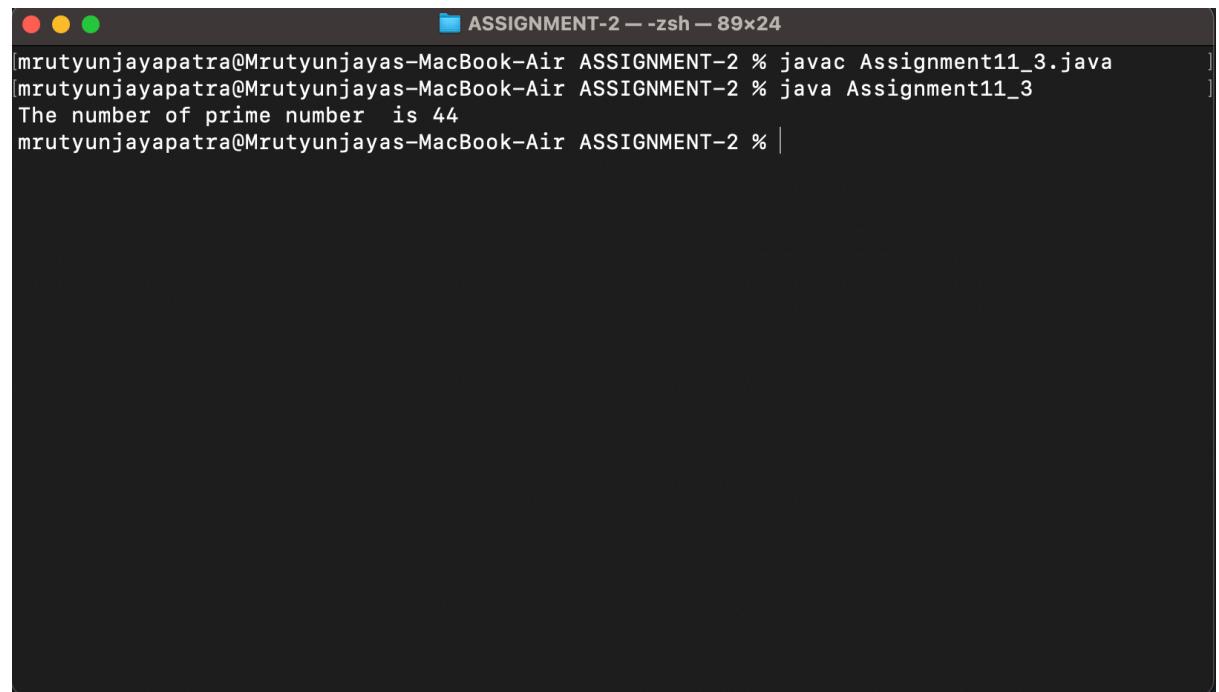


```
ASSIGNMENT-2 -- zsh -- 89x24  
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment11_2.java  
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment11_2  
The number of odd number that ends with 5 and 7 is 46  
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %
```

c) find number of prime numbers?

```
public class Assignment11_3 {  
    public static void main(String[] args) {  
        int count=0,mcount=0;  
        for (int i = 24; i < 249; i++) {  
  
            for (int j = 1; j <=i; j++) {  
                if (i%j==0) {  
                    count++;  
                }  
            }  
            if (count==2) {  
                System.out.println(i);  
                mcount++;  
            }  
            count=0;  
        }  
    }  
}
```

```
        System.out.println("The number of prime number  
is "+mcount);  
    }  
}
```



A terminal window titled "ASSIGNMENT-2 -- zsh -- 89x24". The command "javac Assignment11_3.java" is run, followed by "java Assignment11_3". The output shows the message "The number of prime number is 44".

```
ASSIGNMENT-2 -- zsh -- 89x24  
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment11_3.java  
[mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment11_3  
The number of prime number is 44  
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % |
```

d) find number of palindrome numbers?

```
public class Assignment11_4 {  
    public static void main(String[] args) {  
        int r, count = 0, sum = 0, temp;  
        for (int i = 24; i < 249; i++) {  
            sum=0;  
            temp = i;  
            while (temp > 0) {  
                r = temp % 10; // getting remainder  
                sum = (sum * 10) + r;  
                temp = temp / 10;  
            }  
            if (i == sum) {  
                count++;  
            }  
        }  
        System.out.println("The number of palindrome numbers is "+count);  
    }  
}
```

```

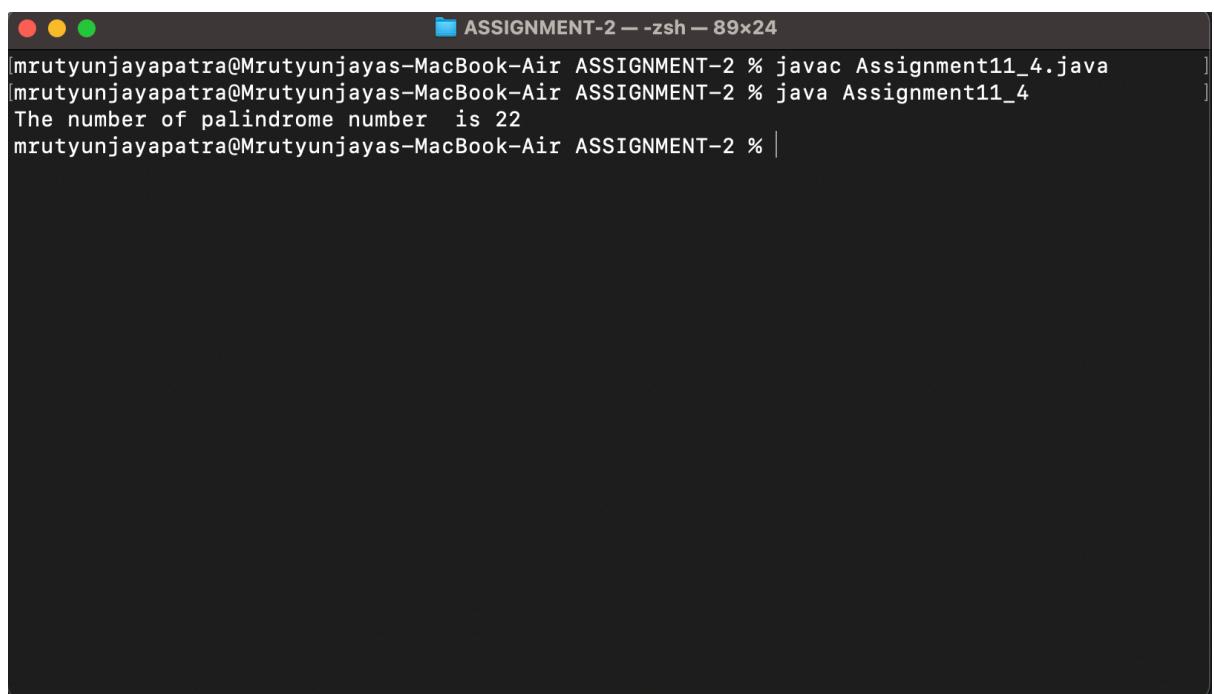
        }

    }

    System.out.println("The number of palindrome
number is " + count);
}

}

```



A screenshot of a terminal window titled "ASSIGNMENT-2 -- zsh -- 89x24". The window shows the command `javac Assignment11_4.java` being run, followed by the output of the program which prints "The number of palindrome number is 22". The terminal has a dark background with colored icons at the top.

e) find difference between average of palindrome and prime numbers?

```

public class Assignment11_5 {
    public static void main(String[] args) {
        int
temp,rem,rev=0,palcount=0,prcount=0,count=0;
        int sumpal=0,sumpr=0;
        for (int i = 24; i < 249; i++) {
            count=0;
            rev=0;
            rem=0;
            temp=i;

```

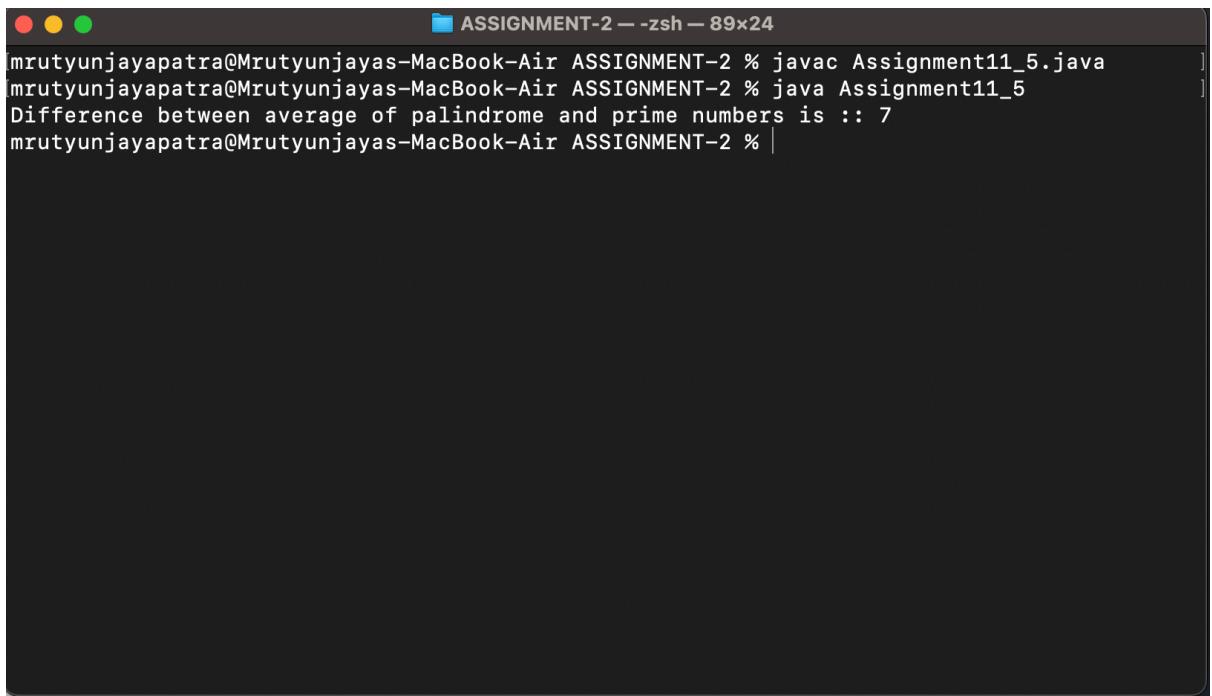
```

        while (temp>0) {
            rem=temp%10;
            rev=rev*10+rem;
            temp/=10;
        }
        if (rev==i) {
            sumpal+=i;
            palcount++;
        }

        for (int j = 1; j <=i; j++) {
            if (i%j==0) {
                count++;
            }
        }
        if (count==2) {
            sumpr+=i;
            prcount++;
        }
    }

    System.out.println("Difference between average
of palindrome and prime numbers is ::"
+((sumpal/palcount)-(sumpr/prcount)));
}
}

```



A screenshot of a terminal window titled "ASSIGNMENT-2 — -zsh — 89x24". The window shows the following command-line session:

```
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment11_5.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment11_5
Difference between average of palindrome and prime numbers is :: 7
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % |
```

f) find GCD and LCM of all even numbers?

g) find GCD and LCM of all odd numbers?

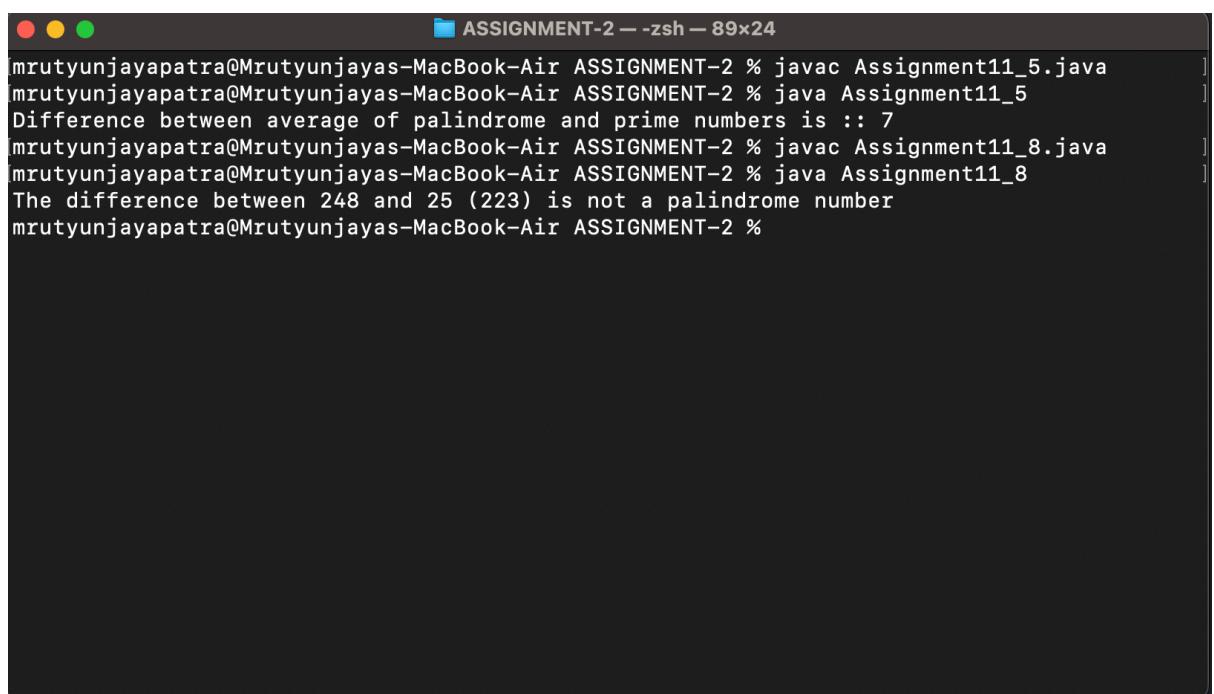
h) Check whether the difference between largest even number and smallest odd number is palindrome or not?

```
public class Assignment11_8 {
    public static void main(String[] args) {
        int num, rem, rev = 0, temp;
        int largest = Integer.MIN_VALUE;
        int smallest = Integer.MAX_VALUE;
        for (int i = 24; i < 249; i++) {
            if (i % 2 == 0) {
                if (i > largest) {
                    largest = i;
                }
            } else {
                if (i < smallest) {
                    smallest = i;
                }
            }
        }
    }
}
```

```

        num = largest - smallest;
        temp = num;
        while (temp > 0) {
            rem = temp % 10;
            rev = rev * 10 + rem;
            temp = temp / 10;
        }
        if (rev == num) {
            System.out.println("The difference between
"+largest+" and ("+smallest+(largest-smallest)+" is a
palindrome number");
        } else {
            System.out.println("The difference between
"+largest+" and "+smallest+" (" +(largest-smallest)+" is not a palindrome number");
        }
    }
}

```



The terminal window shows the execution of Java programs. It starts with the compilation of `Assignment11_5.java` and its execution, displaying the difference between average and prime numbers as 7. Then, it shows the compilation and execution of `Assignment11_8.java`, which finds the difference between 248 and 25 (223), stating that the result is not a palindrome number.

```

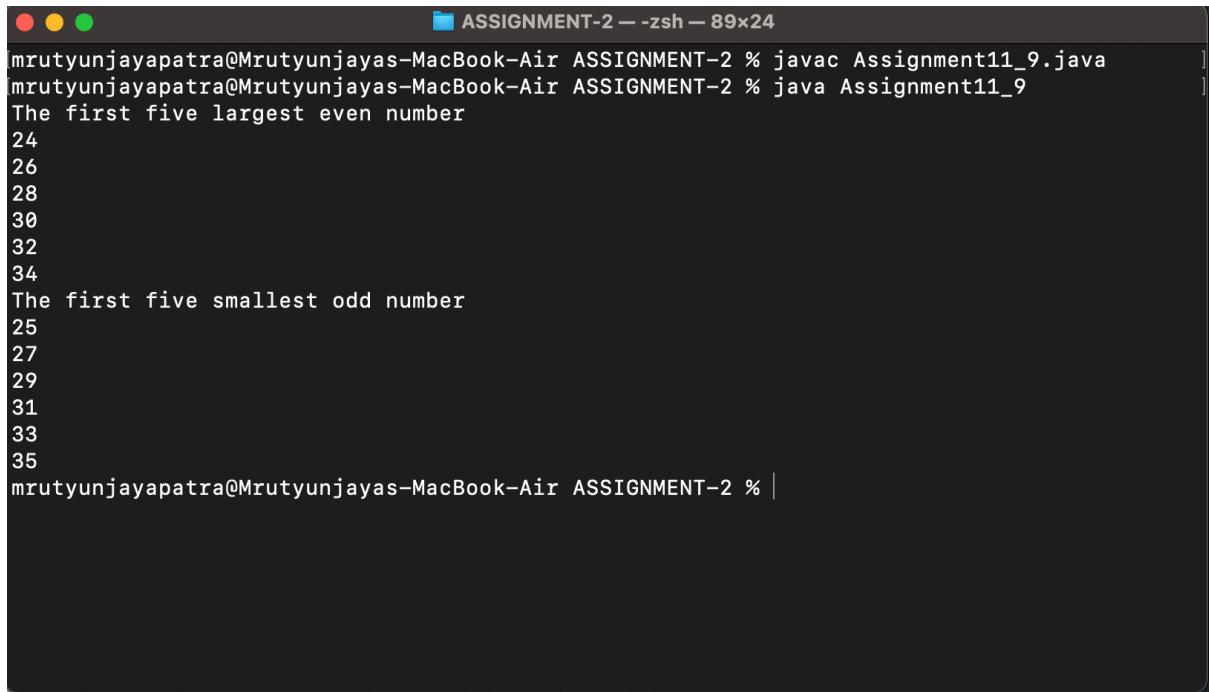
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment11_5.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment11_5
Difference between average of palindrome and prime numbers is :: 7
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment11_8.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment11_8
The difference between 248 and 25 (223) is not a palindrome number
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %

```

- find first five largest even number and smallest odd number?

```
public class Assignment11_9 {
    public static void main(String[] args) {
        int count=0;
        System.out.println("The first five largest even
number");
        for (int i = 24; i < 249; i++) {
            if (i%2==0 && count<=5) {
                System.out.println(i);
                count++;
            }
        }
        count=0;
        System.out.println("The first five largest odd
number");
        for (int i = 24; i < 249; i++) {

            if (i%2!=0 && count<=5) {
                System.out.println(i);
                count++;
            }
        }
    }
}
```



```
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment11_9.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment11_9
The first five largest even number
24
26
28
30
32
34
The first five smallest odd number
25
27
29
31
33
35
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % |
```

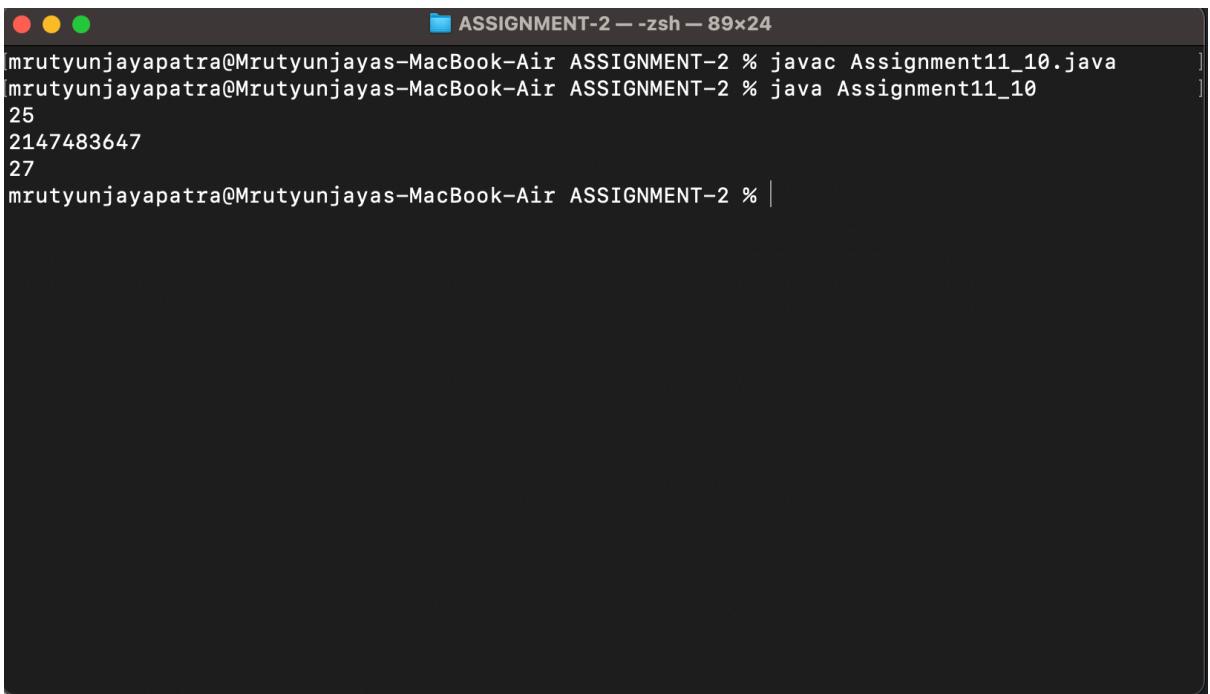
j) find the sum of product of corresponding digits of 2nd largest even number and 3rd smallest odd number?

```
public class Assignment11_10 {
    public static void main(String[] args) {
        int max1=Integer.MIN_VALUE;
        int max2=Integer.MIN_VALUE;
        int firstsmall=Integer.MAX_VALUE;
        int secondsmall=Integer.MAX_VALUE;
        int thirdsmall=Integer.MAX_VALUE;
        for (int i = 24; i < 249; i++) {
            if (i%2==0) {
                if (i>max1) {
                    max2=max1;
                    max1=i;
                }else if(i>max2 && max1<i){
                    max2=i;
                }
            }else if(i%2!=0){
```

```
        if (i<firstsmall) {
            thirdsmall=secondsmall;
            secondsmall=firstsmall;
            firstsmall=i;
        }else if(i<secondsmall &&
firstsmall>i){
            secondsmall=i;
        }else if (i<thirdsmall &&
secondsmall>i) {
            thirdsmall=i;
        }
    }

System.out.println(firstsmall);
System.out.println(secondsmall);
System.out.println(thirdsmall);

}
}
```



A screenshot of a terminal window titled "ASSIGNMENT-2 — -zsh — 89x24". The window shows the following command-line session:

```
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment11_10.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment11_10
25
2147483647
27
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % |
```

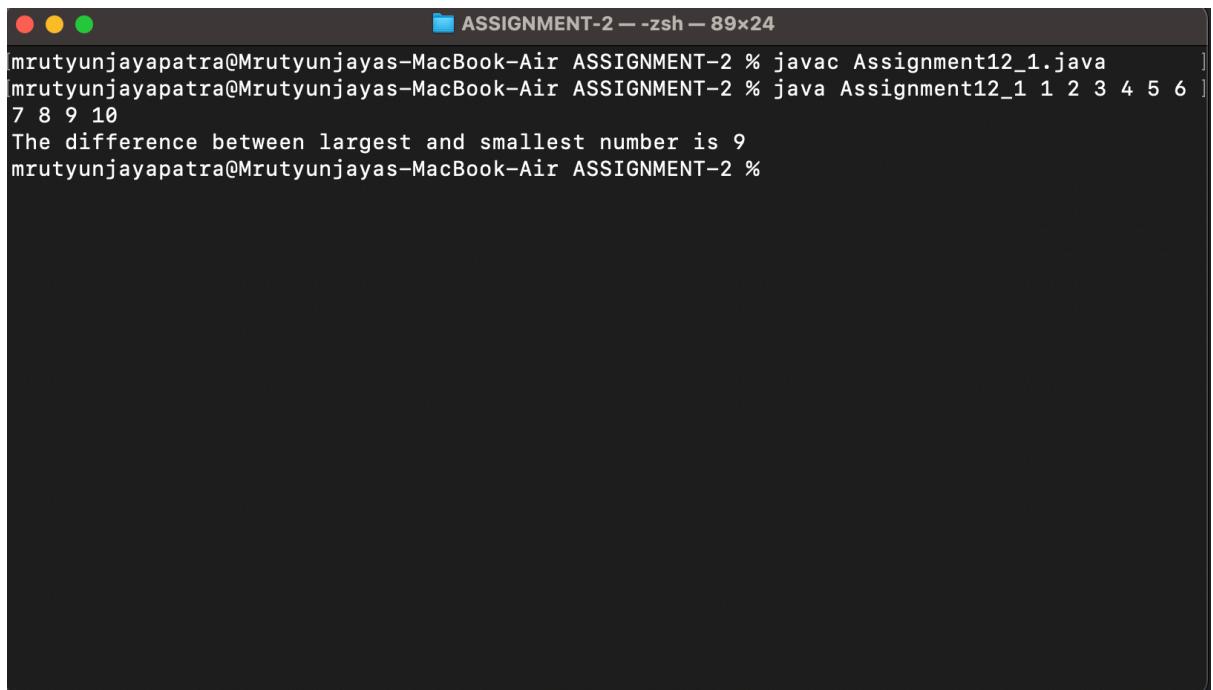
12. Write a java program to find following of 10 numbers using command line arguments? Do not use array?

- a) find difference between greatest and smallest number?

```
public class Assignment12_1 {
    public static void main(String[] args) {
        int
largest=Integer.MIN_VALUE,smallest=Integer.MAX_VALUE;
        int temp;
        for (int i = 0; i < args.length; i++) {
            temp=Integer.parseInt(args[i]);
            if (temp>largest) {
                largest=temp;
            }

            if (temp<smallest) {
                smallest=temp;
            }
        }
    }
}
```

```
        System.out.println("The difference between  
largest and smallest number is "+(largest-smallest));  
    }  
}
```



A terminal window titled "ASSIGNMENT-2 -- zsh - 89x24" showing the execution of a Java program. The command "javac Assignment12_1.java" is run, followed by "java Assignment12_1 1 2 3 4 5 6 7 8 9 10". The output shows the largest number is 10 and the smallest is 1, with the difference being 9.

```
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment12_1.java  
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment12_1 1 2 3 4 5 6 7 8 9 10  
The difference between largest and smallest number is 9  
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 %
```

b) find difference between average of all odd numbers and even numbers?

```
public class Assignment12_2 {  
    public static void main(String[] args) {  
        int s_even=0,s_odd=0,ecount=0,oceanut=0;  
        for (int i = 0; i < args.length; i++) {  
            int temp=Integer.parseInt(args[i]);  
            if (temp%2==0) {  
                s_even+=temp;  
                ecount++;  
            }else {  
                s_odd+=temp;  
                oceanut++;  
            }  
        }  
        System.out.println(ecount);
```

```
        System.out.println(s_even);
        System.out.println(s_odd);
        System.out.println("Difference between average
of all odd numbers and even numbers is ::");
        "+((s_even/ecount)-(s_odd/oCount)));
    }
}
```

```
● ● ● ASSIGNMENT-2 -- zsh - 89x24
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % javac Assignment12_2.java
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % java Assignment12_2 1 2 3 4 5 6
7 8 9 10
5
30
25
Difference between average of all odd numbers and even numbers is :: 1
mrutyunjayapatra@Mrutyunjayas-MacBook-Air ASSIGNMENT-2 % |
```