

Meher Shrishti Nigam 20BRS1193

Java Lab 2

CODE:

```
import java.util.Scanner;

public class menu20BRS1193{

    static int factorial(int f){
        int a = 1;
        for(int i = 1; i <= f; i++){
            a *= i;
        }
        return a;
    }

    static void reversePrint(int r){
        System.out.println("Reverse: ");
        int x;
        while(r>0){
            x = r % 10;
            System.out.print(x);
            r /= 10;
        }
        System.out.println("");
    }

    static int reverse(int r){
        int sum = 0;
        int x;
        while(r>0){
            x = r % 10;
            sum = (sum * 10) + x;
            r /= 10;
        }
        return sum;
    }

    static int reverseString(int r){
        int sum = 0;
        int x;
        while(r>0){
            x = r % 10;
```

```

        sum = (sum * 10) + x;
        r /= 10;
    }
    return sum;
}
static int palindrome(int r){
    if(reverse(r) == r)
        return 1;
    return 0;
}
static int sumOfFactorials(int n){
    int sum = 0;
    while(n > 0){
        int x = n % 10;
        sum += factorial(x);
        n /= 10;
    }
    return sum;
}
static int permutation(int n, int r){
    return factorial(n)/factorial(n-r);
}
static int combination(int n, int r){
    return factorial(n)/(factorial(n-r)*factorial(r));
}
static String binary(int n){
    String res = "";
    int x;
    while(n > 0){
        x = n % 2;
        String k = Integer.toString(x);
        res = k + res;
        n /= 2;
    }
    return res;
}

static String octal(int n){
    String res = "";
    int x;
    while(n > 0){
        x = n % 16;

```

```

        String k = Integer.toString(x);
        res = k + res;
        n /= 8;
    }
    return res;
}

static String hexadecimal(int n){
    String res = "";
    int x;
    while(n > 0){
        x = n % 16;
        String k = Integer.toString(x);
        switch(x){
            case 10: k = "A"; break;
            case 11: k = "B"; break;
            case 12: k = "C"; break;
            case 13: k = "D"; break;
            case 14: k = "E"; break;
            case 15: k = "F"; break;
        }
        res = k + res;
        n /= 16;
    }
    return res;
}

static void fibonacii(int n)
{
    int n1 = 1, n2 = 1, n3 = 0;
    System.out.print(n1);
    System.out.print(" ");
    System.out.print(n2);
    System.out.print(" ");
    for(int i = 0; i < n - 2; i++){
        n3 = n1 + n2;
        System.out.print(n3);
        System.out.print(" ");
        n1 = n2;
        n2 = n3;
    }
    System.out.println("");
    return;
}

```

```

static void Menu(){
    System.out.println("\n\n1. Factorial of a number. \n 2. Reverse of a
number \n 3. Palindrome checker\n 4. Factorial Sum Checker of a number \n 5.
Permutation and Combination \n 6. Decimal to Binary \n 7. Decimal to Octal \n
8. Decimal to Hexadecimal \n 9. Fibonacci Series Upto Nth Term \n 10.
Exit\n\n");
    return;
}

public static void main(String args[]){

    Scanner scannerObj = new Scanner(System.in);

    int n = 1;
    do{
        Menu();
        System.out.println("Enter number: ");
        n = scannerObj.nextInt();
        switch(n)
        {
            case 1:
                System.out.println("Enter number to find factorial of it: ");
                int f = scannerObj.nextInt();
                f = factorial(f);
                System.out.println("Factorial: " + f + "\n");
                break;

            case 2:
                System.out.println("Enter number to find reverse of it: ");
                int r = scannerObj.nextInt();
                reversePrint(r);
                break;

            case 3:
                System.out.println("Enter number to find check if it is a
palindrome: ");
                int v = scannerObj.nextInt();
                int pr = palindrome(v);
                if(pr == 1)
                    System.out.println("Yes, it is a palindrome\n");
                else
                    System.out.println("No, it is not a palindrome\n");
                break;

```

```

        case 4:
            System.out.println("Enter number to check if the sum of
factorials of the digits is equal to the number itself: ");
            int s = scannerObj.nextInt();
            int check = sumOfFactorials(s);
            if(check == s)
                System.out.println("Yes, the sum of factorials of the
digits is equal to the number itself.\n");
            else
                System.out.println("No, the sum of factorials of the
digits is not equal to the number itself.\n");
            break;

        case 5:
            System.out.println("Enter numbers to find permutation and
combinations: \nEnter n: ");
            int n_ = scannerObj.nextInt();
            System.out.println("Enter r: ");
            int r_ = scannerObj.nextInt();

            int p = permutation(n_, r_);
            int c = combination(n_, r_);

            System.out.println("Permutation: " + p + "\nCombination: " +
c + "\n");
            break;

        case 6:
            System.out.println("Enter decimal number to convert to
binary: ");
            int b = scannerObj.nextInt();
            String b_ = binary(b);
            System.out.println("Binary: " + b_);
            break;

        case 7:
            System.out.println("Enter decimal number to convert to octal:
");
            int o = scannerObj.nextInt();
            String o_ = octal(o);

```

```

        System.out.println("Octal: " + o_);
        break;

        case 8:
            System.out.println("Enter decimal number to convert to
hexadecimal: ");
            int h = scannerObj.nextInt();
            String h_ = hexadecimal(h);
            System.out.println("Hexadecimal: " + h_);
            break;

        case 9:
            System.out.println("Enter number n to find fibonacci series
till the nth term: ");
            int fib = scannerObj.nextInt();
            fibonacci(fib);
            break;

        case 10:
            System.out.println("Exiting.");
            break;

        default:
            System.out.println("Invalid number. Enter a number between 1
- 10. ");
            break;
    }
}while(n != 10);
}
}

```

OUTPUT:

PS C:\Users\meher\Documents\5th sem courses\Java Programming> java menu20BRS1193

1. Factorial of a number.
2. Reverse of a number
3. Palindrome checker
4. Factorial Sum Checker of a number
5. Permutation and Combination
6. Decimal to Binary
7. Decimal to Octal
8. Decimal to Hexadecimal
9. Fibonacci Series Upto Nth Term
10. Exit

Enter number:

1

Enter number to find factorial of it:

5

Factorial: 120

1. Factorial of a number.
2. Reverse of a number
3. Palindrome checker
4. Factorial Sum Checker of a number
5. Permutation and Combination
6. Decimal to Binary
7. Decimal to Octal
8. Decimal to Hexadecimal
9. Fibonacci Series Upto Nth Term
10. Exit

Enter number:

2

Enter number to find reverse of it:

456

Reverse:

654

1. Factorial of a number.
2. Reverse of a number
3. Palindrome checker
4. Factorial Sum Checker of a number
5. Permutation and Combination
6. Decimal to Binary
7. Decimal to Octal
8. Decimal to Hexadecimal
9. Fibonacci Series Upto Nth Term
10. Exit

Enter number:

3

Enter number to find check if it is a palindrome:

34543

Yes, it is a palindrome

1. Factorial of a number.
2. Reverse of a number
3. Palindrome checker
4. Factorial Sum Checker of a number
5. Permutation and Combination
6. Decimal to Binary
7. Decimal to Octal
8. Decimal to Hexadecimal
9. Fibonacci Series Upto Nth Term
10. Exit

Enter number:

3

Enter number to find check if it is a palindrome:

345

No, it is not a palindrome

1. Factorial of a number.
2. Reverse of a number
3. Palindrome checker
4. Factorial Sum Checker of a number
5. Permutation and Combination
6. Decimal to Binary
7. Decimal to Octal
8. Decimal to Hexadecimal
9. Fibonacci Series Upto Nth Term
10. Exit

Enter number:

4

Enter number to check if the sum of factorials of the digits is equal to the number itself:

124

No, the sum of factorials of the digits is not equal to the number itself.

1. Factorial of a number.
2. Reverse of a number
3. Palindrome checker
4. Factorial Sum Checker of a number
5. Permutation and Combination
6. Decimal to Binary
7. Decimal to Octal
8. Decimal to Hexadecimal
9. Fibonacci Series Upto Nth Term
10. Exit

Enter number:

5

Enter numbers to find permutation and combinations:

Enter n:

6

Enter r:

4

Permutation: 360

Combination: 15

1. Factorial of a number.
2. Reverse of a number
3. Palindrome checker
4. Factorial Sum Checker of a number
5. Permutation and Combination
6. Decimal to Binary
7. Decimal to Octal
8. Decimal to Hexadecimal
9. Fibonacci Series Upto Nth Term
10. Exit

Enter number:

6

Enter decimal number to convert to binary:

9

Binary: 1001

1. Factorial of a number.
2. Reverse of a number
3. Palindrome checker
4. Factorial Sum Checker of a number
5. Permutation and Combination
6. Decimal to Binary
7. Decimal to Octal
8. Decimal to Hexadecimal
9. Fibonacci Series Upto Nth Term
10. Exit

Enter number:

7

Enter decimal number to convert to octal:

9

Octal: 19

1. Factorial of a number.
2. Reverse of a number
3. Palindrome checker
4. Factorial Sum Checker of a number
5. Permutation and Combination
6. Decimal to Binary
7. Decimal to Octal
8. Decimal to Hexadecimal
9. Fibonacci Series Upto Nth Term
10. Exit

Enter number:

8

Enter decimal number to convert to hexadecimal:

145

Hexadecimal: 91

1. Factorial of a number.
2. Reverse of a number
3. Palindrome checker
4. Factorial Sum Checker of a number
5. Permutation and Combination
6. Decimal to Binary
7. Decimal to Octal
8. Decimal to Hexadecimal
9. Fibonacci Series Upto Nth Term
10. Exit

Enter number:

9

Enter number n to find fibonacci series till the nth term:

8

1 1 2 3 5 8 13 21

1. Factorial of a number.
2. Reverse of a number
3. Palindrome checker
4. Factorial Sum Checker of a number
5. Permutation and Combination
6. Decimal to Binary
7. Decimal to Octal
8. Decimal to Hexadecimal
9. Fibonacci Series Upto Nth Term
10. Exit

Enter number:

11

Invalid number. Enter a number between 1 - 10.

1. Factorial of a number.
2. Reverse of a number
3. Palindrome checker
4. Factorial Sum Checker of a number
5. Permutation and Combination
6. Decimal to Binary
7. Decimal to Octal
8. Decimal to Hexadecimal
9. Fibonacci Series Upto Nth Term
10. Exit

Enter number:

10

Exiting.

PS C:\Users\meher\Documents\5th sem courses\Java Programming> █