

//Q1: WAP to print numbers from 1 to 10 using for loop.

//Program:

```
public class a3q1
{
    public static void main (String args[])
    {
        System.out.println ("Numbers from 1 to 10:");
        for (int i=1; i<=10; i++)
        {
            System.out.println (i);
        }
    }
}
```

//Output: Numbers from 1 to 10:

```
1
2
3
4
5
6
7
8
9
10
```

//Q2: WAP to print the sum of first N natural numbers.

//Program:

```
import java.util.Scanner;
public class a3q2
{
    public static void main (String [] args)
    {
        Scanner sc = new Scanner (System.in);
        System.out.print ("Enter a number N:");
        int n = sc.nextInt();
        int sum = 0;
        for (int i=1; i<=n; i++)
        {
            sum += i;
        }
        System.out.println ("The sum of first " + n +
                           " natural numbers is: " + sum);
    }
}
```

Output:

Enter a number N: 8

the sum of first 8 natural numbers is: 36

Q3: WAP to reverse a given number.**Program:** import java.util.Scanner;

```

public class ab3q3 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number to reverse:");
        int num = sc.nextInt();
        int reversedNum = 0;
        int original = num;
        while (num != 0) {
            int digit = num % 10;
            reversedNum = reversedNum * 10 + digit;
            num /= 10;
        }
        System.out.println("Original num: " + original);
        System.out.println("Reversed num: " + reversedNum);
    }
}

```

Output:

Enter a number to reverse: 56789

Original num: 56789

Reversed num: 98765

Q4: WAP to generate all unique combinations of 1,2 and 3 using for loops.**Program:** public class ab3q4 {

```

    public static void main(String[] args) {
        System.out.println("unique combination of 1,2,3:");
        for (int i = 1; i <= 3; i++) {
            for (int j = 1; j <= 3; j++) {
                for (int k = 1; k <= 3; k++) {
                    if (i != j && j != k && i != k) {
                        System.out.println(i + " " + j + " " + k);
                    }
                }
            }
        }
    }
}

```

//output:

unique combinations of 1, 2, 3:

123
132
213
231
312
321

//Q5: WAP to print all prime numbers from 1 to 100

```
program: public class A3q5{
    public static void main (String args) {
        System.out.println ("prime numbers from 1 to 100:");
        for (int i = 2; i <= 100; i++) {
            boolean isprime = true;
            for (int j = 2; j * j <= i; j++) {
                if (i % j == 0) {
                    isprime = false;
                    break;
                }
            }
            if (isprime) {
                System.out.print (i + " ");
            }
        }
        System.out.println ();
    }
}
```

//output:

prime numbers from 1 to 100:

2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59
61 67 71 73 79 83 89 97.

//Q6: WAP to print the multiplication table of a given no.

//Program:

```
public class Q6 {
    public static void main (String args[]) {
        int n = 5;
        for (int i = 1; i <= 10; i++) {
            System.out.println(n + "x" + i + "=" + (n * i));
        }
    }
}
```

//Output:

```
5x1 = 5
5x2 = 10
5x3 = 15
5x4 = 20
5x5 = 25
5x6 = 30
5x7 = 35
5x8 = 40
5x9 = 45
5x10 = 50
```

//Q7: WAP to find the factorial of a number.

//Program:

```
public class Q7 {
    public static void main (String args[]) {
        int f = 5, fact = 1;
        for (int i = 1; i <= n; i++) {
            fact *= i;
        }
        System.out.println ("factorial = " + fact);
    }
}
```

//Output:

Factorial = 120

//Q8: WAP to print all Armstrong no. between 1 and 500.

Program: public class Q8 {
 public static void main (String args[]) {
 for (int i=1; i<=500; i++) {
 int n=i, sum=0;
 while (n>0) {
 int d=n%10;
 sum+=d*d*d;
 n/=10;
 }
 if (sum==i)
 System.out.println(i);
 }
 }
}

Output:

1 153 370 371 407

//Q9: WAP to produce the pattern.

Program: public class Q9 {
 public static void main (String args[]) {
 int n=4;
 int i=1;
 for (int i=1; i<n; i++) {
 for (int s=1; s<=n-i; s++) {
 System.out.print(" ");
 }
 for (int j=1; j<=i; j++) {
 System.out.print(j);
 }
 System.out.println();
 }
 }
}

Output:
 1
 2 3
 4 5 6
 7 8 9 10

//Q10: WAP to print first 20 terms of Fibonacci series.

//Program: public class Q10 {
 public static void main(String args[]) {
 int a = 0, b = 1;
 System.out.print(a + " " + b + " ");
 for (int i = 3; i <= 20; i++) {
 int c = a + b;
 System.out.print(c + " ");
 a = b;
 b = c;
 }
 }
}

Output:

0 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597
 2584 4181

//Q11: WAP to print 24 hours of day w/ suitable subtitles.

//Program: public class Q11 {
 public static void main(String args[]) {
 for (int i = 0; i < 24; i++) {
 if (i == 0)
 System.out.println("12 Midnight");
 else if (i < 12)
 System.out.println(i + " AM");
 else if (i == 12)
 System.out.println("12 Noon");
 else
 System.out.println((i - 12) + " PM");
 }
 }
}

Output:

12 Midnight
 1 AM
 2 AM
 12 Noon
 1 PM
 11 PM

//Q12: WAP to find the sum of even and odd digits in number separately.

```
1) Program: public class Q12 {
    public static void main(String[] args) {
        int num = 1234, even = 0, odd = 0;
        while (num > 0) {
            int d = num % 10;
            if (d % 2 == 0)
                even += d;
            else
                odd += d;
            num /= 10;
        }
        System.out.println("Even sum = " + even);
        System.out.println("Odd sum = " + odd);
    }
}
```

2) Output:

Even sum = 6
Odd sum = 4

//Q13: WAP to calculate power of a number (x^y).

```
1) Program: public class Q13 {
    public static void main(String[] args) {
        int x = 2, y = 3, pow = 1;
        for (int i = 1; i <= y; i++) {
            pow *= x;
        }
        System.out.println("Power = " + pow);
    }
}
```

2) Output:

Power = 8

//Q14: WAP to check whether a no. is pallindrome or not.

```
//Program: public class Q14 {
    public static void main (String args[]) {
        int num = 121, temp = num;
        int rev = 0;
        while (temp > 0) {
            rev = rev * 10 + temp % 10;
            temp /= 10;
        }
        if (num == rev)
            System.out.println ("Palindrome");
        else
            System.out.println ("NOT Palindrome");
    }
}
```

// output:

Palindrome

//Q15: WAP to find the sum of digits of a number.

```
//Program: public class Q15 {
    public static void main (String args[]) {
        int num = 123, sum = 0;
        while (num > 0) {
            sum += num % 10;
            num /= 10;
        }
        System.out.println ("Sum of digits = " + sum);
    }
}
```

// output:

Sum of digits = 6

//Q16: WAP to print all even and odd numbers between L and N.

//Program:

```

public class Q16 {
    public static void main (String args[]) {
        int n = 10;
        System.out.print ("Even : ");
        for (int i = 1; i <= n; i++)
            if (i % 2 == 0)
                System.out.print (i + " ");
        System.out.print ("\nOdd : ");
        for (int i = 1; i <= n; i++)
            if (i % 2 != 0)
                System.out.print (i + " ");
    }
}

```

//Output:

```

Even: 2 4 6 8 10
Odd: 1 3 5 7 9

```

//Q17: WAP to find either LCM and GCD of two numbers.

//Program:

```

public class Q17 {
    public static void main (String args[]) {
        int a = 12, b = 18, gcd = 1;
        for (int i = 1; i <= a && i <= b; i++) {
            if (a % i == 0 && b % i == 0)
                gcd = i;
        }
        int lcm = (a * b) / gcd;
        System.out.println ("GCD = " + gcd);
        System.out.println ("LCM = " + lcm);
    }
}

```

//Output:

```

GCD = 6
LCM = 36

```

//Q18: WAP to find the smallest and largest digit in a number.

Program: public class Q18 {
 public static void main(String args[]) {
 int num = 5294;
 int min = 9, max = 0;
 while (num > 0) {
 int d = num % 10;
 if (d < min)
 min = d;
 if (d > max)
 max = d;
 num /= 10;
 }
}

System.out.println("Smallest: " + min);
 System.out.println("Largest: " + max);

}
 //Output:

Smallest: 2
 Largest: 9

//Q19: WAP to check whether a number is perfect or not.

Program: public class Q19 {
 public static void main(String args[]) {
 int num = 6, sum = 0;
 for (int i = 1; i < num; i++) {
 if (num % i == 0)
 sum += i;
 }
 if (sum == num)
 System.out.println("Perfect Number");
 else
 System.out.println("NOT Perfect number");
 }
}

}
 //Output:
 perfect Number

//Q20: WAP to print the pattern.

```

//Program: public class Q20 {
    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 + j) * 2 + " ");
            }
            System.out.println();
        }
    }
}

```

//Output:

```

1
0 1
1 0 1
0 1 0 1

```

//Q21: Write a program to print the pattern.

```

//Program: public class Q21 {
    public static void main(String args[]) {
        int n = 5;
        for (int i = 1; i < n; i += 2) {
            for (int s = 0; s < (n - i) / 2; s++)
                System.out.print(" ");
            for (int j = 0; j < i; j++)
                System.out.print("*");
            System.out.println();
        }
        for (int i = n - 2; i >= 1; i -= 2) {
            for (int s = 0; s < (n - i) / 2; s++)
                System.out.print(" ");
            for (int j = 0; j < i; j++)
                System.out.print("*");
            System.out.println();
        }
    }
}

```

```

3   3
3

```

//Output:

