

1. Write a program to find the first 10 natural numbers.ample output:

The natural numbers are:

1 2 3 4 5 6 7 8 9 10

2. Write a program to find the sum of first 10 natural numbers. Sample Output:

Find the first 10 natural numbers:

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The natural numbers are:

1 2 3 4 5 6 7 8 9 10

The sum of first 10 natural numbers: 55

3. Write a program to display n terms of natural number and their sum.

Sample Output:

Input a number of terms: 7

The natural numbers upto 7th terms are:

1 2 3 4 5 6 7

The sum of the natural numbers is: 28

4. Write a program to find the perfect numbers between 1 and 500.

The perfect numbers between 1 to 500 are:

6

28

496

5. Write a program to check whether a number is prime or not.

Sample Output:

Input a number to check prime or not: 13

The entered number is a prime number.

6. Write a program to find prime number within a range.

Input number for starting range: 1

Input number for ending range: 100

The prime numbers between 1 and 100 are:

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

The total number of prime numbers between 1 to 100 is: 25

**7.** Write a program to find the factorial of a number.

Sample output:

Input a number to find the factorial: 5

The factorial of the given number is: 120

**8.** Write a program to find the last prime number occur before the entered number.

Sample Output:

Input a number to find the last prime number occurs before the number: 50

47 is the last prime number before 50

**9.** Write a program to find the Greatest Common Divisor (GCD) of two numbers.

Sample Output:

Input the first number: 25

Input the second number: 15

The Greatest Common Divisor is: 5

**10.** Write a program to find the sum of digits of a given number.

Sample Output:

Input a number: 1234

The sum of digits of 1234 is: 10

**11.** Write a program to find the sum of the series  $1 + 1/2^2 + 1/3^3 + \dots + 1/n^n$ .

Sample Output:

Input the value for nth term: 5

$1/1^1 = 1$

$1/2^2 = 0.25$

$1/3^3 = 0.037037$

$1/4^4 = 0.00390625$

$1/5^5 = 0.00032$

The sum of the above series is: 1.29126

**12.** Write a program to calculate the sum of the series  $(1*1) + (2*2) + (3*3) + (4*4) + (5*5) + \dots + (n*n)$ .

Sample Output:

Input the value for nth term: 5

$1*1 = 1$

$2*2 = 4$

$$3*3 = 9$$

$$4*4 = 16$$

$$5*5 = 25$$

The sum of the above series is: 55

**13.** Write a program to calculate the series  $(1) + (1+2) + (1+2+3) + (1+2+3+4) + \dots + (1+2+3+4+\dots+n)$ .

Sample Output:

Input the value for nth term: 5

$$1 = 1$$

$$1+2 = 3$$

$$1+2+3 = 6$$

$$1+2+3+4 = 10$$

$$1+2+3+4+5 = 15$$

The sum of the above series is: 35

**14.** Write a program to find the sum of series  $1 - X^2/2! + X^4/4! - \dots$  upto nth term.

Sample Output:

Input the value of X: 3

Input the value for nth term: 4

term 1 value is: 1

term 2 value is: -4.5

term 3 value is: 3.375

term 4 value is: -1.0125

The sum of the above series is: -1.1375

**15.** Write a program to asked user to input positive integers to process count, maximum, minimum, and average or terminate the process with -1.

Sample Output:

Your input is for termination. Here is the result below:

Number of positive integers is: 4

The maximum value is: 9

The minimum value is: 3

The average is 6.00

**16.** Write a program to list non-prime numbers from 1 to an upperbound.

Sample Output:

Input the upperlimit: 25

The non-prime numbers are:

4 6 8 9 10 12 14 15 16 18 20 21 22 24 25

**17.** Write a program to print a square pattern with # character.

Sample Output:

Print a pattern like square with # character:

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Input the number of characters for a side: 4

# # # #

# # # #

# # # #

# # # #

**18.** Write a program to display the cube of the number upto given an integer.

Sample Output:

Input the number of terms : 5

Number is : 1 and the cube of 1 is: 1

Number is : 2 and the cube of 2 is: 8

Number is : 3 and the cube of 3 is: 27

Number is : 4 and the cube of 4 is: 64

Number is : 5 and the cube of 5 is: 125

**19.** Write a program to display the multiplication table vertically from 1 to n.

Sample Output:

Input the number upto: 5

Multiplication table from 1 to 5

1x1=1 2x1=2 3x1=3 4x1=4 5x1=5

1x2=2 2x2=4 3x2=6 4x2=8 5x2=10

1x3=3 2x3=6 3x3=9 4x3=12 5x3=15

1x4=4 2x4=8 3x4=12 4x4=16 5x4=20

1x5=5 2x5=10 3x5=15 4x5=20 5x5=25

1x6=6 2x6=12 3x6=18 4x6=24 5x6=30

1x7=7 2x7=14 3x7=21 4x7=28 5x7=35

1x8=8 2x8=16 3x8=24 4x8=32 5x8=40

$1 \times 9 = 9$   $2 \times 9 = 18$   $3 \times 9 = 27$   $4 \times 9 = 36$   $5 \times 9 = 45$   
 $1 \times 10 = 10$   $2 \times 10 = 20$   $3 \times 10 = 30$   $4 \times 10 = 40$   $5 \times 10 = 50$

**20.** Write a program to display the n terms of odd natural number and their sum.

Sample Output:

Input number of terms: 5

The odd numbers are: 1 3 5 7 9

The Sum of odd Natural Numbers upto 5 terms: 25

**21.** Write a program to display the n terms of even natural number and their sum.

Sample Output:

Input number of terms: 5

The even numbers are: 2 4 6 8 10

The Sum of even Natural Numbers upto 5 terms: 30

**22.** Write a program to display the n terms of harmonic series and their sum.

$1 + 1/2 + 1/3 + 1/4 + 1/5 \dots 1/n$  terms

Sample Output:

Input number of terms: 5

$1/1 + 1/2 + 1/3 + 1/4 + 1/5$

The sum of the series upto 5 terms: 2.28333

**23.** Write a program to display the sum of the series [ 9 + 99 + 999 + 9999 ...].

Sample Output:

Input number of terms: 5

9 99 999 9999 99999

The sum of the sarise = 111105

**24.** Write a program to display the sum of the series [  $1 + x + x^2/2! + x^3/3! + \dots$  ].

Sample Output:

Input the value of x: 3

Input number of terms: 5

The sum is : 16.375

**25.** Write a program to find the sum of the series  $[x - x^3 + x^5 + \dots]$ .

Sample Output:

Input the value of x: 2

Input number of terms: 5

The values of series:

2

-8

32

-128

512

The sum of the series upto 5 term is: 410

**26.** Write a program to find the sum of the series  $1 + 11 + 111 + 1111 + \dots n$  terms.

Sample Output:

Input number of terms: 5

$1 + 11 + 111 + 1111 + 11111$

The sum of the series is: 12345

**27.** Write a program to display the first n terms of Fibonacci series.

Sample Output:

Input number of terms to display: 10

Here is the Fibonacci series upto to 10 terms:

0 1 1 2 3 5 8 13 21 34

**28.** Write a program to find the number and sum of all integer between 100 and 200 which are divisible by 9.

Sample Output:

Numbers between 100 and 200, divisible by 9:

108 117 126 135 144 153 162 171 180 189 198

The sum : 1683

**29.** Write a program to find LCM of any two numbers using HCF.

Sample Output:

Input 1st number for LCM: 15

Input 2nd number for LCM: 25

The LCM of 15 and 25 is: 75

**30.** Write a program to display the number in reverse order.

Sample Output:

Input a number: 12345

The number in reverse order is : 54321

**31.** Write a program to find out the sum of an A.P. series.

Sample Output:

Input the starting number of the A.P. series: 1

Input the number of items for the A.P. series: 8

Input the common difference of A.P. series: 5

The Sum of the A.P. series are :

$1 + 6 + 11 + 16 + 21 + 26 + 31 + 36 = 148$

**32.** Write a program to find the Sum of GP series.

Sample Output:

Input the starting number of the G.P. series: 3

Input the number of items for the G.P. series: 5

Input the common ratio of G.P. series: 2

The numbers for the G.P. series:

3 6 12 24 48

The Sum of the G.P. series: 93

**33.** Write a program to Check Whether a Number can be Express as Sum of Two Prime Numbers.

Sample Output:

Input a positive integer: 20

$20 = 3 + 17$

$20 = 7 + 13$

**34.** Write a program to find the length of a string without using the library function.

Sample Output:

Input a string: w3resource.com

The string contains 14 number of characters.  
So, the length of the string w3resource.com is:14

**35.** Write a program to display the pattern like right angle triangle using an asterisk.

Sample Output:

Input number of rows: 5

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

**36.** Write a program to display the pattern like right angle triangle with number.

Sample Output:

Input number of rows: 5

```
1  
12  
123  
1234  
12345
```

**37.** Write a program to make such a pattern like right angle triangle using number which will repeat the number for that row.

Sample Output:

Input number of rows: 5

```
1  
22  
333  
4444  
55555
```

**38.** Write a program to make such a pattern like right angle triangle with number increased by 1.

Sample Output:



Input number of rows: 4

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

**39.** Write a program to make such a pattern like a pyramid with numbers increased by 1.

Sample Output:

Input number of rows: 4

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

**40.** Write a program to make such a pattern like a pyramid with an asterisk.

Sample Output:

Input number of rows: 5

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

**41.** Write a program to make such a pattern like a pyramid using number and a number will repeat for a row.

Sample Output:

Input number of rows: 5

```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

**42.** Write a program to display the pattern like a pyramid using asterisk and each row contain an odd number of asterisks.

Sample Output:

Input number of rows: 5

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

**43.** Write a program to print the Floyd's Triangle.

Sample Output:

Input number of rows: 5

```
1
01
101
0101
10101
```

**44.** Write a program to display the pattern like a diamond.

Sample Output:

Input number of rows (half of the diamond): 5

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

**45.** Write a program to display Pascal's triangle like pyramid.

Sample Output:

Input number of rows: 5

```
1
1 1
```

```
1 2 1
1 3 3 1
1 4 6 4 1
```

**46.** Write a program to display Pascal's triangle like right angle triangle.

Sample Output:

Input number of rows: 7

```
1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
1 5 10 10 5 1
1 6 15 20 15 6 1
```

**47.** Write a program to display such a pattern for n number of rows using number. Each row will contain odd numbers of number. The first and last number of each row will be 1 and middle column will be the row number.

Sample Output:

Input number of rows: 5

```
1
121
12321
1234321
123454321
```

**48.** Write a program to display the pattern like pyramid using the alphabet.

Sample Output:

Input the number of Letters (less than 26) in the Pyramid: 5

```
A
A B A
A B C B A
A B C D C B A
A B C D E D C B A
```

**49.** Write a program to print a pyramid of digits as shown below for n number of lines.

```
1
232
34543
4567654
567898765
Sample Output:
Input the number of rows: 5
1
232
34543
4567654
567898765
```

**50.** Write a program to print a pattern like highest numbers of columns appear in first row.

Sample Output:

```
Input the number of rows: 5
12345
2345
345
45
5
```

**51.** Write a program to display the pattern using digits with right justified and the highest columns appears in first row.

Sample Output:

```
Input number of rows: 5
12345
1234
123
12
1
```

**52.** Write a program to display the pattern using digits with left justified and the highest columns appears in first row in descending order.

Sample Output:

Input number of rows: 5

```
5 4 3 2 1
4 3 2 1
3 2 1
2 1
1
```

**53.** Write a program to display the pattern like right angle triangle with right justified using digits.

Sample Output:

Input number of rows: 5

```
1
21
321
4321
54321
```

**54.** Write a program to display the pattern power of 2, triangle.

Sample Output:

Display the pattern like pyramid with power of 2:

-----

Input the number of rows:

```
1
1 2 1
1 2 4 2 1
1 2 4 8 4 2 1
1 2 4 8 16 8 4 2 1
```

**55.** Write a program to display such a pattern for n number of rows using number. Each row will contain odd numbers of number. The first and last number of each row will be 1 and middle column will be the row number. n numbers of columns will appear in 1st row.

Sample Output:

Input number of rows: 7

```
1234567654321
12345654321
123454321
```

1234321  
12321  
121  
1

**56.** Write a program to find the first and last digit of a number.

Sample Output:

Input any number: 5679

The first digit of 5679 is: 5

The last digit of 5679 is: 9

**57.** Write a program to find the sum of first and last digit of a number.

Sample Output:

Input any number: 12345

The first digit of 12345 is: 1

The last digit of 12345 is: 5

The sum of first and last digit of 12345 is: 6

**58.** Write a program to calculate product of digits of any number.

Sample Output:

Input a number: 3456

The product of digits of 3456 is: 360

**59.** Write a program to find the frequency of each digit in a given integer.

Sample Output:

Input any number: 122345

The frequency of 0 = 0

The frequency of 1 = 1

The frequency of 2 = 2

The frequency of 3 = 1

The frequency of 4 = 1

The frequency of 5 = 1

The frequency of 6 = 0

The frequency of 7 = 0

The frequency of 8 = 0

The frequency of 9 = 0

**60.** Write a program to input any number and print it in words.

Sample Output:

Input any number: 8309

Eight Three Zero Nine

**61.** Write a program to print all ASCII character with their values.

Sample Output:

Input the starting value for ASCII characters: 65

Input the ending value for ASCII characters: 75

The ASCII characters:

65 --> A

66 --> B

67 --> C

68 --> D

69 --> E

70 --> F

71 --> G

72 --> H

73 --> I

74 --> J

75 --> K

**62.** Write a program to find power of any number using for loop.

Sample Output:

Input the base: 2

Input the exponent: 5

$2^5 = 32$

**63.** Write a program to enter any number and print all factors of the number.

Sample Output:

Input a number: 63

The factors are: 1 3 7 9 21 63

**64.** Write a program to find one's complement of a binary number.

Sample Output:

Input a 8 bit binary value: 10100101

The original binary = 10100101

After ones complement the number = 01011010

**65.** Write a program to find two's complement of a binary number.

Sample Output:

Input a 8 bit binary value: 01101110

The original binary = 01101110

After ones complement the value = 10010001

After twos complement the value = 10010010

**66.** Write code to create a checkerboard pattern with the words "black" and "white".

Sample Output:

Input number of rows: 5

black-white-black-white-black

white-black-white-black-white

black-white-black-white-black

white-black-white-black-white

black-white-black-white-black

**67.** Write a program to calculate the sum of the series

1.2+2.3+3.4+4.5+5.6+.....

Sample Output:

Input the last integer between 1 to 98 without fraction you want to add: 10 1.2 +

2.3 + 3.4 + 4.5 + 5.6 + 6.7 + 7.8 + 8.9 + 9.1 + 10.11 The sum of the series =59.61

**68.** Write a program that will print the first N numbers for a specific base.

Sample Output:

Print the first N numbers for a specific base:

The number 11 in base 10 =  $1 \times (10^1) + 1 \times (10^0) = 11$

Similarly the number 11 in base 7 =  $1 \times (7^1) + 1 \times (7^0) = 8$

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Input the number of term: 15

Input the base: 9

The numbers in base 9 are:



1 2 3 4 5 6 7 8 10 11 12 13 14 15 16

**69.** Write a program to produce a square matrix with 0's down the main diagonal, 1's in the entries just above and below the main diagonal, 2's above and below that, etc.

0 1 2 3 4

1 0 1 2 3

2 1 0 1 2

3 2 1 0 1

4 3 2 1 0

Sample Output:

Input number or rows: 8

0 1 2 3 4 5 6 7

1 0 1 2 3 4 5 6

2 1 0 1 2 3 4 5

3 2 1 0 1 2 3 4

4 3 2 1 0 1 2 3

5 4 3 2 1 0 1 2

6 5 4 3 2 1 0 1

7 6 5 4 3 2 1 0

**70.** Write a program to convert a decimal number to binary number.

Sample Output:

Input a decimal number: 35

The binary number is: 100011

**71.** Write a program to convert a decimal number to hexadecimal number.

Sample Output:

Input a decimal number: 43

The hexadecimal number is : 2B

**72.** Write a program to convert a decimal number to octal number.

Sample Output:

Input a decimal number: 15

The octal number is: 17

**73.** Write a program to convert a binary number to decimal number.

Sample Output:

Input a binary number: 1011

The decimal number: 11

**74.** Write a program to convert a binary number to hexadecimal number.

Sample Output:

Input a binary number: 1011

The hexadecimal value: B

**75.** Write a program to convert a binary number to octal number.

Sample Output:

Input a binary number: 1011

The equivalent octal value of 1011 is : 13

**76.** Write a program to convert a octal number to decimal number.

Sample Output:

Input any octal number: 17

The equivalent decimal number: 15

**77.** Write a program to convert a octal number to binary number.

Sample Output:

Input any octal number: 17

The equivalent binary number: 1111

**78.** Write a program to convert a octal number to a hexadecimal number.

Sample Output:

Input any octal number: 77

The hexadecimal value of 77 is: 3F

**79.** Write a program to convert a hexadecimal number to decimal number.

Sample Output:

Input any 32-bit Hexadecimal Number: 25

The value in decimal number is: 37

**80.** Write a program to convert hexadecimal number to binary number.

Sample Output:

Input any 32-bit Hexadecimal Number: 5f

The equivalent binary number is: 1011111

**81.** Write a program to convert a hexadecimal number to octal number.

Sample Output:

Input any 32-bit Hexadecimal Number: 5f The equivalent octal number is: 137

**82.** Write a program to compare two numbers.

Sample Output:

Input the first integer: 25

Input the second integer: 15

25 != 15

25 > 15

25 >= 15

**83.** Write a program to compute the sum of the digits of an integer.

Sample Output:

Input any number: 25

The sum of the digits of the number 25 is: 7

**84.** Write a program to compute the sum of the digits of an integer using function.

Sample Output:

Input any number: 255 The sum of the digits of the number 255 is: 12

**85.** Write a program to reverse a string.

Sample Output:

Enter a string: w3resource The string in reverse are: ecruser3w

**86.** Write a program to count the letters, spaces, numbers and other characters of an input string.

Sample Output:

Enter a string: This is w3resource.com

The number of characters in the string is: 22

The number of alphabets are: 18

The number of digits are: 1

The number of spaces are: 2

The number of other characters are: 1

**87.** Write a program to create and display unique three-digit number using 1, 2, 3, 4. Also count how many three-digit numbers are there.

Sample Output:

The three-digit numbers are:

123 124 132 134 142 143 213 214 231 234 241 243 312 314 321 324 341 342  
412 413 421 423 431 432

Total number of the three-digit-number is: 24