

Assignment-3

1. Write a C program to print "Pascal's Triangle".

The numbers in the r-th row of Pascal's triangle represent the coefficients in the Binomial expansion of $(a+b)^{r-1}$.

The first four rows of Pascal triangle are shown below :-

```
1
1 1
1 2 1
1 3 3 1
```

input: Number of rows of Pascal triangle to print

output: Resultant Pascal's Triangle [3]

2. Write a C program to find the sum of digits of a positive integer.

Note that the positive integer can have any value within the allowed range of positive integers on your computer.

Example- If number is 12345 then sum is $1+2+3+4+5=10$

input: the number

output: the sum of digits of the number [2]

3. Write a C program to calculate the value approximate numerical value of $\sin(x)$, where the argument "x" (in radians) is a floating point number entered by the user. Use the relationship between the (n+1)-th and n-th term of the Taylor series expansion of $\sin(x)$ in your program. Use the "do....while" construct. Stop the iterations using the "break" construct once the difference between the absolute values of two consecutive terms becomes less than 0.001.

input: The value of x

output: Approximate value of $\sin(x)$ [2]

4. The Fibonacci Sequence is the series of numbers:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, ...n terms

The next number is found by adding up the two numbers before it. 0 and 1 are the starting numbers.

Write a C program to print the numbers that do not appear in the Fibonacci series.

input: Number of terms (n) in Fibonacci sequence to be considered.

output: The numbers that are not in Fibonacci sequence. For example, if the user enters $n=7$, the values to be printed are: 4 6 7 [3]