

Lab Cycle 4

1. Write a program to print the Fibonacci series using recursion.
2. Write the to implement a menu-driven calculator. Use separate functions for the different operations.
3. Write a program to print the n^{th} prime number.
[Use function to check whether a number is prime or not]
4. Write lambda functions to find the area of square, rectangle and triangle.
5. Write a program to display powers of 2 using anonymous function. [Hint use map and lambda function)
6. Write a program to display multiples of 3 using anonymous function. [Hint use filter and lambda function)
7. Write a program to sum the series $1/1! + 4/2! + 27/3! + \dots + \text{nth term}$. [Hint Use a function to find the factorial of a number].
8. Write a function called compare which takes two strings S1 and S2 and an integer n as arguments. The function should return **True** if the first n characters of both the strings are the same else the function should return **False**.
9. Write a program to add variable length integer arguments passed to the function. [Also demo the use of docstrings]
10. Write a program using functions to implement these formulae for permutations and combinations.

The Number of permutations of n objects taken r at a time: $p(n, r) = n!/(n - r)!$.

The Number of combinations of n objects taken r at a time is: $c(n, r) = n!/(r! * (n - r)!)$