

Experiment 2

Q1) Write a C program to find and print the closest 3 numbers that divides the user's input. If the number is prime, your program should also print that information.

Here are some examples of working program:

```
Please enter the number to check:150
Count : 1, Number : 75
Count : 2, Number : 50
Count : 3, Number : 30
```

```
Please enter the number to check:99999989
The number you entered is a prime number
```

Q2) Theoretically the constant e is:

$$e = \lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n$$

Due to the fact that computers have a finite precision, exact value of the constant e cannot be calculated by computers. Instead of infinity, setting n to a large number gives an estimate for e . In this question, you are expected to design a program which estimates the mathematical constant e by using n terms. In your program n is the parameter which controls precision of the estimate.

Program that you are going to design is expected to do:

- 1) Take and input argument n from user.
- 2) Compute the estimates of e for n
- 3) Compute the error between our estimate and the actual value of e .
- 4) Print results to screen

Note 1: Your program is expected to work with **floats**.

Note 2: Maximum precision of the e is 2.71828182 for **float**. You can use this value as actual value of the e .

```
Please choose the accuracy for the estimate of e: 5
You have chosen 5
Estimate of the constant e is: 2.48832035
Actual e constant is equal to: 2.71828175
Error between the estimate of e and the actual e constant is: 0.22996140
```

```
Please choose the accuracy for the estimate of e: 100
You have chosen 100
Estimate of the constant e is: 2.70481086
Actual e constant is equal to: 2.71828175
Error between the estimate of e and the actual e constant is: 0.01347089
```