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Institute for Advancing Intelligence, TCG CREST
(TCG Centres for Research and Education in Science and Technology)

Introduction to Computer Programming and Data Structures
Assignment 02

Submission Deadline: **2022-Aug-25**

Assignment # AP0201

- Write a program that computes and prints the nth prime number.
- Input: n
- Output: nth prime
- Hint: For $a, b \in \mathbb{N}$, if $a\%b == 0$, then a is divisible by b.
- Example: If input $n = 5$, output will be 11 as list of primes is [2, 3, 5,7, 11, ...] and 11 is the 5th prime.

Assignment # AP0202

- Write a program that computes the sum of the logarithms of all the primes from 2 to some number n, and print out the sum of the logs of the primes, the number n, and the ratio of these two quantities. Test this for different values of n.
- Input: n
- Output:nth prime
- Hint: For $a, b \in \mathbb{N}$, if $a\%b == 0$, then a is divisible by b.
- Use math.h library to compute logarithm. For compilation, use `-lm`. for example, `gcc -g -Wall -lm assignment_AP0202.c -o assignment_AP0202.out`.

Assignment # AP0203

- Handling input choices: Suppose you have the following functions,
  1. $area \leftarrow triangle\_area(a, b, c)$: It takes length three edges of a triangle, and outputs area of that.
  2. $length \leftarrow diag\_length(a, b)$: It takes edges of a equilateral triangle, outputs the length of its diagonal.

3. $ex\_val \leftarrow expo(x, y)$: Given two real numbers (float/double) x and y, it outputs $ex\_val = x^y$.

Give the user four choices. Three choices to select the above function and one to exit. On user input, compute area/length/exponentiation and output the computed value. After each computation, the user will be given again four choices and continue until choice for exit is chosen.

Assignment # AP0204, # AP0205 # AP0206
Will be uploaded soon.