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| FCC logo only | FORMAN CHRISTIAN COLLEGE (A Chartered University)COMP 111 Programming IIFall 2021 ***Section : A***  ***Instructor: Anique Atique Alam*** |

**Assignment 1**

## Matrix Multiplication

In this question you must multiply two matrices A and B and store the answer in matrix C. For multiplying matrices, you must take care of the matrix multiplication rule i.e the column number of matrix A should be equal to matrix B.

Step 1: Get matrix size from the user for both matrices and compare them. If it don’t follow the matrix multiplication rule, ask user again for the correct values.

Step 2: Store values in list for each matrix by prompting user to enter the values.

Step 3: Calculate the product of matrix A and matrix B.

Step 4: Display the out in proper format.

## Tower of Hanoi

Tower of Hanoi is a mathematical puzzle where we have three rods and n disks. The objective of the puzzle is to move the entire stack to another rod, obeying the following simple rules:

Only one disk can be moved at a time.

Each move consists of taking the upper disk from one of the stacks and placing it on top of another stack i.e. a disk can only be moved if it is the uppermost disk on a stack.

No disk may be placed on top of a smaller disk.

Take an example for 2 disks :

Let rod 1 = 'A', rod 2 = 'B', rod 3 = 'C'.

Step 1 : Shift first disk from 'A' to 'B'.

Step 2 : Shift second disk from 'A' to 'C'.

Step 3 : Shift first disk from 'B' to 'C'.

The pattern here is :

Shift 'n-1' disks from 'A' to 'B'.

Shift last disk from 'A' to 'C'.

Shift 'n-1' disks from 'B' to 'C'.

Step 1: Get the value from the user of how many disks are there and store in variable n

Step 2: Recursively call the function with parameter n, from rod, to rod, auxiliary rod.

Step 3: Print every move which determine if you have followed the rules or not. Example “Move disk 1 from rod A to rod B”

## Phone Book

Write a program that will a phonebook using dictionary. You have to store names as keys and number, address, email as values. Now you phone book should have following functions:

1: Display all the contacts:

2: Create new contact:

3: Search a contact:

4: Delete a contact:

5: Exit

You have to display a menu with these 5 instructions and then with each option that user selects call the specific function that will return relative value.

**Deadline Sunday 8th December, 2021 11:59 pm**

No relaxation will be given for assignment’s submission deadline.

Assignment submitted after deadline will lose 10% marks for each day.

Viva of this assignment will be conducted in lab or in office.

SUBMIT THE CODE IN A .PY FILE AND THE SCREEN SHOT OF THE OUTPUT.