152113022 VERİ YAPILARI LABORATUVARI LAB
LAB WORK 2
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Objectives:

- Iterative, recursive algorithm, contiguous and non-contiguous allocation

Question 1. A: C++ program to find the factorial of a given number (Recursion)

Example Output:
A Factorial of 5 using Recursion is: 120

Question 1. B: C++ program to find factorial of given number (Iteration)

Example Output
A Factorial of 5 using Iteration is: 120

Question 2. A: Display multiplication table up to 10.

Example Output
Enter an integer: 5

5 * 1 = 5
5 * 2 = 10
5 * 3 = 15
5 * 4 = 20
5 * 5 = 25
5 * 6 = 30
5 * 7 = 35
5 * 8 = 40
5 * 9 = 45
5 * 10 = 50

Question 2. B: Display multiplication table up to a given range.

Example Output

Enter an integer: 8
Enter range: 7
8 * 1 = 8
8 * 2 = 16
8 * 3 = 24
8 * 4 = 32
8 * 5 = 40
8 * 6 = 48
8 * 7 = 56

Question 3.: Write a program that will include numbers from zero to n. The program will be carried out in the following steps:

- Use arraylist for store the data (contiguous allocation)
- Use linked list for store the data (non-contiguous allocation)
- And show each representations (arraylist and linked list) data and adresses.
- Repeat all implementations for different data types (double, int, etc.)

Hint for non-contiguous allocation !: https://www.geeksforgeeks.org/list-cpp-stl/

Example Output

(contiguous allocation for char)

&X[0] = 100
&X[1] = 101
&X[2] = 102
&X[3] = 103
&X[4] = 104

Question 4.: Write a program to show contiguous allocation on 2D arrays. The program will be carried out in the following steps:

- Define a 2-dimensional integer array.
- Get row and column information from the user.
- Print the address information of the elements in the array to the screen.
- Print the total amount of memory used on the screen.

Example Output

&X[0] [0]= 100
&X[0] [1]= 104
&X[0] [2]= 108

&X[1] [0]= 112
&X[1] [1]= 116
&X[1] [2]= 120

&X[2] [0]= 124
&X[2] [1]= 128
&X[2] [2]= 132

Good Luck!