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***Section: BCS(2A)***

***PF:***

***Assignment NO 1:***

EXPLAINTION OF Q1:

This program defines a 20x20 grid of numbers and calculates the largest product of four adjacent numbers in the grid. The grid is filled with numbers, and the program checks for the largest product in horizontal, vertical, and diagonal directions.

The program defines a grid of numbers and a function to find the maximum of two numbers

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First, defining the constants and libraries and then defining the grid. Afterwards, there is a function to find maximum of two numbers and it’s returning the larger one and another function to find the largest product. It checks for largest number in four direction vertically, horizontally and two diagonals. There will be vertical, horizontal and two diagonals check (Top-left to Bottom-right) and (Top-right to Bottom-left) and after all these checks it will print the results. The main function calls the largest product and return 0 to ran program correctly.

So, in simple terms, this program looks at a grid of numbers and finds the largest possible product of four adjacent numbers, whether they are arranged horizontally, vertically, or diagonally.

EXPLAINTION OF Q2:

This program calculates the length of Collatz sequences for numbers up to a user-specified limit and finds the numbers with the longest Collatz sequences.

The program includes a function collatzLength that calculates the length of a Collatz sequence for a given number. It counts the steps it takes for the number to reach 1 by following the Collatz sequence rule: if the number is even, divide it by 2; if it's odd, multiply it by 3 and add 1

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*In Main Function:*

It asks the user to enter an upper limit for finding the longest Collatz sequence.

It then calculates the length of Collatz sequences for numbers from 1 up to the user-specified limit.

It finds the maximum length of the Collatz sequences.

It prints the numbers that have the longest Collatz sequences along with their lengths.

In simple terms, this program helps find which numbers have the longest Collatz sequences up to a certain limit specified by the user.