ASSIGNMENT 1 CPP

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Submission instruction: Create a folder (A1_StudentName_StudentID) that contains 6 sub folders for each part. Each sub folder contains all the solutions for the corresponding tasks. Compress the A1_StudentName_StudentID folder and submit A1_StudentName_StudentID.zip to Moodle.

Part 1

- Task 1: Write a simple program to calculate & display the average of three integer numbers
- Task 2: Write a simple calculator to calculate & display the summation, subtraction, division, modulus, multiplication of two numbers
- Task 3: Write a simple program to display your personal information in a nice presentation that you design.
- Task 4: Write a simple program to calculate and display x percentage of a number y.

Part 2

- Task 1: Write a simple software that takes a number in USD from user input and convert it into VND then prints two results on the screen in a nice format.
- Task 2: Write a simple software that takes the radius and height of a cylinder, then calculate its volume and display the information on the screen in a nice format.
- Task 3: Write a simple calculator that takes one number from the user then calculates and displays its abs, sin, cos, tan, log, log10, sqrt, exp.
- Task 4: Write a simple software that takes from user input basic information of a student including full name, day of birth, hometown, major, … then display this information on the screen in a nice format.

Part 3

- Task 1: Write a simple software that asks for user's age then calculates the zoo ticket cost based on the given age: if age < 5 then ticket is free, if age is between 5 and 10 then ticket costs $10, if age is between 11 and 16 then ticket costs $20, if age is greater than 16 then ticket costs $25. Display the ticket price information for the user to see.
- Task 2: Write a simple software that asks for user input for the amount of money in VND, then asking their choice of currency conversion to AUD or USD: (1) for AUD and (2) for USD. Do the calculation and show the corresponding information based on their choice.
- Task 3: Write a simple calculator that asks for user input for two numbers and their choice of an operator (+, -, *, /) then calculates and displays the information accordingly.

Part 4

- Task 1: Write a simple software that takes the scores of 10 students (using for loop), then calculate the average score and display on the screen
- Task 2: Write a simple software that keeps asking the user to make a guess of a secret number between 0 and 20 (the program knows this number, but the user does not). At each iteration the program gives the feedback on the screen (greater or smaller) when comparing the user guess with the secret number. The program finishes when the user guesses the secret number correctly.

Part 5

- Task 1: Write a simple software that takes from the user input students' names and their scores (0-100), storing these values into two arrays until the user indicates that they want to stop with '-1'. Assume that the maximum number of students is 100. Also use another array to store the status of

passed (score >= 50) or failed (score < 50) of the above students. Once the data entering process finishes, display the students' names, scores, and passed/failed status nicely in 3 columns.

- Task 2: Write a simple software that takes from the user input elements of a 4x4 square matrix and store them in a two-dimensional array. Display on the screen the matrix with all of its elements in a nice table format, the sum of all elements in the matrix, the sum of all elements in each row, the sum of all elements in each column, and the sum of all elements in each diagonal. The first easier approach is to manually indicate each element's index. The second approach is to use for loops to go through the correct elements automatically.

Part 6

- Task 1: Write three functions sumTripple, mulTripple, aveTriple that take three input parameters which are three float numbers then calculate and return the sum, the multiplication, and the average of three numbers. Write a program that keeps asking for three numbers from user input, then calls the three functions above to calculate the return values, after that displays the return values on the screen. This process is finished when the user enters '-1'.
- Task 2: Write four functions that calculate and return the areas of a square, a rectangle, a circle, and a triangle. You need to decide the appropriate parameters for each of these four functions. Write a software that lets the user choose each of these four functionalities and use it (you also need to let the user enter appropriate parameters for the chosen function). This process is finished when the user enters '-1'.