CS1580 - Introduction to Programming Lab (FS2024)
Lab 4

Lab Objectives

In this lab, you will be implementing the following topics:

- Switch operator
- Functions and Function Documentation
- Pass by value & reference parameters

Lab Task: MathOps

Write a program that performs various mathematical operations based on user input.

1. Create a program that performs menu-driven math operation. The program should display a menu with the following options:
    a. Addition
    b. Subtraction
    c. Multiplication
    d. Swap
2. Implement **separate functions for each mathematical operation** (e.g., add, subtract, multiply, etc.). Each function should take two input values and return the result of the operation.
    a.
    ```
    int add(int a, int b){
          //write your code here
    }
    ```
    b.
    ```
    int subtract(int a, int b){
          //write your code here
    }
    ```
    c.
    ```
    int multiply(int a, int b){
          //write your code here
    }
    ```
    d.
    ```
    void swap(int &a, int &b){
          //write your code here
    }
    ```
    Note: swap(a, b) does not return anything
3. Use a **switch case statement** to allow the user to select one of the menu options

BONUS (10 points): Add error handling for invalid numeric input (e.g., non-numeric characters).

Sample input/output

```
Please choose from the following operations
1. Addition
2. Subtraction
3. Multiplication
4. Swap

Enter your choice: 4

Enter two numbers
Number 1: 5
Number 2: 3

Result:
Number 1: 3
Number 2: 5
```

```
Please choose from the following operations
1. Addition
2. Subtraction
3. Multiplication
4. Swap

Enter your choice: 3

Enter two numbers
Number 1: 5
Number 2: 3
Result: 15
```

Gitlab Cloning Instructions

- Open the browser and go to https://git-classes.mst.edu/. Click on the Lab4 repository named *2024-FS-303-lab4-<your_username>*
- Click on 'Clone' button and copy the HTTPS link.
- Open Putty and
    - Change the directory to SDRIVE: `cd SDRIVE`
    - Clone the repository: `git clone <copy_the_HTTPS_link_here>`
    - Change the directory to cloned repository: `cd 2024-FS-303-lab4<your_username>`
- Start coding by opening a new file in nano: `nano lab4.cpp`

Compiling Instructions

- To run your code, `fg++ *.cpp`
- To get the output, `./a.out`

Submission Instructions

Push your code to your gitlab account.

- Add all your files to the repository, `git add .`
- Commit your changes, `git commit -m "<your_message_goes_here>"`
- Push the changes, `git push`