INTRODUCTION

This project consists of a basic calculator to calculate the sum, difference, product or quotient of two values, a value comparison tool to determine the largest of three values and an area calculator to calculate the area of a given shape. It is written in the C programming language, and consists of the following conditions:

1. If- else if
2. Switch case
3. Logical operators
4. Arithmetic operations

This program was tested on a machine running the Ubuntu 22.04 LTS distribution of Linux, however it should also run on machines running other Linux based operating systems as well as Microsoft Windows and Apple macOS.

SYSTEM REQUIREMENTS

CPU: Any 5th generation Intel CPU or above, any AMD Ryzen CPU and any Apple M1 series SoC(System on Chip)

RAM: Atleast 4GB

Storage: Less than 5MB

Operating system: Microsoft Windows 10/11, Apple macOS 11/12, and any Linux distribution

Note: While this program was tested in Ubuntu 22.04 LTS, it will run on Windows as well as macOS given GCC is installed beforehand.

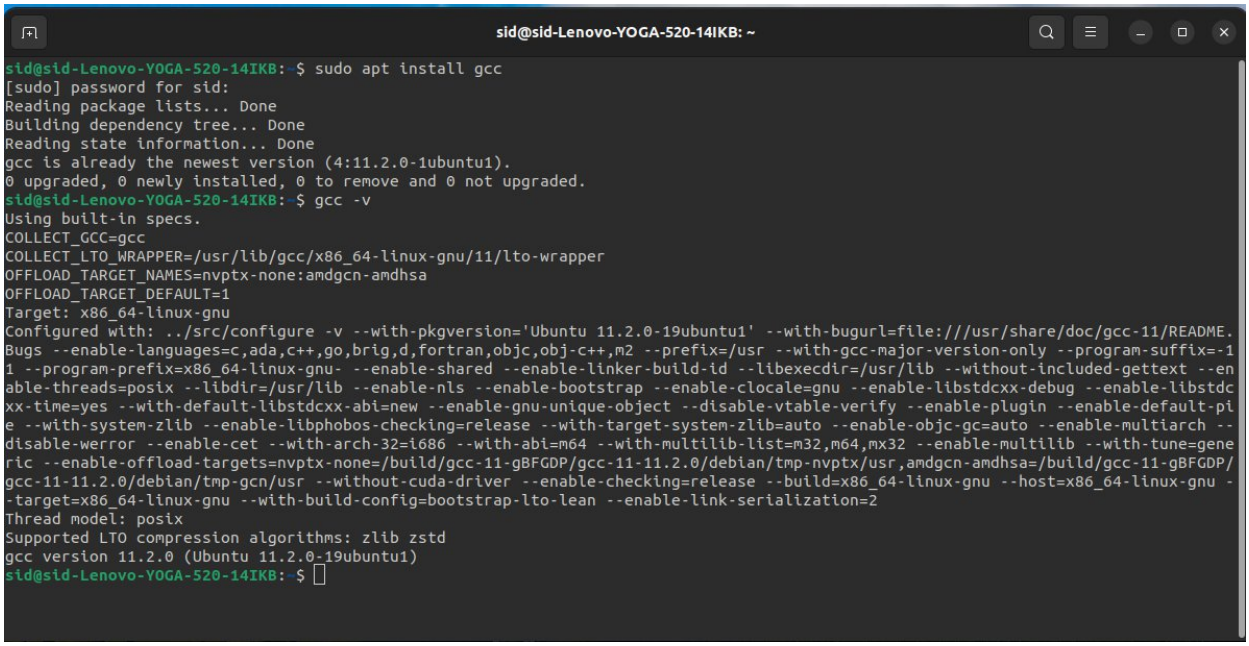
PRE EXECUTION SETUP

1.LINUX

On most Linux systems GCC will be pre-installed, however if it is not installed, it can be done so using the distribution's specific package manager. For instance, on Debian/Ubuntu and systems based on them, entering

sudo apt install gcc

in the terminal will install GCC. Refer to your specific distribution's documentation to do the same.



After installing GCC, run gcc –v in the terminal to verify the installation.

2. APPLE macOS

For macOS, entering ‘gcc’ without quotes in the terminal will prompt the user to install the Developer Tools package which will install GCC.

After the installation completes, run gcc –v in the terminal to verify the installation.

macOS users can also refer to this guide

https://www.freecodecamp.org/news/install-xcode-command-line-tools/

3. MICROSOFT WINDOWS

Windows users can refer to this guide for enabling GCC on the platform

https://code.visualstudio.com/docs/cpp/config-mingw

Alternatively, Windows users can also use the Windows Subsystem for Linux (WSL) compatibility layer to run a Linux environment inside Windows to execute the code.

https://docs.microsoft.com/en-us/windows/wsl/install

After setting up WSL, follow the Linux instructions to setup GCC.

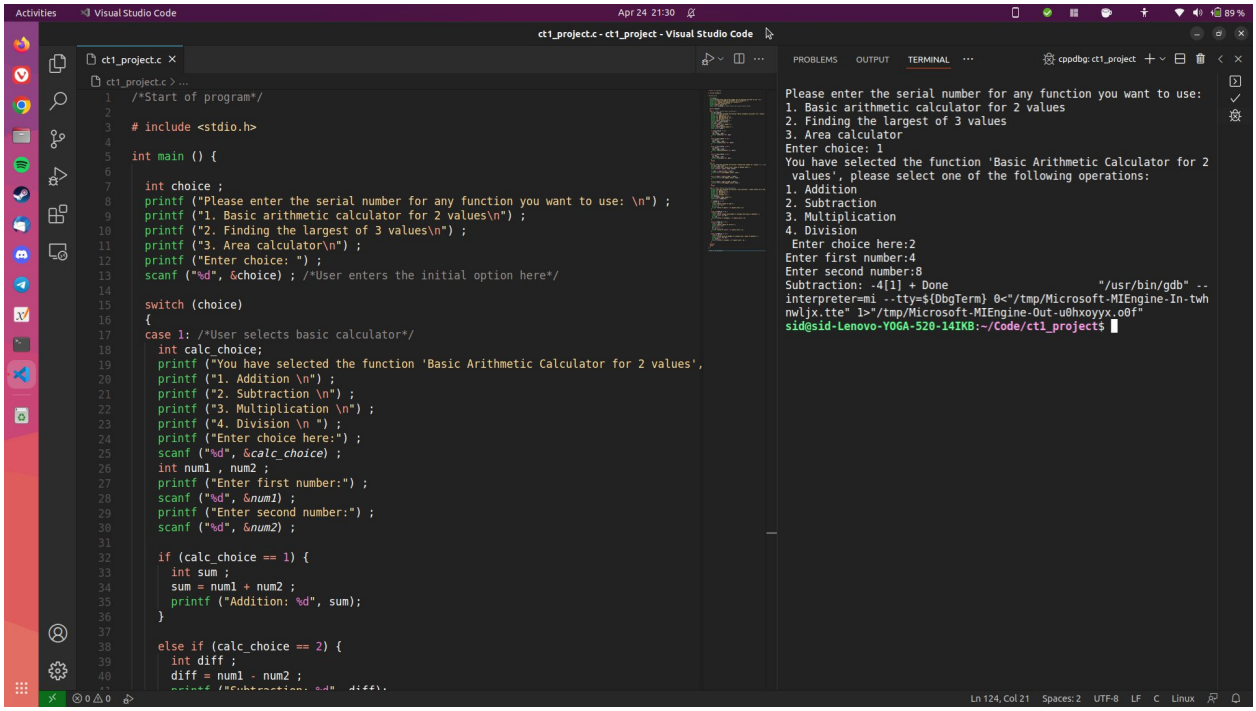
EXECUTION

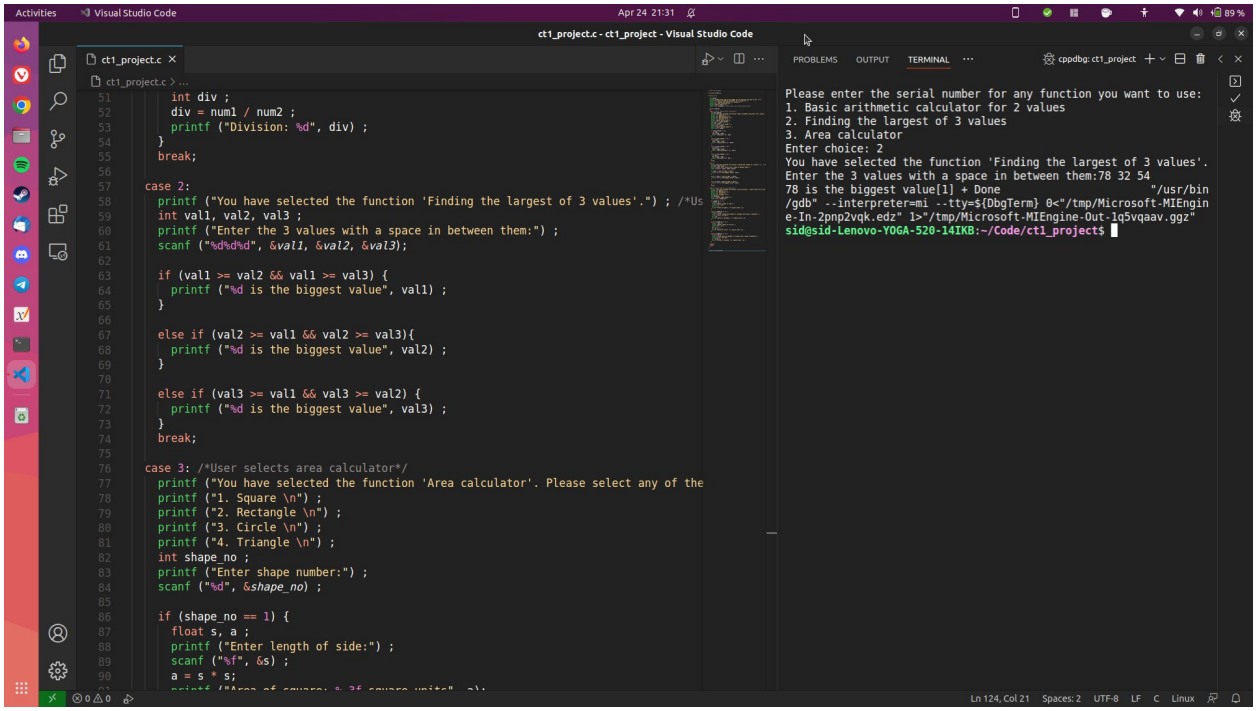
Once the setup is completed, you can use your preferred IDE or the command line to execute the code. Here, executing it from the command line is shown.

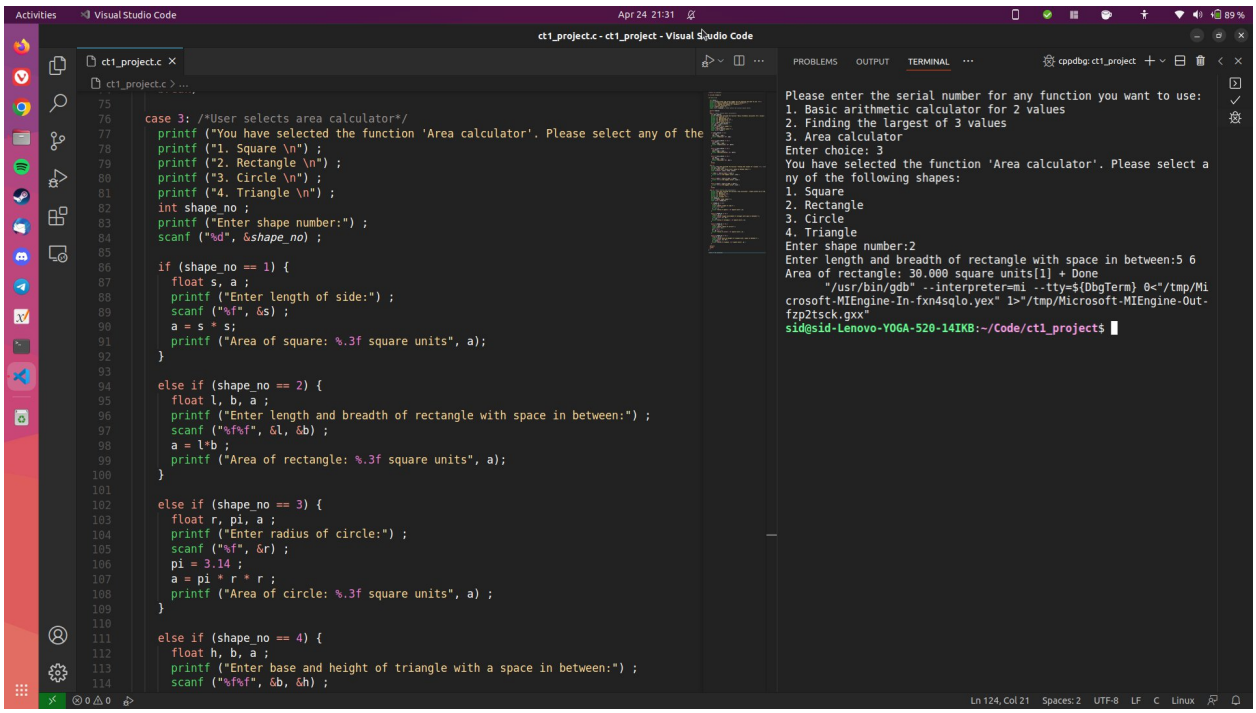
1. Navigate to the folder where the file is downloaded.
2. Right click on an empty area and select Open in Terminal (macOS/Linux/Windows 11) or Open in CMD/Powershell(Windows 10 or below).
3. Now enter the command *gcc ct1_project.c –o ct1_project*

4. After the compilation completes(it will take a few seconds), enter the command ./ct1_project . This will execute the code.

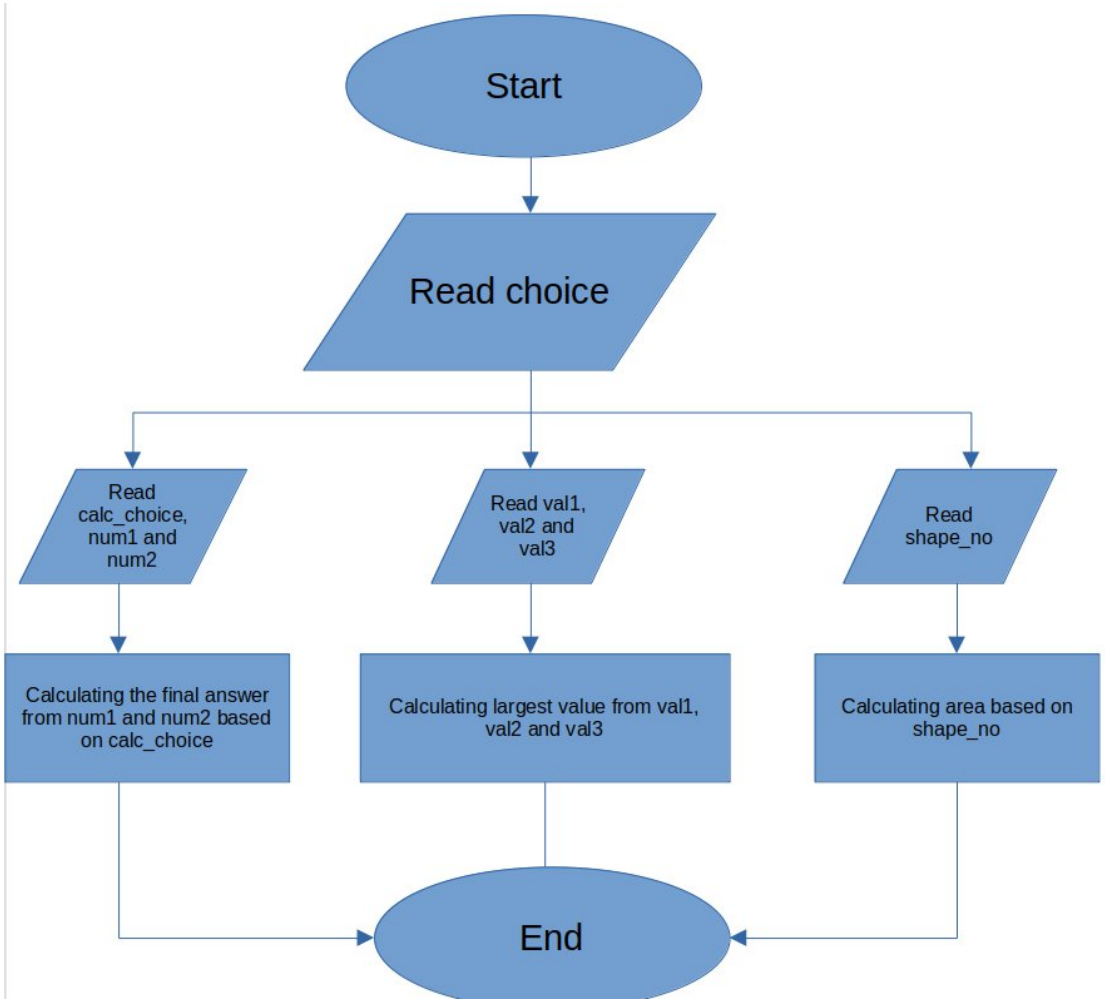
SCREENSHOTS






Activities
Visual Studio Code
Apr 24 21:31
ct1_project.c - ct1_project - Visual Studio Code
ct1_project.c
PROBLEMS
OUTPUT
TERMINAL
cppdbg: ct1_project
case 3: /*User selects area calculator*/
printf ("You have selected the function 'Area calculator'. Please select any of the
printf ("1. Square \n") ;
printf ("2. Rectangle \n") ;
printf ("3. Circle \n") ;
printf ("4. Triangle \n") ;
int shape_no ;
printf ("Enter shape number:") ;
scanf ("%d", &shape_no) ;
if (shape_no == 1) {
float s, a ;
printf ("Enter length of side:") ;
scanf ("%f", &s) ;
a = s * s;
printf ("Area of square: %.3f square units", a);
}
else if (shape_no == 2) {
float l, b, a ;
printf ("Enter length and breadth of rectangle with space in between:") ;
scanf ("%f%f", &l, &b) ;
a = l*b ;
printf ("Area of rectangle: %.3f square units", a);
}
else if (shape_no == 3) {
float r, pi, a ;
printf ("Enter radius of circle:") ;
scanf ("%f", &r) ;
pi = 3.14 ;
a = pi * r * r ;
printf ("Area of circle: %.3f square units", a) ;
}
else if (shape_no == 4) {
float h, b, a ;
printf ("Enter base and height of triangle with a space in between:") ;
scanf ("%f%f", &b, &h) ;
Please enter the serial number for any function you want to use:
1. Basic arithmetic calculator for 2 values
2. Finding the largest of 3 values
3. Area calculator
Enter choice: 3
You have selected the function 'Area calculator'. Please select a
ny of the following shapes:
1. Square
2. Rectangle
3. Circle
4. Triangle
Enter shape number:2
Enter length and breadth of rectangle with space in between:5 6
Area of rectangle: 30.000 square units[1] + Done
"/usr/bin/gdb" --interpreter=mi --tty=${DbgTerm} 0<"/tmp/Microsoft-MIEngine-In-fxn4sqlo.yex" 1>"/tmp/Microsoft-MIEngine-Out-fzp2tsck.gxx"
sid@sid-Lenovo-YOGA-520-14IKB:~/Code/ct1_project$
Ln 124, Col 21
Spaces: 2
UTF-8
LF
C
Linux

FLOWCHART


Start
Read choice
Read calc_choice, num1 and num2
Read val1, val2 and val3
Read shape_no
Calculating the final answer from num1 and num2 based on calc_choice
Calculating largest value from val1, val2 and val3
Calculating area based on shape_no
End

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GitHub: https://github.com/sr6865/github-assignment-ct1