EEL PROJECT

ASSIGNMENT 1

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Research

We need calculator for basic daily life calculations of bigger numbers which take time to calculate manually, thus it saves time. we also need calculators for various other reasons like

1. **Efficiency**: They perform complex calculations quickly, saving time and effort.
2. **Accuracy**: Calculators reduce the risk of human error in mathematical computations.
3. **Convenience**: They simplify tasks like budgeting, scientific calculations, and statistical analysis.
4. **Complex Functions**: Many calculators can handle advanced functions, such as trigonometry or logarithms, which can be cumbersome to calculate manually.
5. **Learning Aid**: They help students and professionals check their work and understand concepts better.

Overall, calculators enhance productivity and help ensure precision in calculations.

We got compiler and syntax error while making this calculator

A syntax error refers to a mistake in the code that violates the rules of the programming language's syntax. This can include issues like missing punctuation, incorrect use of keywords, or improperly structured statements. Because of these errors, the code cannot be compiled or executed until they are fixed. Essentially, it's the programming language's way of saying, "I don't understand what you're trying to do."

A compile error occurs when the code fails to compile due to various issues, which can include type mismatches, missing files, or other violations of the language's rules. These errors prevent the program from being translated into executable code. Unlike runtime errors, which happen while the program is running, compile errors must be resolved before the program can be executed at all.

We used the websites mentioned below for gathering information for this assignment:

1) https://www.geeksforgeeks.org/c-switch-statement/
2) https://www.geeksforgeeks.org/c-program-to-make-a-simple-calculator/
3) https://youtu.be/1567inlTJKc?si=xvw0xNj-Uzay6YZs

Analyze

While creating this calculator we were getting compile time and run time error continuously ,after discussing among the group members we researched on the problems and found a website called geeks for geeks ,it is basically a problem solving platform where we found the solutions for our problems, thus our errors were rectified.

As we had already mentioned the links of websites referred above for your reference.

Work done by the group members:

Shruti has gathered the information regarding switch statements and basic syntax, also helped to rectify the errors (i.e. syntax and compile error) while programming.

Sachin helped with the programming and create the word file for the assignment.

Nidhi built the complete calculator structure and made it working after rectifying the errors, also helped with the word file.

Ideate

Calculator has wide applications in our day-to-day life. We can commonly use calculator in grocery shops, general store etc, this technologly made calculations fast and user friendly . calculators give accurate arithematic calculations in no time, they are fast and efficient

We did the following modifications in the code:

1)we added a feature to check whether the calculator is on or off.

2)If the calculator is in on condition then only it will allow to process further arithmetic calculations otherwise it reflects switch is off.

3) we had given the prior information, how the calculator is going to perform in further steps through printf statements where

1-Addition

2- Subtraction

3 Mutiplication

4 – Divide

5- Modulus (gives remainder)

To make it easier for the consumer to understand.

Build

Now after performing research, our code is build as follows:

```
#include <stdio.h>

int main() {
   int x;
   printf("Electric Switch Simulator\n");
   printf("Enter 0 to turn switch OFF or enter 1 to turn switch ON\n");
   scanf("%d", &x);

   if (x == 1) {
      printf("Switch ON\n");

      int choice, a, b;
      printf("Select your choice:\n");
      printf("1 - Add\n");
      printf("2 - Subtract\n");
      printf("3 - Multiply\n");
      printf("4 - Divide\n");
      printf("5 - Modulus\n");

      printf("Enter number a: ");
      scanf("%d", &a);
      printf("Enter number b: ");
      scanf("%d", &b);

      printf("Enter your choice: ");
      scanf("%d", &choice);

      switch (choice) {
         case 1:
            printf("Addition of a and b: %d\n", (a + b));
            break;
         case 2:
            printf("Subtraction of a and b: %d\n", (a - b));
            break;
         case 3:
            printf("Multiplication of a and b: %d\n", (a * b));
            break;
```

```
            case 4:
                if (b != 0) {
                    printf("Division of a and b: %d\n", (a / b));
                } else {
                    printf("Error: Division by zero.\n");
                }
                break;
            case 5:
                if (b != 0) {
                    printf("Modulus of a and b: %d\n", (a % b));
                } else {
                    printf("Error: Modulus by zero.\n");
                }
                break;
            default:
                printf("Wrong choice.\n");
                break;
        }
    } else if (x == 0) {
        printf("SORRY, the calculator is not on.\n");
    } else {
        printf("Invalid input. Please enter 0 or 1.\n");
    }

    return 0;
}
```

Test

After we run our code we get the following output –

(If we enter 1)

For addition

Electric Switch Simulator

Enter 0 to turn switch OFF or enter 1 to turn switch ON

1

Switch ON

Select your choice:

1 - Add

2 - Subtract

3 - Multiply

4 - Divide

5 - Modulus

Enter number a: 25

Enter number b: 25

Enter your choice: 1

Addition of a and b: 50

For subtraction

Electric Switch Simulator

Enter 0 to turn switch OFF or enter 1 to turn switch ON

Switch ON

Select your choice:

1 - Add

2 - Subtract

3 - Multiply

4 - Divide

5 - Modulus

Enter number a: 25

Enter number b: 25

Enter your choice: 2

Subtraction of a and b: 0

For multiplication

Electric Switch Simulator

Enter 0 to turn switch OFF or enter 1 to turn switch ON

1

Switch ON

Select your choice:

1 - Add

2 - Subtract

3 - Multiply

4 - Divide

5 - Modulus

Enter number a: 25

Enter number b: 25

Enter your choice: 3

Multiplication of a and b: 625

For division

Electric Switch Simulator

Enter 0 to turn switch OFF or enter 1 to turn switch ON

1

Switch ON

Select your choice:

1 - Add

2 - Subtract

3 - Multiply

4 - Divide

5 - Modulus

Enter number a: 25

Enter number b: 25

Enter your choice: 4

Division of a and b: 1

For modulus

Electric Switch Simulator

Enter 0 to turn switch OFF or enter 1 to turn switch ON

1

Switch ON

Select your choice:

1 - Add

2 - Subtract

3 - Multiply

4 - Divide

5 - Modulus

Enter number a: 25

Enter number b: 25

Enter your choice: 5

Modulus of a and b: 0

(if we enter 0)

Electric Switch Simulator

Enter 0 to turn switch OFF or enter 1 to turn switch ON

0

SORRY, the calculator is not on

SCREENSHOT OF OUR COMPLETE CODE WITH OUTPUT

```c
#include <stdio.h>

int main() {
    int x;
    printf("Electric Switch Simulator\n");
    printf("Enter 0 to turn switch OFF or enter 1 to turn switch ON\n");
    scanf("%d", &x);

    if (x == 1) {
        printf("Switch ON\n");

        int choice, a, b;
        printf("Select your choice:\n");
        printf("1 - Add\n");
        printf("2 - Subtract\n");
        printf("3 - Multiply\n");
        printf("4 - Divide\n");
        printf("5 - Modulus\n");

        printf("Enter number a: ");
        scanf("%d", &a);
        printf("Enter number b: ");
        scanf("%d", &b);

        printf("Enter your choice: ");
        scanf("%d", &choice);

        switch (choice) {
            case 1:
                printf("Addition of a and b: %d\n", (a + b));
                break;
            case 2:
                printf("Subtraction of a and b: %d\n", (a - b));
                break;
            case 3:
                printf("Multiplication of a and b: %d\n", (a * b));
                break;
            case 4:
                if (b != 0) {
                    printf("Division of a and b: %d\n", (a / b));
                } else {
                    printf("Error: Division by zero.\n");
                }
                break;
            case 5:
                if (b != 0) {
                    printf("Modulus of a and b: %d\n", (a % b));
                } else {
                    printf("Error: Modulus by zero.\n");
                }
                break;
            default:
                printf("Wrong choice.\n");
                break;
        }
    } else if (x == 0) {
        printf("SORRY, the calculator is not on.\n");
    } else {
        printf("Invalid input. Please enter 0 or 1.\n");
    }

    return 0;
}
```

OUTPUT OF OUR CODE

When our calculator is off

```
Electric Switch Simulator
Enter 0 to turn switch OFF or enter 1 to turn switch ON
0
SORRY, the calculator is not on.
PS C:\Users\hp5cd\OneDrive\Desktop\coding\c>
```

When our calculator is on

1. **ADDITION**

```
Electric Switch Simulator
Enter 0 to turn switch OFF or enter 1 to turn switch ON

1
Switch ON
Select your choice:
1 - Add
2 - Subtract
3 - Multiply
4 - Divide
5 - Modulus
Enter number a: 25
Enter number b: 25
Enter your choice: 1
Addition of a and b: 50
PS C:\Users\hp5cd\OneDrive\Desktop\coding\c>
```

2.SUBTRACTION

```
Electric Switch Simulator
Enter 0 to turn switch OFF or enter 1 to turn switch ON
1
Switch ON
Select your choice:
1 - Add
2 - Subtract
3 - Multiply
4 - Divide
5 - Modulus
Enter number a: 25
Enter number b: 25
Enter your choice: 2
Subtraction of a and b: 0
PS C:\Users\hp5cd\OneDrive\Desktop\coding\c>
```

3. MULTIPLICATION

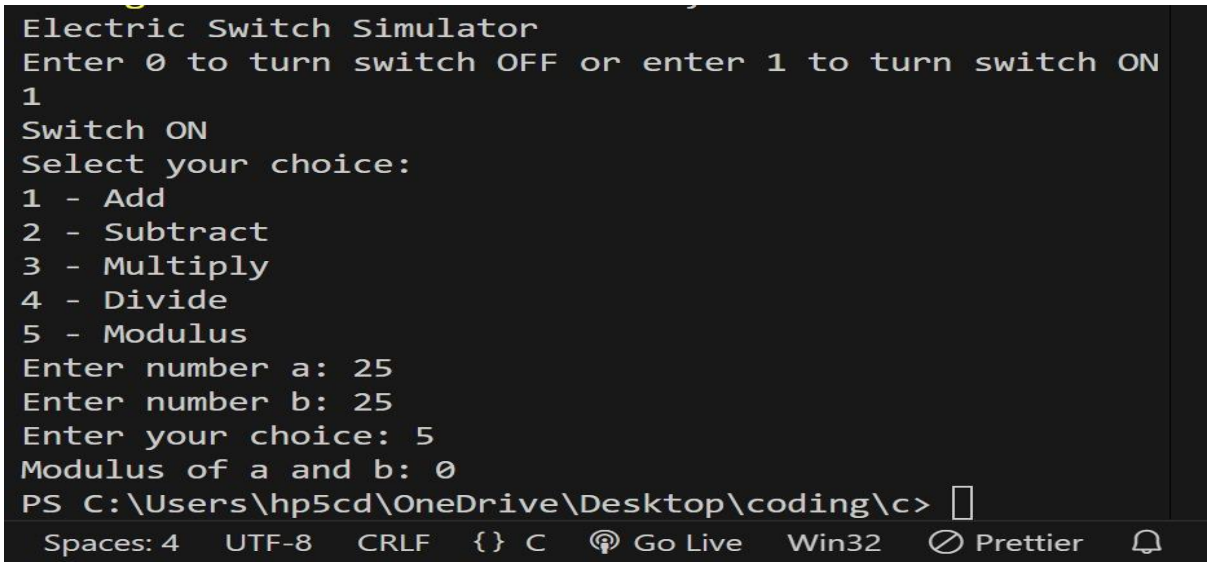
```
Electric Switch Simulator
Enter 0 to turn switch OFF or enter 1 to turn switch ON
1
Switch ON
Select your choice:
1 - Add
2 - Subtract
3 - Multiply
4 - Divide
5 - Modulus
Enter number a: 25
Enter number b: 25
Enter your choice: 3
Multiplication of a and b: 625
PS C:\Users\hp5cd\OneDrive\Desktop\coding\c>
```

4. DIVIDE

```
Electric Switch Simulator
Enter 0 to turn switch OFF or enter 1 to turn switch ON
1
Switch ON
Select your choice:
1 - Add
2 - Subtract
3 - Multiply
4 - Divide
5 - Modulus
Enter number a: 25
Enter number b: 25
Enter your choice: 4
Division of a and b: 1
PS C:\Users\hp5cd\OneDrive\Desktop\coding\c>
```

Spaces: 4 UTF-8 CRLF {} C Go Live Win32 Prettier

5. MODULUS



Implement

Now we can say that output is implemented and our code is also running successfully.

We can implement the project on various online apps like Flipkart, Swiggy etc.

We know that Github is used by many people and in corporate sector. So publishing on Github will help us to reach out to a large number of consumers.

Upload files · Nidhiyadav411/Assignment1 (github.com)