#CALCULATOR APPLICATION

#INTRODUCTION

A fully featured scientific calculator with proper operator precedence is implemented,including trig functions and logarithms , factorials, 12 levels of parantheses , logs to base 2 bitwise logical operators, hex, octal , binary and ASCII display

#SWOT ANALYSIS

#Strength

Calculator can solve complicated problems quickly and in efficient manner Calculators gives more accurate results than counting manually

#Weakness

People will be so dependent on using calculators for counting people will become lazy because they already have a calculator for counting

#Future Scope

Our project will be able to implement in future after making some changes and modifications as we make our project at a very low level So the modifications that can be done in our project are: To make it screen touch so no need to touch key buttons and one more change which can we made is to add snaps of the person who use it

#System Requirements

Operating System: MS Windows XP or WIndows vista Language: C Processor: Pentium IV processor RAM:512MB Hard disk:5GB

#4 W'S and 1H

#Where

A calculator is used in business,basics and scientific

#Who

It is used by students,financial advisors,accountants, and many others

#When

If they want to test how fast you can calculate answers using a calculator , compared to how fast you can solve them without one you will need a calculator

#What

A calculator is a device that performs arithmetic operations on numbers

#How

It scans the keyboard waiting to pick up an electrical signal when a key is pressed

SOURCE CODE

```
#include<stdio.h>
#include<conio.h>
#include<math.h>
#include<stdlib.h>

#define KEY "Enter the calculator Operation you want to do:"

void addition();
void subtraction();
void multiplication();
void division();
void modulus();
void power();
int factorial();
```

```
void calculator_operations();

int main()
{
    int X=1;
    char Calc_oprn;

     calculator_operations();
     while(X)
    {
        printf("\n");
        printf("%s : ", KEY);

        Calc_oprn=getche();

        switch(Calc_oprn)
        {
            case '+': addition();
                    break;

            case '-': subtraction();
                    break;

            case '*': multiplication();
                    break;

            case '/': division();
```

```
            break;

        case '?': modulus();
            break;

        case '!': factorial();
            break;

        case '^': power();
            break;

        case 'H':
        case 'h': calculator_operations();
            break;

        case 'Q':
        case 'q': exit(0);
            break;
        case 'c':
        case 'C': system("cls");
            calculator_operations();
            break;

        default : system("cls");

printf("\n**********You have entered unavailable option");
printf("**********\n");
```

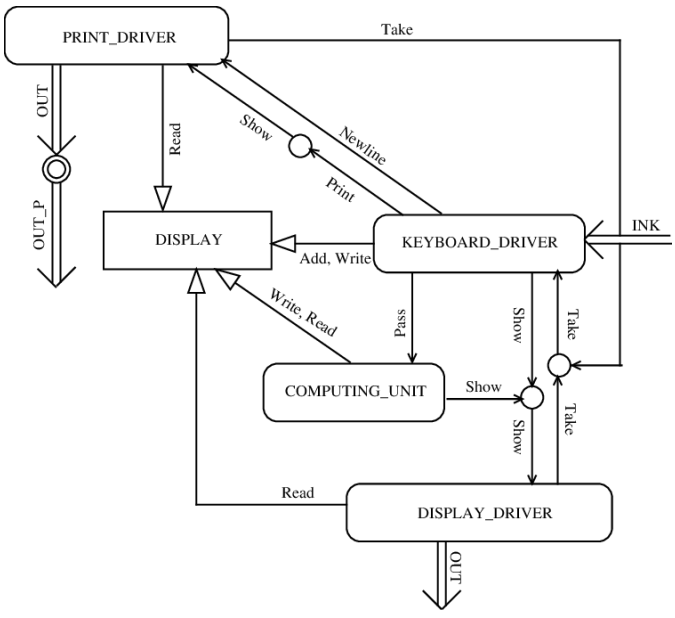
```
    printf("\n*****Please Enter any one of below available ");
    printf("options****\n");
                calculator_operations();
        }
    }
}

void calculator_operations()
{
    printf("\n            Welcome to C calculator \n\n");

    printf("******** Press 'Q' or 'q' to quit ");
    printf("the program *********\n");
    printf("****** Press 'H' or 'h' to display ");
    printf("below options ******\n\n");
    printf("Enter 'C' or 'c' to clear the screen and");
    printf(" display available option \n\n");

    printf("Enter + symbol for Addition \n");
    printf("Enter - symbol for Subtraction \n");
    printf("Enter * symbol for Multiplication \n");
    printf("Enter / symbol for Division \n");
    printf("Enter ? symbol for Modulus\n");
    printf("Enter ^ symbol for Power \n");
    printf("Enter ! symbol for Factorial \n\n");
}
```

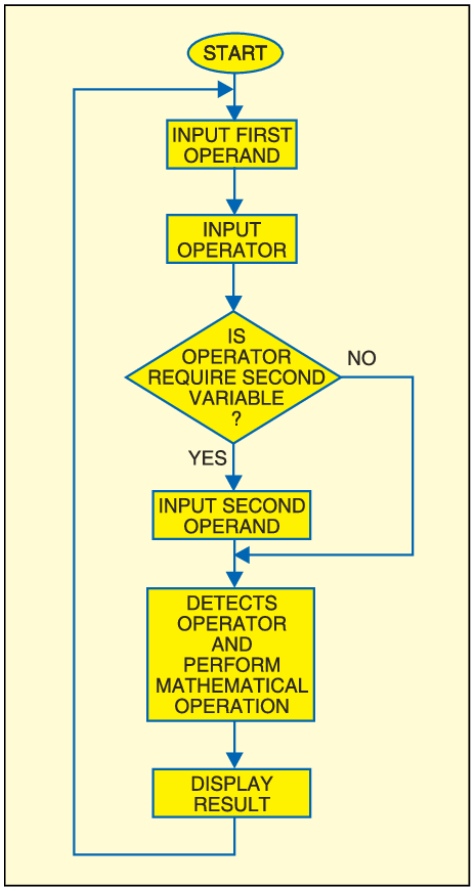
```
void addition()
{
   int n, total=0, k=0, number;
   printf("\nEnter the number of elements you want to add:");
   scanf("%d",&n);
   printf("Please enter %d numbers one by one: \n",n);
   while(k<n)
   {
      scanf("%d",&number);
      total=total+number;
      k=k+1;
   }
   printf("Sum of %d numbers = %d \n",n,total);
}

void subtraction()
{
   int a, b, c = 0;
   printf("\nPlease enter first number  : ");
   scanf("%d", &a);
   printf("Please enter second number : ");
   scanf("%d", &b);
   c = a - b;
   printf("\n%d - %d = %d\n", a, b, c);
}

void multiplication()
```

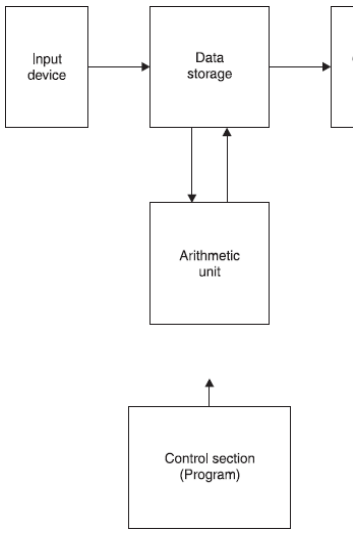
```
{
    int a, b, mul=0;
    printf("\nPlease enter first numb   : ");
    scanf("%d", &a);
    printf("Please enter second number: ");
    scanf("%d", &b);
    mul=a*b;
    printf("\nMultiplication of entered numbers = %d\n",mul);
}

void division()
{
    int a, b, d=0;
    printf("\nPlease enter first number  : ");
    scanf("%d", &a);
    printf("Please enter second number : ");
    scanf("%d", &b);
    d=a/b;
    printf("\nDivision of entered numbers=%d\n",d);
}

void modulus()
{
    int a, b, d=0;
    printf("\nPlease enter first number   : ");
    scanf("%d", &a);
    printf("Please enter second number  : ");
```

```
    scanf("%d", &b);
    d=a%b;
    printf("\nModulus of entered numbers = %d\n",d);
}

void power()
{
    double a,num, p;
    printf("\nEnter two numbers to find the power \n");
    printf("number: ");
    scanf("%lf",&a);

    printf("power : ");
    scanf("%lf",&num);

    p=pow(a,num);

    printf("\n%lf to the power %lf = %lf \n",a,num,p);
}

int factorial()
{
    int i,fact=1,num;

    printf("\nEnter a number to find factorial : ");
    scanf("%d",&num);
```

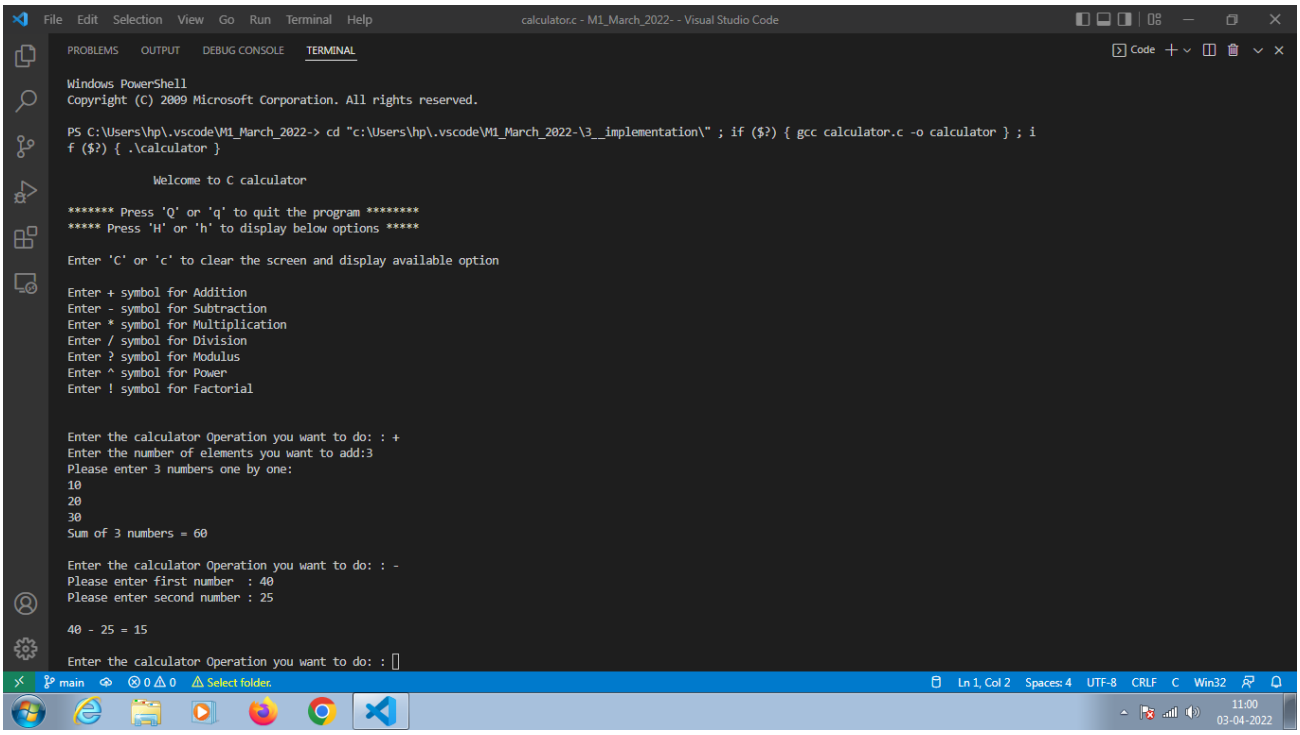
```
    if (num<0)
    {
       printf("\nPlease enter a positive number to");
       printf(" find factorial and try again. \n");
       printf("\nFactorial can't be found for negative");
       printf(" values. It can be only positive or 0  \n");
       return 1;
    }

    for(i=1;i<=num;i++)
    fact=fact*i;
    printf("\n");
    printf("Factorial of entered number %d is:%d\n",num,fact);
    return 0;
}
```

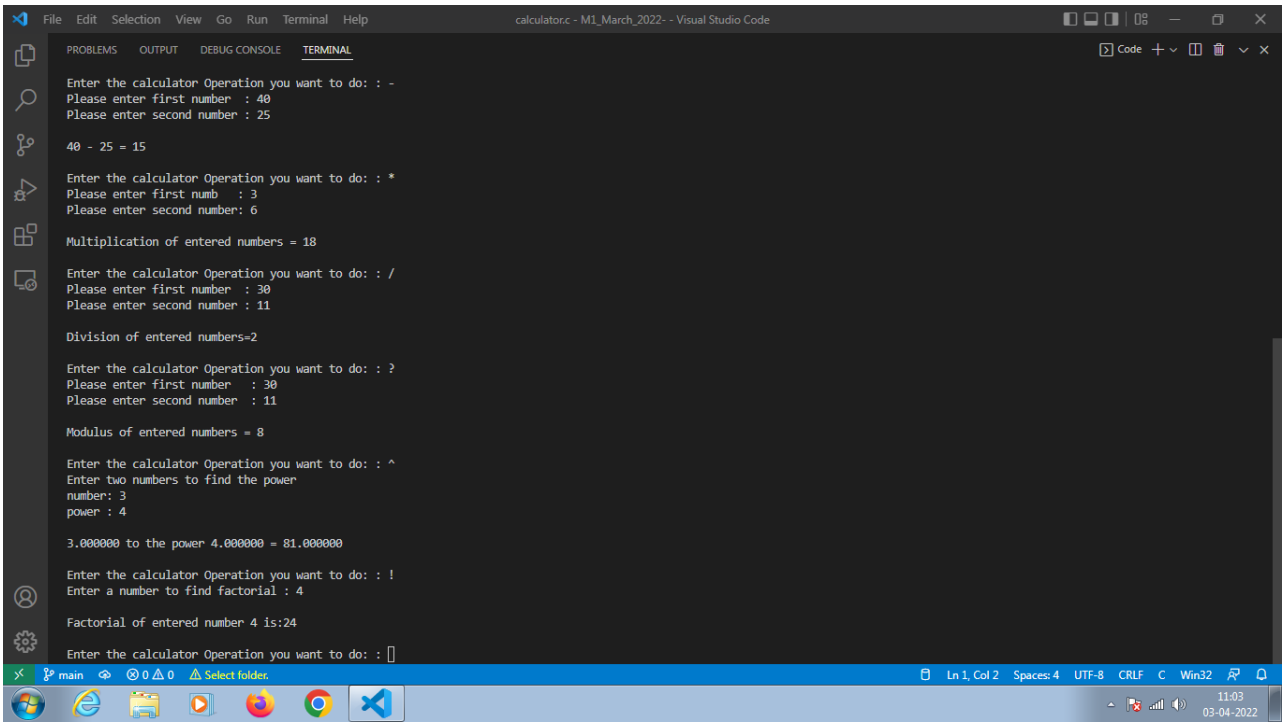



START
INPUT FIRST OPERAND
INPUT OPERATOR
IS OPERATOR REQUIRE SECOND VARIABLE ?
NO
YES
INPUT SECOND OPERAND
DETECTS OPERATOR AND PERFORM MATHEMATICAL OPERATION
DISPLAY RESULT


Input device
Data storage
Arithmetic unit
Control section (Program)

OUTPUT


File Edit Selection View Go Run Terminal Help
calculator.c - M1_March_2022- - Visual Studio Code
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Code
Windows PowerShell
Copyright (C) 2009 Microsoft Corporation. All rights reserved.
PS C:\Users\hp\.vscode\M1_March_2022-> cd "c:\Users\hp\.vscode\M1_March_2022-\3__implementation\" ; if ($?) { gcc calculator.c -o calculator } ; i
f ($?) { .\calculator }
Welcome to C calculator
******* Press 'Q' or 'q' to quit the program ********
***** Press 'H' or 'h' to display below options *****
Enter 'C' or 'c' to clear the screen and display available option
Enter + symbol for Addition
Enter - symbol for Subtraction
Enter * symbol for Multiplication
Enter / symbol for Division
Enter ? symbol for Modulus
Enter ^ symbol for Power
Enter ! symbol for Factorial
Enter the calculator Operation you want to do: : +
Enter the number of elements you want to add:3
Please enter 3 numbers one by one:
10
20
30
Sum of 3 numbers = 60
Enter the calculator Operation you want to do: : -
Please enter first number : 40
Please enter second number : 25
40 - 25 = 15
Enter the calculator Operation you want to do: :
main
Select folder.
Ln 1, Col 2 Spaces: 4 UTF-8 CRLF C Win32
11:00
03-04-2022


File Edit Selection View Go Run Terminal Help
calculator.c - M1_March_2022- - Visual Studio Code
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Code
Enter the calculator Operation you want to do: : -
Please enter first number : 40
Please enter second number : 25
40 - 25 = 15
Enter the calculator Operation you want to do: : *
Please enter first numb : 3
Please enter second number: 6
Multiplication of entered numbers = 18
Enter the calculator Operation you want to do: : /
Please enter first number : 30
Please enter second number : 11
Division of entered numbers=2
Enter the calculator Operation you want to do: : ?
Please enter first number : 30
Please enter second number : 11
Modulus of entered numbers = 8
Enter the calculator Operation you want to do: : ^
Enter two numbers to find the power
number: 3
power : 4
3.000000 to the power 4.000000 = 81.000000
Enter the calculator Operation you want to do: : !
Enter a number to find factorial : 4
Factorial of entered number 4 is:24
Enter the calculator Operation you want to do: :
main
Select folder.
Ln 1, Col 2 Spaces: 4 UTF-8 CRLF C Win32
11:03
03-04-2022