

## **PPS MINI PROJECT**

### **Simple calculator**

#### **Code:**

```
// Calculator example using C code

#include<stdio.h>

#include<conio.h>

#include<math.h>

#include<stdlib.h>

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

// Function prototype declaration

void addition();

void subtraction();

void multiplication();

void division();

void modulus();

void power();

void calculator_operations();

struct display

{

char disp1[50];

char disp2[50];

char disp3[50];

};

// Start of Main Program

int main()
```

```

{ int X=1;

    char Calc_oprn;

    struct display st1={ "*****", "Simple
Calculator", "*****"};

    system("cls");

    printf("\n %s \n %s \n %s", st1.disp1, st1.disp2, st1.disp3);

    getch();

    // Function call

calculator_operations();

    while(X)

    {printf("\n");

        printf("%s", KEY);

//    Calc_oprn = getch();

        scanf("%c", &Calc_oprn);

        switch(Calc_oprn)

        { case '+': addition();

            break;

            case '-': subtraction();

            break;

            case '*': multiplication();

            break;

            case '/': division();

            break;

            case '?': modulus();

            break;

```

```
        case '^': power();
                break;

        case 'Q':

        case 'q': exit(0);
                break;

        case 'c':

        case 'C': system("cls");

                calculator_operations();

                break;

        default : system("cls");

        calculator_operations();

    }

}

return 0;

}

//Function Definitions

void calculator_operations()

{ system("cls");

    printf("\n      Welcome to C calculator \n\n");

    printf("***** Press 'Q' or 'q' to quit ");

    printf("the program *****\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\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);

    printf("Press C or c to clear the screen:");

    getch();

}

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);

printf("Press C or c to clear the screen:");

getch();

}

void multiplication()

{ int a, b, mul=0;

printf("\nPlease enter first number: ");

scanf("%d", &a);

printf("Please enter second number: ");

scanf("%d", &b);

mul=a*b;

printf("\nMultiplication of entered numbers = %d\n",mul);

printf("Press C or c to clear the screen:");

getch();

}

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);
```

```
printf("Press C or c to clear the screen:");
getch();}

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);

printf("Press C or c to clear the screen:");

getch();

}

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);

printf("Press C or c to clear the screen:");

getch();

}
```

Output:

\*\*\*\*\*

Simple Calculator

\*\*\*\*\*

Welcome to C calculator

\*\*\*\*\* Press 'Q' or 'q' to quit the program \*\*\*\*\*

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 the calculator Operation you want to do:+

Enter the number of elements you want to add:10

Please enter 10 numbers one by one:

854

654

952

741

54

68

4

5694

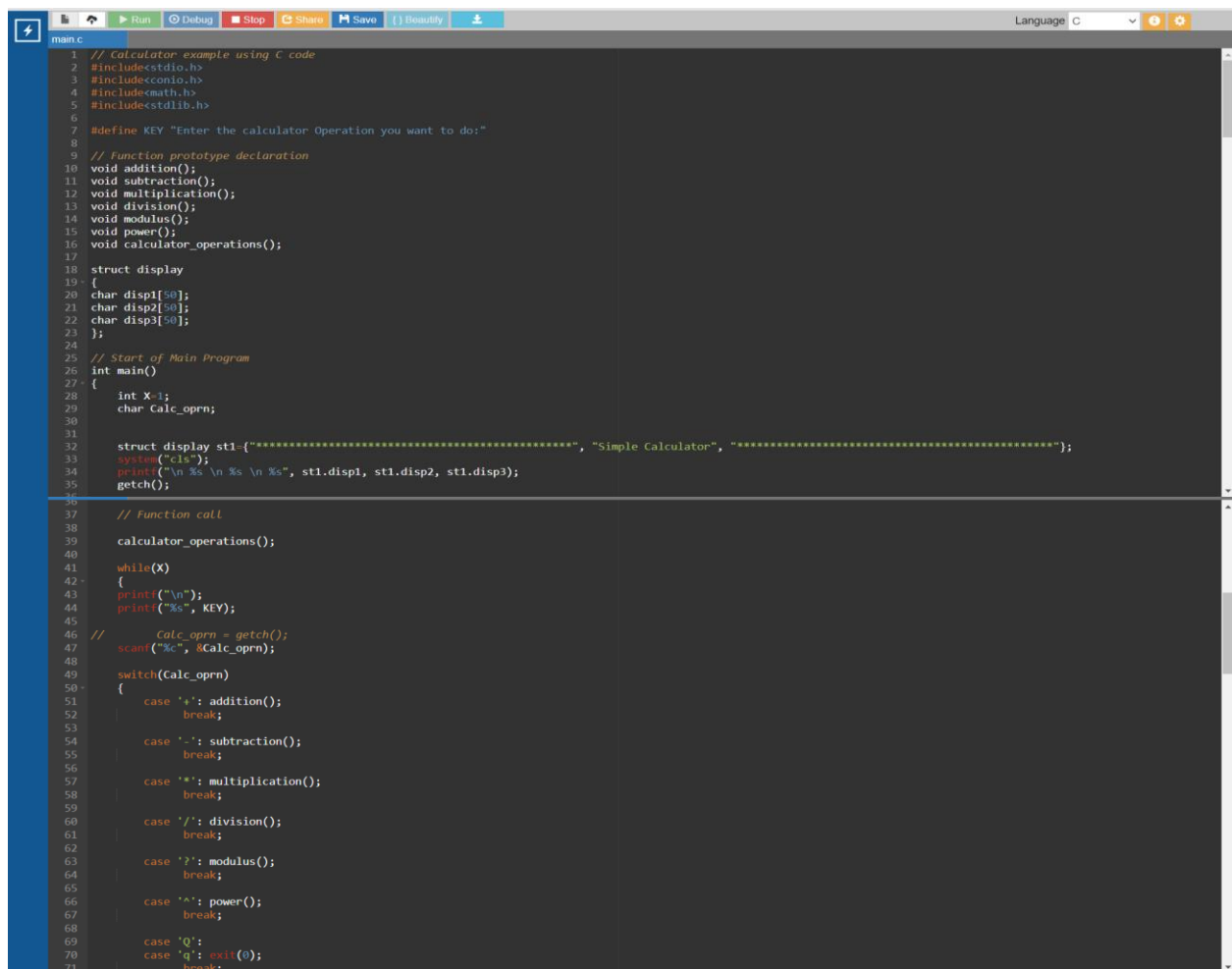
58

45

Sum of 10 numbers = 9124

Press C or c to clear the screen:

Compiler execution:

A screenshot of a C code editor window. The window has a title bar with a lightning bolt icon, a file explorer icon, and a language dropdown set to 'C'. The code is for a simple calculator. It includes headers for stdio, conio, math, and stdlib. It defines a KEY constant and declares several functions: addition, subtraction, multiplication, division, modulus, power, and calculator\_operations. A struct 'display' is defined with three character arrays. The main function starts by clearing the screen and printing a title. It then enters a loop where it prompts the user for an operation and performs it based on a switch statement. The switch cases are: '+' for addition, '-' for subtraction, '\*' for multiplication, '/' for division, '?' for modulus, '^' for power, 'Q' for quit, and 'q' for exit. The code is line-numbered from 1 to 71.

```
1 // Calculator example using C code
2 #include<stdio.h>
3 #include<conio.h>
4 #include<math.h>
5 #include<stdlib.h>
6
7 #define KEY "Enter the calculator Operation you want to do:"
8
9 // Function prototype declaration
10 void addition();
11 void subtraction();
12 void multiplication();
13 void division();
14 void modulus();
15 void power();
16 void calculator_operations();
17
18 struct display
19 {
20     char disp1[50];
21     char disp2[50];
22     char disp3[50];
23 };
24
25 // Start of Main Program
26 int main()
27 {
28     int X=1;
29     char Calc_oprn;
30
31
32     struct display st1={"*****", "Simple Calculator", "*****"};
33     system("cls");
34     printf("\n %s \n %s \n %s", st1.disp1, st1.disp2, st1.disp3);
35     getch();
36
37     // Function call
38     calculator_operations();
39
40     while(X)
41     {
42         printf("\n");
43         printf("%s", KEY);
44
45         // Calc_oprn = getch();
46         scanf("%c", &Calc_oprn);
47
48         switch(Calc_oprn)
49         {
50             case '+': addition();
51                         break;
52             case '-': subtraction();
53                         break;
54             case '*': multiplication();
55                         break;
56             case '/': division();
57                         break;
58             case '?': modulus();
59                         break;
60             case '^': power();
61                         break;
62             case 'Q':
63             case 'q': exit(0);
64                         break;
65
66
67
68
69
70
71
```

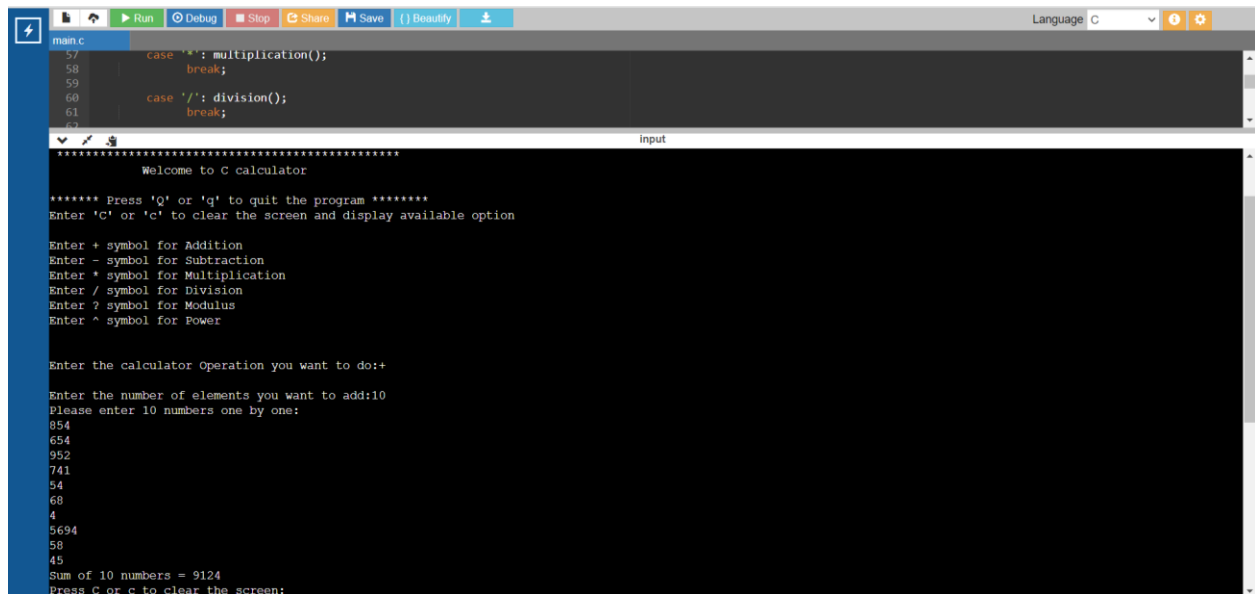


```

72
73     case 'c':
74     case 'C': system("cls");
75         calculator_operations();
76         break;
77
78     default : system("cls");
79
80     calculator_operations();
81
82 }
83 }
84 return 0;
85 }
86
87 //Function Definitions
88
89 void calculator_operations()
90 {
91     system("cls");
92     printf("\n\t\t\t\t\tWelcome to C calculator \n\n");
93     printf("***** Press 'Q' or 'q' to quit ");
94     printf("the program *****\n");
95
96     printf("Enter 'C' or 'c' to clear the screen and");
97     printf("display available option \n\n");
98
99     printf("Enter + symbol for Addition \n");
100    printf("Enter - symbol for Subtraction \n");
101    printf("Enter * symbol for Multiplication \n");
102    printf("Enter / symbol for Division \n");
103    printf("Enter % symbol for Modulus\n");
104    printf("Enter ^ symbol for Power \n\n");
105 }
106
107 void addition()
108 {
109     int n, total=0, k=0, number;
110     printf("\nEnter the number of elements you want to add:");
111     scanf("%d", &n);
112     printf("Please enter %d numbers one by one: \n",n);
113     while(k<n)
114     {
115         scanf("%d",&number);
116         total+=number;
117         k++;
118     }
119     printf("Sum of %d numbers = %d \n",n,total);
120     printf("Press C or c to clear the screen:");
121     getch();
122 }
123
124 void subtraction()
125 {
126     int a, b, c = 0;
127     printf("\nPlease enter first number : ");
128     scanf("%d", &a);
129     printf("Please enter second number : ");
130     scanf("%d", &b);
131     c = a - b;
132     printf("\n%d - %d = %d\n", a, b, c);
133     printf("Press C or c to clear the screen:");
134     getch();
135 }
136
137 void multiplication()
138 {
139     int a, b, mul=0;
140     printf("\nPlease enter first number: ");
141     scanf("%d", &a);
142     printf("Please enter second number: ");
143     scanf("%d", &b);
144     mul=a*b;
145     printf("\nMultiplication of entered numbers = %d\n",mul);
146     printf("Press C or c to clear the screen:");
147     getch();
148 }
149
150 void division()
151 {
152     int a, b, d=0;
153     printf("\nPlease enter first number: ");
154     scanf("%d", &a);
155     printf("Please enter second number: ");
156     scanf("%d", &b);
157     d=a/b;
158     printf("\nDivision of entered numbers=%d\n",d);
159     printf("Press C or c to clear the screen:");
160     getch();
161 }
162
163 }
164
165 void modulus()
166 {
167     int a, b, d=0;
168     printf("\nPlease enter first number: ");
169     scanf("%d", &a);
170     printf("Please enter second number: ");
171     scanf("%d", &b);
172     d=a%b;
173     printf("\nModulus of entered numbers = %d\n",d);
174     printf("Press C or c to clear the screen:");
175     getch();
176 }
177
178 }
179
180 void power()
181 {
182     double a,num, p;
183     printf("\nEnter two numbers to find the power \n");
184     printf("number: ");
185     scanf("%lf",&a);
186
187     printf("power : ");
188     scanf("%lf",&num);
189
190     p=pow(a,num);
191
192     printf("\n%lf to the power %lf = %lf \n",a,num,p);
193     printf("Press C or c to clear the screen:");
194     getch();
195 }

```

Output ;



```
main.c
57 case '*': multiplication();
58 break;
59
60 case '/': division();
61 break;
62

input
*****
Welcome to C calculator

***** Press 'Q' or 'q' to quit the program *****
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 the calculator Operation you want to do: +

Enter the number of elements you want to add: 10
Please enter 10 numbers one by one:
854
654
952
741
54
68
4
5694
58
45
Sum of 10 numbers = 9124
Press C or c to clear the screen:
```