

PPS MINI PROJECT

SIMPLE CALCULATOR

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The purpose of this program is to quickly calculate numbers. This program would be able to perform operations such as addition, subtraction, multiplication, division, power of a number, finding remainders etc.

In this program we have used structure, switch cases, while loop, functions.

The program is divided into two parts:

Getting input of the following details from user:

- 1) Operator to be used
 - +(addition)
 - -(subtraction)
 - *(multiplication)
 - /(division)
 - ?(modulus)
 - ^(power)
- 2) Numbers to calculate. User will input the numbers using the interface

Results will be displayed on the screen.

This calculation can be done multiple times. If the user wants to calculate again they can clear the screen using the character c and calculate.

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("clear");
```

```
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("clear");
        calculator_operations();
        break;

    default :
        system("clear");
        calculator_operations();

    }
}

return 0;
}
```

//Function Definitions

```
void calculator_operations()
{
    system("clear");
```

```

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:");
    scanf("%d",&n);
    //  getch();
}

```

```
void subtraction()
{
    int n, 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:");
    scanf("%d",&n);
    // getch();

}
```

```
void multiplication()
{
    int n, 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:");
    scanf("%d",&n);
    // getch();

}
```

```
void division()
{
```

```
    int n, 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:");
    scanf("%d",&n);
    //  getch();
```

```
}
```

```
void modulus()
```

```
{
    int n, 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:");
    scanf("%d",&n);
    //  getch();
```

```
}
```

```
void power()
```

```
{
    double n, 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:");
```

```
scanf("%d",&n);
```

```
// getch();
```

```
}
```


ONLINE C COMPLIER:

```
main.c
9 // Calculator example using C code
10 #include<stdio.h>
11 #include<conio.h>
12 #include<math.h>
13 #include<stdlib.h>
14
15 #define KEY "Enter the calculator Operation you want to do:"
16
17 // Function prototype declaration
18 void addition();
19 void subtraction();
20 void multiplication();
21 void division();
22 void modulus();
23 void power();
24 void calculator_operations();
25
26 struct display
27 {
28     char disp1[50];
29     char disp2[50];
30     char disp3[50];
31 };
32
33 // Start of Main Program
34 int main()
```

```
main.c
35 {
36     int X=1;
37     char Calc_oprn;
38
39
40     struct display st1={"*****", "Simple Calculator", "*****"};
41     system("clear");
42     printf("\n %s \n %s \n %s", st1.disp1, st1.disp2, st1.disp3);
43     getch();
44
45     // Function call
46
47     calculator_operations();
48
49     while(X)
50     {
51         printf("\n");
52         printf("%s", KEY);
53
54         // Calc_oprn = getch();
55         scanf("%c", &Calc_oprn);
56
57         switch(Calc_oprn)
58         {
59             case '+': addition();
60                     break;
61
62             case '-': subtraction();
63                     break;
64
65             case '*': multiplication();
66                     break;
67
68             case '/': division();
69                     break;
70
71 }
```

```
main.c
70
71     case '?': modulus();
72         break;
73
74     case '^': power();
75         break;
76
77     case 'Q':
78     case 'q': exit(0);
79         break;
80
81     case 'c':
82     case 'C':
83         system("clear");
84         calculator_operations();
85         break;
86
87     default :
88         system("clear");
89         calculator_operations();
90
91 }
92 }
93 return 0;
94 }
95
96 //Function Definitions
97
98 void calculator_operations()
99 {
100     system("clear");
101     printf("\n      Welcome to C calculator \n\n");
102     printf("***** Press 'Q' or 'q' to quit ");
103     printf("the program *****\n");
104
105     printf("Enter 'C' or 'c' to clear the screen and");
```

```
main.c
105     printf("Enter 'C' or 'c' to clear the screen and");
106     printf(" display available option \n\n");
107
108     printf("Enter + symbol for Addition \n");
109     printf("Enter - symbol for Subtraction \n");
110     printf("Enter * symbol for Multiplication \n");
111     printf("Enter / symbol for Division \n");
112     printf("Enter ? symbol for Modulus\n");
113     printf("Enter ^ symbol for Power \n\n");
114 }
115
116 void addition()
117 {
118     int n, total=0, k=0, number;
119     printf("\nEnter the number of elements you want to add:");
120     scanf("%d", &n);
121     printf("Please enter %d numbers one by one: \n",n);
122     while(k<n)
123     {
124         scanf("%d",&number);
125         total=total+number;
126         k=k+1;
127     }
128     printf("Sum of %d numbers = %d \n",n,total);
129     printf("Press C or c to clear the screen:");
130     scanf("%d",&n);
131     //    getch();
132 }
133
134 void subtraction()
135 {
136     int n, a, b, c = 0;
137     printf("\nPlease enter first number : ");
138     scanf("%d", &a);
139     printf("Please enter second number : ");
140     scanf("%d", &b);
```

```

main.c
141     c = a - b;
142     printf("\n%d - %d = %d\n", a, b, c);
143     printf("Press C or c to clear the screen:");
144     scanf("%d",&n);
145     // getch();
146
147 }
148
149 void multiplication()
150 {
151     int n, a, b, mul=0;
152     printf("\nPlease enter first number: ");
153     scanf("%d", &a);
154     printf("Please enter second number: ");
155     scanf("%d", &b);
156     mul=a*b;
157     printf("\nMultiplication of entered numbers = %d\n",mul);
158     printf("Press C or c to clear the screen:");
159     scanf("%d",&n);
160     // getch();
161 }
162
163 void division()
164 {
165     int n, a, b, d=0;
166     printf("\nPlease enter first number: ");
167     scanf("%d", &a);
168     printf("Please enter second number: ");
169     scanf("%d", &b);
170     d=a/b;
171     printf("\nDivision of entered numbers=%d\n",d);
172     printf("Press C or c to clear the screen:");
173     scanf("%d",&n);
174     // getch();
175
176 }

```

```

main.c
175
176 }
177
178 void modulus()
179 {
180     int n, a, b, d=0;
181     printf("\nPlease enter first number: ");
182     scanf("%d", &a);
183     printf("Please enter second number: ");
184     scanf("%d", &b);
185     d=a%b;
186     printf("\nModulus of entered numbers = %d\n",d);
187     printf("Press C or c to clear the screen:");
188     scanf("%d",&n);
189     // getch();
190
191 }
192
193
194 void power()
195 {
196     double n, a,num, p;
197     printf("\nEnter two numbers to find the power \n");
198     printf("number: ");
199     scanf("%lf",&a);
200
201     printf("power : ");
202     scanf("%lf",&num);
203
204     p=pow(a,num);
205
206     printf("\n%lf to the power %lf = %lf \n",a,num,p);
207     printf("Press C or c to clear the screen:");
208     scanf("%d",&n);
209     // getch();
210 }

```

OUTPUT:

```
main.c input
Enter the calculator Operation you want to do:
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 two numbers to find the power
number: 2
power : 3

2.000000 to the power 3.000000 = 8.000000
Press C or c to clear the screen:
```