

A REPORT ON C – PROGRAMMING PROJECT ON “CALCULATOR”

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PROJECT SUMMARY

1) INTRODUCTION:

Ever since, tedious mathematical problems in the organization is not a simple one, that is to say, the process can be said to involve a lot of procedures or protocols which ranges from insertion of figures for tedious calculation, processing of numbers and retrieval of errors. However, because of this, there is the need to accomplish an extensive research to discover the intricacies involved in the entire process. So, we decided to embark on this work design. Computer have gone from being fantasies of science, fiction of realities of everyday life, especially in the offices, school (educational organization). This work is a research aimed at solving the problems mentioned below. When this system will be executed, it will give solutions for tedious and sophisticated problems,

● PROBLEM STATEMENT

There are several kinds of problems in solving arithmetic operation with simple calculator. So, we identified some common problem in computation of numbers: -

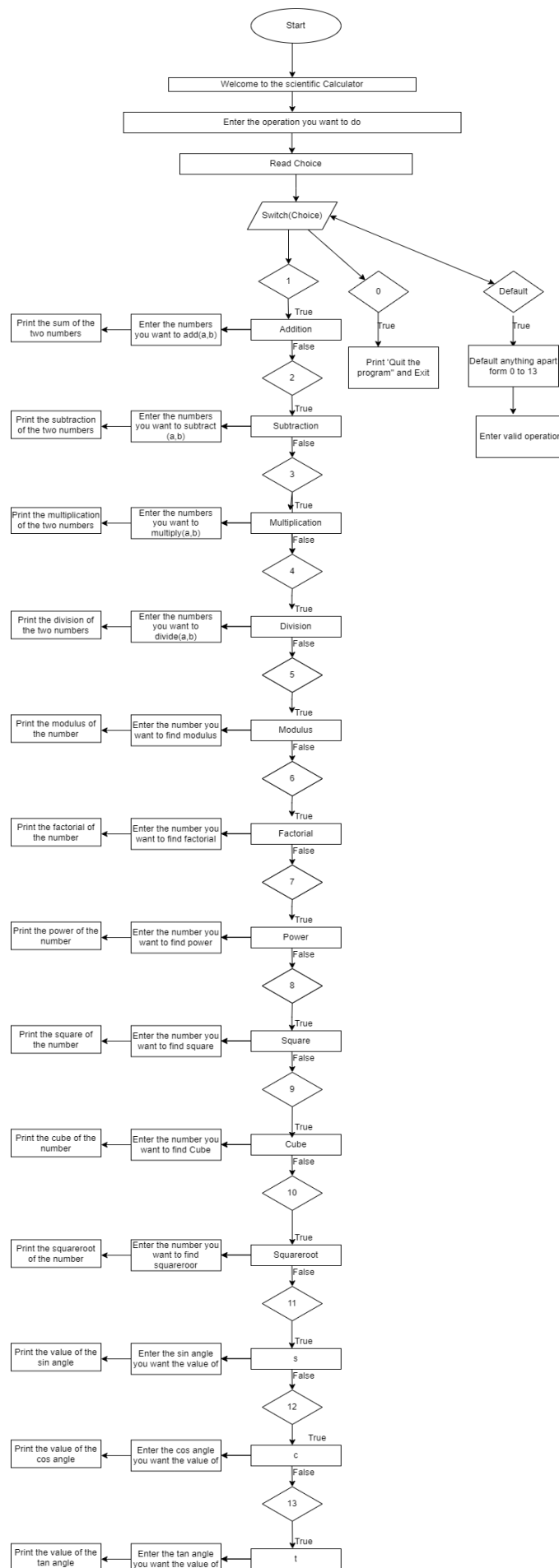
- i. low and slow speed of the calculator.
- ii. Inappropriate representation of data.
- iii. Loss of figure in computation of higher numbers.
- iv. Inability of handling complex arithmetic operation.

● **OBJECTIVES:**

This product will be tested based on the following objectives: -

- ii. To improve the speed of simple calculator in such a way that it will reduce complexity in solving with simple calculator.
- iii. To design a simple calculator that ensure timely processing.
- v. And finally, to reduce the problems immensely and provides a release working environment.

2) FLOWCHART:



3) TECHNICAL DETAILS (Coding):

```
1)  #include<stdio.h>
2)  #include<stdlib.h>
3)  #include<math.h>
4)
5)  void addition();
6)  void subtraction();
7)  void multiplication();
8)  void division();
9)  void modulus();
10) void factorial();
11) void power();
12) void square();
13) void cube();
14) void squareroot();
15) void s();
16) void c();
17) void t();
18)
19) int main(){
20)     printf("\t\tWelcome to the scientific calculator!!\n\n");
21)     int choice;
22)     printf("\n*** Press 0 to quit the program ****\n");
23)     printf("Enter 1 for Addition \n");
24)     printf("Enter 2 for Subtraction \n");
25)     printf("Enter 3 for Multiplication \n");
26)     printf("Enter 4 for Division \n");
27)     printf("Enter 5 for Modulus\n");
28)     printf("Enter 6 for Power \n");
29)     printf("Enter 7 for Factorial \n");
30)     printf("Enter 8 for Square \n");
31)     printf("Enter 9 for Cube \n");
32)     printf("Enter 10 for Squareroot\n");
33)     printf("Enter 11 for Sin value\n");
34)     printf("Enter 12 for Cos value\n");
35)     printf("Enter 13 for Tan value\n\n");
36)
37)     while(1){
38)         printf("\n\nEnter the operation you want to do: ");
39)         scanf("%d",&choice);
40)         switch(choice)
41)         {
42)             case 1:
43)                 addition();
44)                 break;
45)             case 2:
```

```
46)         subtraction();
47)         break;
48)     case 3:
49)         multiplication();
50)         break;
51)     case 4:
52)         division();
53)         break;
54)     case 5:
55)         modulus();
56)         break;
57)     case 6:
58)         power();
59)         break;
60)     case 7:
61)         factorial();
62)         break;
63)     case 8:
64)         square();
65)         break;
66)     case 9:
67)         cube();
68)         break;
69)     case 10:
70)         squareroot();
71)         break;
72)     case 11:
73)         s();
74)         break;
75)     case 12:
76)         c();
77)         break;
78)     case 13:
79)         t();
80)         break;
81)     case 0:
82)         exit(0);
83)     default:
84)         printf("Enter the valid operation");
85)     }
86)
87) }
88) return 0;
89) }
90)
91) void addition(){
92)     printf("Enter the numbers you want to add: ");
93)     int a,b;
94)     scanf("%d%d",&a,&b);
95)     printf("The sum of a and b is %d\n",a+b);
96) }
97) void subtraction(){
98)     printf("Enter the numbers you want to subtract: ");
99)     int a,b;
```



```
100)     scanf("%d%d",&a,&b);
101)     printf("The subtraction of a and b is %d\n",a-b);
102) }
103) void multiplication(){
104)     printf("Enter the numbers you want to multiply: ");
105)     int a,b;
106)     scanf("%d%d",&a,&b);
107)     printf("The multiplication of a and b is %d\n",a*b);
108) }
109) void division(){
110)     printf("Enter the numbers you want to divide: ");
111)     int a,b;
112)     scanf("%d%d",&a,&b);
113)     printf("The division of a and b is %f\n",(float)a/(float)b);
114) }
115) void modulus(){
116)     printf("Enter the numbers you want to find modulus of: ");
117)     int a,b;
118)     scanf("%d%d",&a,&b);
119)     printf("The modulus of a and b is %d\n",a%b);
120) }
121) void factorial(){
122)     int n,factorial;
123)     printf("Enter the number you want the factorial of: ");
124)     scanf("%d",&n);
125)     factorial=1;
126)     for(int i=1;i<=n;i++){
127)         factorial=factorial*i;
128)     }
129)     printf("\nFactorial of %d is %d",n,factorial);
130) }
131) void power(){
132)     double b;
133)     double p;
134)     printf("Enter the base and the power: ");
135)     scanf("%lf%lf",&b,&p);
136)     double e=pow(b,p);
137)     printf("The power is %lf",e);
138) }
139) void square(){
140)     double b;
141)     printf("Enter the number you want the square of: ");
142)     scanf("%lf",&b);
143)     double p=pow(b,2);
144)     printf("The square of %lf is %lf",b,p);
145) }
146) void cube(){
147)     double b;
148)     printf("Enter the number you want the cube of: ");
149)     scanf("%lf",&b);
150)     double p=pow(b,3);
151)     printf("The cube of %lf is %lf",b,p);
152) }
153) void squareroot(){
```

```
154)     double b;
155)     printf("Enter the number you want the square root of : ");
156)     scanf("%lf",&b);
157)     double s = sqrt(b);
158)     printf("The square root of %lf is %lf",b,s);
159) }
160) void s(){
161)     float a,b;
162)     printf("Enter sin angle you want the value of : ");
163)     scanf("%f",&a);
164)     b=sin(a);
165)     printf("\tsin %.0f = %.2f",a,b);
166) }
167) void c(){
168)     float a,b;
169)     printf("Enter cos angle you want the value of : ");
170)     scanf("%f",&a);
171)     b=cos(a);
172)     printf("\tcos %.0f = %.2f",a,b);
173) }
174) void t(){
175)     float a,b;
176)     printf("Enter tan angle you want the value of : ");
177)     scanf("%f",&a);
178)     b=tan(a);
179)     printf("\ttan %.0f = %.2f",a,b);
180) }
181)
```

4) OUTPUT:

Welcome to the scientific calculator!!

```
*** Press 0 to quit the program ****
Enter 1 for Addition
Enter 2 for Subtraction
Enter 3 for Multiplication
Enter 4 for Division
Enter 5 for Modulus
Enter 6 for Power
Enter 7 for Factorial
Enter 8 for Square
Enter 9 for Cube
Enter 10 for Squareroot
Enter 11 for Sin value
Enter 12 for Cos value
Enter 13 for Tan value

Enter the operation you want to do: 1
Enter the numbers you want to add: 3
5
The sum of a and b is 8

Enter the operation you want to do: 2
Enter the numbers you want to subtract: 2 1
The subtraction of a and b is 1

Enter the operation you want to do: 3
Enter the numbers you want to multiply: 3 4
The multiplication of a and b is 12

Enter the operation you want to do: 4
Enter the numbers you want to divide: 4 2
The division of a and b is 2.000000

Enter the operation you want to do: 5
Enter the numbers you want to find modulus of: 5 6
The modulus of a and b is 5

Enter the operation you want to do: 6
Enter the base and the power: 5 6
The power is 15625.000000
```

Enter the operation you want to do: 6

Enter the base and the power: 5 6

The power is 15625.000000

Enter the operation you want to do: 7

Enter the number you want the factorial of: 5

Factorial of 5 is 120

Enter the operation you want to do: 8

Enter the number you want the square of: 2

The square of 2.000000 is 4.000000

Enter the operation you want to do: 9

Enter the number you want the cube of: 3

The cube of 3.000000 is 27.000000

Enter the operation you want to do: 10

Enter the number you want the square root of : 4

The square root of 4.000000 is 2.000000

Enter the operation you want to do: 11

Enter sin angle you want the value of : 35

sin 35 = -0.43

Enter the operation you want to do: 12

Enter cos angle you want the value of : 35

cos 35 = -0.90

Enter the operation you want to do: 13

Enter tan angle you want the value of : 35

tan 35 = 0.47

Enter the operation you want to do: 0

REFERENCES:

1) LINKS FOR DIFFERENT SITES FROM WHERE WE LEARNED BASIC CONCEPTS:

<https://www.geeksforgeeks.org/>

<https://www.tutorialspoint.com/index.htm>

<https://www.codingninjas.com/>

2) NAMES OF DIFFERENT BOOKS FROM WHERE WE DID SOME PRACTISE TO BRUSH OUR BASIC CONCEPTS:

- * Programming with C | 4th Edition (Scha's Outlines) By Byron 5 Gottfried
- * The C Programming Language (2 Edition) By Brian Kemighan and Dennis Ritchie