C PROGRAMMING PROJECT REPORT

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PROJECT REPORT SUBMITTED IN PARTIAL FULFILMENT

OF THE

REQUIREMENTS FOR THE SECOND SEMESTER

SCIENTIFIC CALCULATOR USING C LANGUAGE

Accordingly, this project aims to develop source code in the form of a computer program. i.e. C that a scientific calculator could use to computer functions such as square root, modulus, addition, division, substraction, cube, multiplication etc.

Variables:

- `choice`: an integer variable that holds the user's choice of operation.

- `a`, `b`: integer or float variables that hold the input values for mathematical operations.

- `factorial`: an integer variable that holds the result of factorial calculation.

- `b`, `p`, `e`: double variables used for power, square, cube, and square root operations.

Functions:

- `addition()`: accepts two integers as input and prints their sum.

- `subtraction()`: accepts two integers as input and prints their difference.

- `multiplication()`: accepts two integers as input and prints their product.

- `division()`: accepts two floats as input and prints their quotient.

- `modulus()`: accepts two integers as input and prints their modulus.

- `factorial()`: accepts an integer as input and prints its factorial.

- `power()`: accepts two double values as input, calculates the power of the base to the exponent and prints the result.

- `square()`: accepts a double value as input, calculates its square and prints the result.

- `cube()`: accepts a double value as input, calculates its cube and prints the result.

- `squareroot()`: accepts a double value as input, calculates its square root and prints the result.

Files and datasets:

- There are no files or datasets involved in this code.

Features: This is a basic scientific calculator program that performs various mathematical operations. It provides a menu-driven interface to the user to select the operation they want to perform. The code uses switch statements to select and execute the appropriate operation based on the user's input. The program includes functions to perform each operation, which helps to keep the code modular and easy to read.

CODE

```c
#include <stdio.h>

#include <stdlib.h>

#include <math.h>


#define note "Enter a valid Operator"

void addition();

void substraction();

void multiplication();

void division();

void modulus();

void factorial();

void power();

void square();

void cube();

void squareroot();

int func(int ,int ,char );

int main(){

    printf("\t\tWelcome to the Scientific Calculator!!\n\n");

    int choice;

    printf("\n**Press 0 to Quit the program**\n");

    printf("Enter 1 for Addition\n");

    printf("Enter 2 for Subtraction\n");

    printf("Enter 3 for Multiplication\n ");

    printf("Enter 4 for Division\n ");

    printf("Enter 5 for Modulus\n");

    printf("Enter 6 for Factorial\n");

    printf("Enter 7 for Power\n");

    printf("Enter 8 for Factorial\n ");

    printf("Enter 9 for cube\n");

    printf("Enter 10 for Squareroot\n");

    while (1)
    {

        printf("\n\nEnter the operation you want to do:");

        scanf("%d",&choice);

        switch (choice)
        {
```

```c
        case 1:
            addition();
            break;
        case 2:
            substraction();
            break;
        case 3:
            multiplication();
            break;
        case 4:
            division();
            break;
        case 5:
            modulus();
            break;
        case 6:
            factorial();
            break;
        case 7:
            power();
        break;
        case 8:
            factorial();
            break;
        case 9:
            cube();
        break;
        case 10:
            squareroot();
            break;
        case 0:
        exit(0);
        break;
        default:
            printf("\n******%s******\n",note);


        }
```

```c
    }
    return 0;
}
void addition(){
    printf("Enter the number you want to add: ");
    int a,b;
    scanf("%d%d",&a,&b);
    printf("The sum of a and  is %d\n",a+b);
}
void substraction(){
    printf("Enter the number you subsract:");
    int a,b;
    scanf("%d%d",&a,&b);
    printf("The subscracted values is %d\n",a-b);


}
void multiplication(){
    printf("Enter the number you want to Multiply:");
    int a,b;
    scanf("%d%d",&a,&b);
    printf("The multiple value is %d\n",a*b);
}
void division(){
    printf("Enter the number you want to division: ");
    float a,b;
    scanf("%f%f", &a,&b);
    printf("The divided values is %f\n",a/b);
}
void modulus(){
    printf("Enter the number to find the modulus of :");
    int a,b;
    scanf("%d%d",&a,&b);
    printf("The modulus of a and b is %d\n",a%b);
}
void factorial(){
    printf("Enter the number of which you want to find the factorial: ");
    int n;
    scanf("%d",&n);
```

```c
    int factorial=1;
    for(int i=1;i<=n;i++){
        factorial=factorial*i;
    }
    printf("\nFactorial of %d is %d",n,factorial);
}
void power(){
    double b;
    double p;
    printf("Enter the base  and the power: ");
    scanf("%lf%lf",&b,&p);
    double e= pow(b,p);
    printf("The power is %lf",e);
}
void square(){
    double b;
    printf("Enter the number you want to square: ");
    scanf("%lf",&b);
    double p=pow(b,2);
    printf("The square of the %lfis %lf",b,p);
}
void cube(){
    double b;
    printf("Enter the number you want to cube: ");
    scanf("%lf",&b);
    double p=pow(b,3);
    printf("The cube of the %lfis %lf",b,p);
}
void squareroot(){
    double b;
    printf("Enter the number you want to squareroot: ");
    scanf("%lf",&b);
    double p=sqrt(b);
    printf("The squareroot of the %lfis %lf",b,p);
```

SCREENSHOTS OF OUTPUTS -

```
                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 Factorial
Enter 7 for Power
Enter 8 for Factorial
 Enter 9 for cube
Enter 10 for Squareroot


Enter the operation you want to do:█
```

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL


Enter 2 for Subtraction
Enter 3 for Multiplication
 Enter 4 for Division
 Enter 5 for Modulus
Enter 6 for Factorial
Enter 7 for Power
Enter 8 for Factorial
 Enter 9 for cube
Enter 10 for Squareroot


Enter the operation you want to do:4
Enter the number you want to division: 50 10
The divided values is 5.000000


Enter the operation you want to do:█
```

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL


Enter 6 for Factorial
Enter 7 for Power
Enter 8 for Factorial
 Enter 9 for cube
Enter 10 for Squareroot


Enter the operation you want to do:4
Enter the number you want to division: 50 10
The divided values is 5.000000


Enter the operation you want to do:7
Enter the base  and the power: 3 9
The power is 19683.000000

Enter the operation you want to do:█
```

```
Enter 10 for Squareroot


Enter the operation you want to do:4
Enter the number you want to division: 50 10
The divided values is 5.000000


Enter the operation you want to do:7
Enter the base  and the power: 3 9
The power is 19683.000000

Enter the operation you want to do:10
Enter the number you want to squareroot: 144
The squareroot of the 144.000000is 12.000000

Enter the operation you want to do:█
```