***PROGRAMING AND PROBLEM SOLVING***

***MINI PROJECT***

TOPIC:

CALCULATOR

**BRANCH:** BIOTECHNOLOGY

**SECTION:** A

**GROUP NUMBER:** 3

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**INTRODUCTION:**

We'll look at how to develop a calculator programme in the C programming language in this article. A calculator is a compact electronic device that performs arithmetic operations such as addition, subtraction, multiplication, division, and percentage calculations. It simplifies and expedites our calculations. It is a portable device that may be used to do basic mathematical calculations anywhere. In some cases, we employ a scientific or advanced calculator to solve difficult calculations such as trigonometry functions, exponential operators, degrees, radians, log functions, hyperbolic functions, and so on. Let's look at the many approaches to writing a calculator application in C.

**INPUT:**

#include <stdio.h>

// #include <conio.h>

// Some of us does not use conio.h because it is a header used in ancient,

// outdated compilers like Turbo C and it is not either part of the standard C library.

#include <math.h> // declares a set of functions to perform mathematical operations

#include <stdlib.h> // including the c standard library

int addition();

int subtract();

int multiply();

int divide();

int sq();

int fac();

int sqrt1();

void exit();

int main()

{

int op;

do // initiation of the do while loop

{

printf (" Select an operation to perform the calculation in C Calculator: ");

printf (" \n 1 Addition \t \t 2 Subtraction \n 3 Multiplication \t 4 Division \n 5 Square \t \t 6 Square Root \n 7 Factorial \t \t 8 Exit \n \n Please, Make a choice ");

scanf ("%d", &op); // input to be taken from the user

switch (op) // based on the input the compiler will decide which code to run

{

case 1:

addition();

break; // optional statement

// break is a optional statement but if we don't use it then all the cases will be executed till it finds a break statement

case 2:

subtract();

break;

case 3:

multiply();

break;

case 4:

divide();

break;

case 5:

sq();

break;

case 6:

sqrt1();

break;

case 7:

fac();

break;

case 8:

exit(0); // here the program is terminated if we choose 8, it is a c standard library function

break;

// exit(0) indicates the successful termination of the program i.e the program has been terminated without any error

// or difficulty

// exit(1) indicates that there has been a error in the termination of the program i.e the program will not bee successfully terminated.

default: // if none of the above number is choosen then this code will run by default

printf(" The operation you choosed does not exist!! ");

break;

}

printf (" \n \n \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* \n ");

} while (op != 8);

return 0;

}

int addition()

{

int i, sum = 0, num, f\_num;

printf (" How many numbers you want to add: ");

scanf ("%d", &num);

printf (" Enter the numbers: \n ");

for (i = 1; i <= num; i++)

{

printf("Enter the %d Number-",i);

scanf(" %d", &f\_num); // f\_num is the number that we will enter and that number will be added to the sum

sum = sum + f\_num; // the loop will go on executing till the condition is satisfied and the sum will be adding up

}

printf (" Total Sum of the numbers = %d", sum);

return 0;

}

int subtract()

{

int n1, n2, res;

printf (" The first number is: ");

scanf (" %d", &n1);

printf (" The second number is: ");

scanf (" %d", &n2);

res = n1 - n2;

printf (" The subtraction of %d - %d is: %d", n1, n2, res);

}

int multiply()

{

int number, times,res;

res=1;

printf (" How many numbers you want to multiply: ");

scanf("%d",&times);

for (int i=1;i<=times;i++)

{

printf("Enter the %d Number-",i);

scanf("%d",&number);

res = res\*number;

}

// end result will be stored in the res variable and then it will be printed

printf ("The multiply of the numbers is %d ", res);

}

int divide()

{

float n1, n2, res;

printf (" The first number is: ");

scanf (" %f", &n1);

printf (" The second number is: ");

scanf (" %f", &n2);

if (n2 == 0)

{

printf (" \n Divisor cannot be zero. Please enter another value ");

scanf ("%f", &n2);

}

res = n1 / n2;

printf (" \n The division of %f / %f is: %f", n1, n2, res);

}

int sq()

{

int n1, res;

printf (" Enter a number to get the Square: ");

scanf (" %d", &n1);

res = pow(n1,2);

printf (" \n The Square of %d is: %d", n1, res);

}

int sqrt1()

{

float res;

float n1;

printf (" Enter a number to get the Square Root: ");

scanf (" %f", &n1);

res = sqrt(n1); // standard c library function sqrt

printf (" \n The Square Root of %f is: %f", n1, res);

}

int fac()

{

int i,fact=1,number;

printf("Enter a Number to get the Factorial-");

scanf("%d",&number);

for(i=1;i<=number;i++){

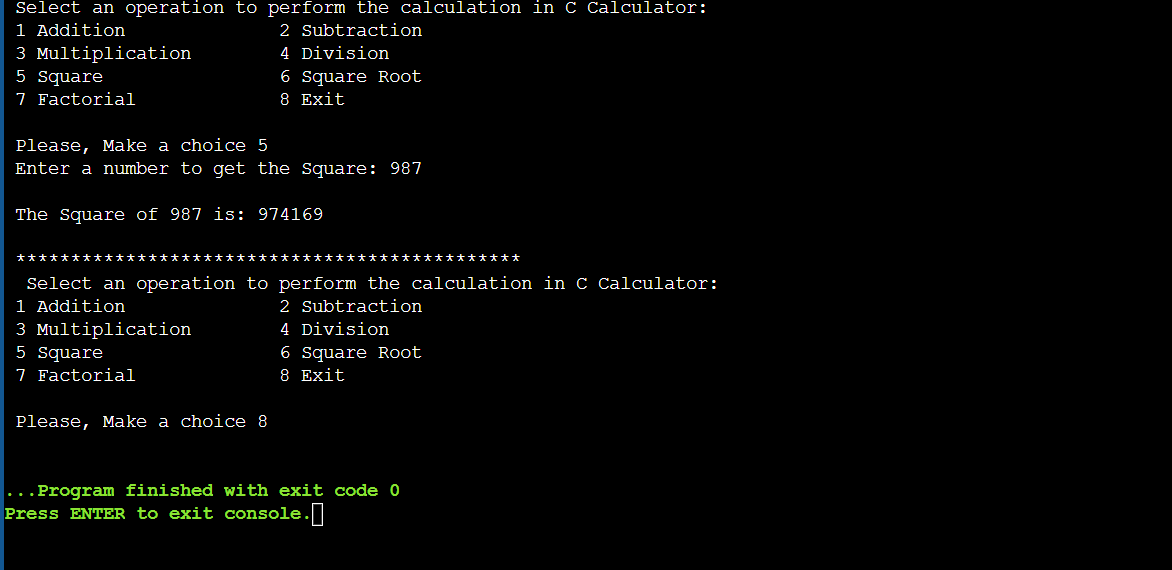
fact=fact\*i;

}

printf("Factorial of %d is: %d",number,fact);

}

**OUTPUT:**

****