```c
/*
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Lab #4
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Description: This program create a simulation of a calculator
*/

#include<stdio.h>
void main()
{
        int add(),sub(),mult(),div(),mod(),testprime(),fact();
        // setting up the 6 functions
        int o,l=1;
        while(l)
         // Loop expression that never become false
{

        printf("\n\n Please choose an option from the following: \n1)Addition \n2)Subtraction \n3)Multiplication \n4)Division \n5)Modulus \n6)
TestPrime \n7)Factorials \n8)Power \n9)Fibonacci Series \n10)Exit ");
        scanf("%d",&o);
        switch(o)
{
        case 1:
        add();
        break;
        // calling addition function

        case 2:
        sub();
        break;
        // calling subtraction function

        case 3:
        mult();
        break;
        // calling multiplication function

        case 4:
        div();
        break;
        // calling division function

        case 5:
        mod();
        break;
        // calling modulus function

        case 6:
        testprime();
        break;
        // calling test prime function

        case 7:
        fact();
        break;
        // calling factorial function

        case 8:
        power();
        break;
        // calling power function

        case 9:
        fib();
        break;
        // calling fibonacci function

default:
l=0;
printf("Good Bye! \n");
break;
// Terminates the program due to the loop
}
}
}
int add() // Addition function
{
        int a,b,c;
        printf("Enter 1st number: \n");
        scanf("%d",&a);
        printf("Enter 2nd number: \n");
        scanf("%d",&b);
        c=a+b;
        printf("%d + %d = %d",a,b,c);
        getchar();
        return(0);
```

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}
int sub() // Subtraction function
{
    int a,b,c;
        printf("Enter 1st number: \n");
        scanf("%d",&a);
        printf("Enter 2nd number: \n");
        scanf("%d",&b);
        c=a-b;
        printf("%d - %d = %d",a,b,c);
        getchar();
        return(0);
}
int mult() // Multiplication function
{
        int a,b,c;
        printf("Enter 1st number: \n");
        scanf("%d",&a);
        printf("Enter 2nd number: \n");
        scanf("%d",&b);
        c=a*b;
        printf("%d X %d = %d",a,b,c);
        getchar();
        return(0);
}
int div() // Division function
{
        int a,b,c;
        printf("Enter 1st number: \n");
        scanf("%d",&a);
        printf("Enter 2nd number: \n");
        scanf("%d",&b);
        c=a/b;
        printf("%d / %d = %d",a,b,c);
        getchar();
        return(0);
}
int mod() // Modulus function
{
    int a, b, d=0;
    printf("Please enter first number : ");
    scanf("%d", &a);
    printf("Please enter second number : ");
    scanf("%d", &b);
    d=a%b;
    printf("Modulus of entered numbers = %d",d);
        getchar();
        return(0);
}
int testprime() //Test prime function
{
        int n, i, flag=0;
        printf("Enter a positive integer: ");
        scanf("%d",&n);
        for(i=2;i<=n/2;++i)
{
      if(n%i==0)
      {
          flag=1;
          break;
      }
}
if (flag==0)
      printf("%d is a prime number.",n);
else
      printf("%d is not a prime number.",n);

        getchar();
        return(0);
}
int fact() //Factorial function
{
    int n, i;
    unsigned long long fact = 1;
    printf("Enter an integer: ");
    scanf("%d", &n);
    // shows error if the user enters a negative integer
    if (n < 0)
        printf("Factorial of a negative number doesn't exist.");
    else {
        for (i = 1; i <= n; ++i) {
            fact *= i;
        }
        printf("Factorial of %d = %llu", n, fact);
    }
    return 0;
```

```c
}
int power() //Power function
{
int base, exponent;
int result = 1;
printf("Enter a base number: ");
scanf("%d", &base);
printf("Enter an exponent: ");
scanf("%d", &exponent);
for (exponent; exponent>0; exponent--)
{
result = result * base;
}
printf("Answer = %lld", result);
return 0;
}
int fib() //Fibonacci series function
{
    int i, n, t1 = 0, t2 = 1, nextTerm;
    printf("Enter the number of terms: ");
    scanf("%d", &n);
    printf("Fibonacci Series: ");
    for (i = 1; i <= n; ++i) {
        printf("%d, ", t1);
        nextTerm = t1 + t2;
        t1 = t2;
        t2 = nextTerm;
    }
    return 0;
}
```