Functions
PROG2007

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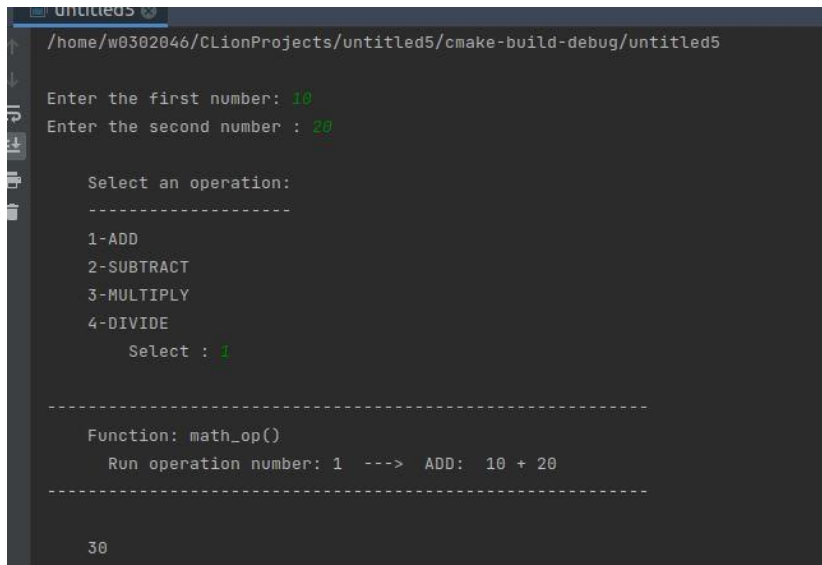
Functions:

The first part here I will show my program itself to show how I ended up doing all that was requested.

```c
/*===============================================================
 Name    : Functions
 Purpose : Work with functions
 By      : Daniel Donovan
 ===============================================================*/
#include <stdio.h>

// Function allusion:
//    - Prototype of the function fully defined after it is called
int math_op(int,int,int,float *);


//----------------------------------------------------------------
// Function: main()
//----------------------------------------------------------------
int main()
{
    // Declare variables:
    int  num1, // First number
    num2, // Second number
    result; // Math result for Add, Subtract, and Multiply.

    float div; // Result for a division operation.

    // Selected operation number
    int operation;
    //    1 = ADD
    //    2 = Subtract,
```

```c
    //    3 = Multiply,
    //    4 = Divide.

    // Get the two numbers
    printf( format: "\nEnter the first number: ");
    scanf( format: "%d",&num1);

    printf( format: "Enter the second number : ");
    scanf( format: "%d",&num2);

    // Present the operator options for selection
    printf( format: "\n    Select an operation:"
            "\n    --------------------"
            "\n\t1-ADD\n\t2-SUBTRACT\n\t3-MULTIPLY\n\t4-DIVIDE"
            "\n\t    Select : ");
    scanf( format: "%d",&operation);

    // Call math_op() to apply the selected operation
    printf( format: "\n----------------------------------------------------------");

    result = math_op( a: num1, b: num2, c: operation, d: &div);

    printf( format: "----------------------------------------------------------\n");

    // Check the error codes from the function.  (-99, -98, -97)
    if (result == -99 )     // In valid operation
    {
```

```c
 55          printf( format: "\n\t _____ \n\n");
 56      }
 57      else if (result == -98 ) //  Divide by zero
 58      {
 59          printf( format: "\n\t _____ \n\n");
 60      }
 61      else if (result == -97 ) // valid division
 62      {
 63          printf( format: "\n\t%f\n\n", div);
 64      }
 65      else                     // add, subtract, multiply
 66      {
 67          printf( format: "\n\t%d\n\n",result);
 68      }
 69  }
 70
 71  int math_op(int a, int b, int c, float *d)
 72  {
 73
 74      int answer; // Declare variable for the return value
 75
 76      // result of the selected operation
 77
 78      // Determine which operation to perform and get the corresponding result
 79
 80      printf( format: "\n\tFunction: math_op()"
 81             "\n\t  Run operation number: %d", c);
```

```c
 82      switch (c)
 83      {
 84        case 1:   printf( format: "  --->  ADD:  %d + %d\n",a,b);
 85            answer = a + b;
 86            break;
 87
 88        case 2:   printf( format: "  --->  SUBTRACT:  %d - %d\n",a,b);
 89            answer = a - b;
 90            break;
 91
 92        case 3:   printf( format: "  --->  MULTIPLY:  %d * %d\n",a,b);
 93            answer = a * b;
 94            break;
 95
 96        case 4:   printf( format: "  --->  DIVIDE:  %d / %d\n",a,b);
 97            if (b == 0)
 98            {
 99                answer = -98;       // Code for divide by zero
100            }
101            else
102            {
103                // Calculate the result
104                *d = (float)a / b;
105                answer = -97;       // Code for float result
106            }
107            break;
108
109        default:  printf( format: "\tThe selection is incorrect: -99 returned.\n");
110                answer = -99;           // Code for invalid operation
111      }
112      return answer;
113  }
```

This here would be the output if I asked it to ADD two different numbers

For the next part I will provide a video to help explain all of my code and It running as well. I will put the video on Brightspace with this Doc/PDF.