

EE 2905

Dr. Johnson

Program 4

No capabilities beyond those
discussed in class or in the notes
are allowed

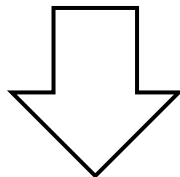
Repeat Program 2 using functions with pointers

Use the following function prototypes (declarations)

```
// function prototypes
void get_vals(float * value_l, float * value_r);
void get_op(char * op);
uint8_t check_op(char op);
void calc_result(float val_l, float val_r, char oper, float * result);
void print_results(float val_l, float val_r, char oper, float result);
```

Turn in your code, and screenshots for values of

3.3	2.1	/
2.3	3.3	*
4.6	6.6	+
4.6	1.6	-
6.6	5.2	%



```
////////////////////////////////////
//
// program_4 project
//
// created 8/12/21 by tj
// rev 0
//
////////////////////////////////////
//
// Program to provide various calculations w/ functions w/pointers
//
// Reads in a values for val1 and val2
// Reads in the desired operation
// Provides the result
//
// inputs: 2 values for val1 and val2, a character for the operation
// outputs: prints result of val1 operation val2
//
////////////////////////////////////

#include "mbed.h"
#include <stdio.h> // only needed when printing

// function prototypes
void get_vals(float * value_1, float * value_2);
void get_op(char * op);
uint8_t check_op(char op);
void calc_result(float val_1, float val_2, char oper, float * result);
void print_results(float val_1, float val_2, char oper, float result);

int main(void){
    setbuf(stdout, NULL); // disable buffering when printing

    // splash
    printf("\n\nprogram_4\n\n");
    printf("Using Mbed OS version %d.%d.%d\n\n",
           MBED_MAJOR_VERSION, MBED_MINOR_VERSION, MBED_PATCH_VERSION);
    printf("Welcome to my calculator program (using functions and pointers)\n\n");

    float val1;
    float val2;
    char operation;
    uint8_t legal;
    float answer;

    // infinite loop
    while(1){
        // ask for and read in values and operation
        get_vals(&val1, &val2);
        get_op(&operation);

        // check if operation is legal
        legal = check_op(operation);

        // control printing
        if(legal){
            // perform the calculation
            calc_result(val1, val2, operation, &answer);

            // print the eqn and results
            print_results(val1, val2, operation, answer);
        } else {
            printf("illegal operation\n\n");
        }
    }

    return 0;
}
// end main
```

```
////////////////////////////////////
//
// program_4 project
//
// created 8/12/21 by tj
// rev 0
//
////////////////////////////////////
//
// Program to provide various calculations w/ functions w/pointers
//
// Reads in a values for val1 and val2
// Reads in the desired operation
// Provides the result
//
// inputs: 2 values for val1 and val2, a character for the operation
// outputs: prints result of val1 operation val2
//
////////////////////////////////////

#include "mbed.h"
#include <stdio.h> // only needed when printing

// function prototypes
void get_vals(float * value_1, float * value_2);
void get_op(char * op);
uint8_t check_op(char op);
void calc_result(float val_1, float val_2, char oper, float * result);
void print_results(float val_1, float val_2, char oper, float result);

int main(void){
    setbuf(stdout, NULL); // disable buffering when printing

    // splash
    printf("\n\nprogram_4\n\n");
    printf("Using Mbed OS version %d.%d.%d\n\n",
           MBED_MAJOR_VERSION, MBED_MINOR_VERSION, MBED_PATCH_VERSION);
    printf("Welcome to my calculator program (using functions and pointers)\n\n");

    float val1;
    float val2;
    char operation;
    uint8_t legal;
    float answer;

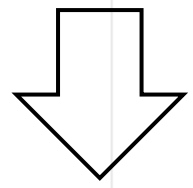
    // infinite loop
    while(1){
        // ask for and read in values and operation
        get_vals(&val1, &val2);
        get_op(&operation);

        // check if operation is legal
        legal = check_op(operation);

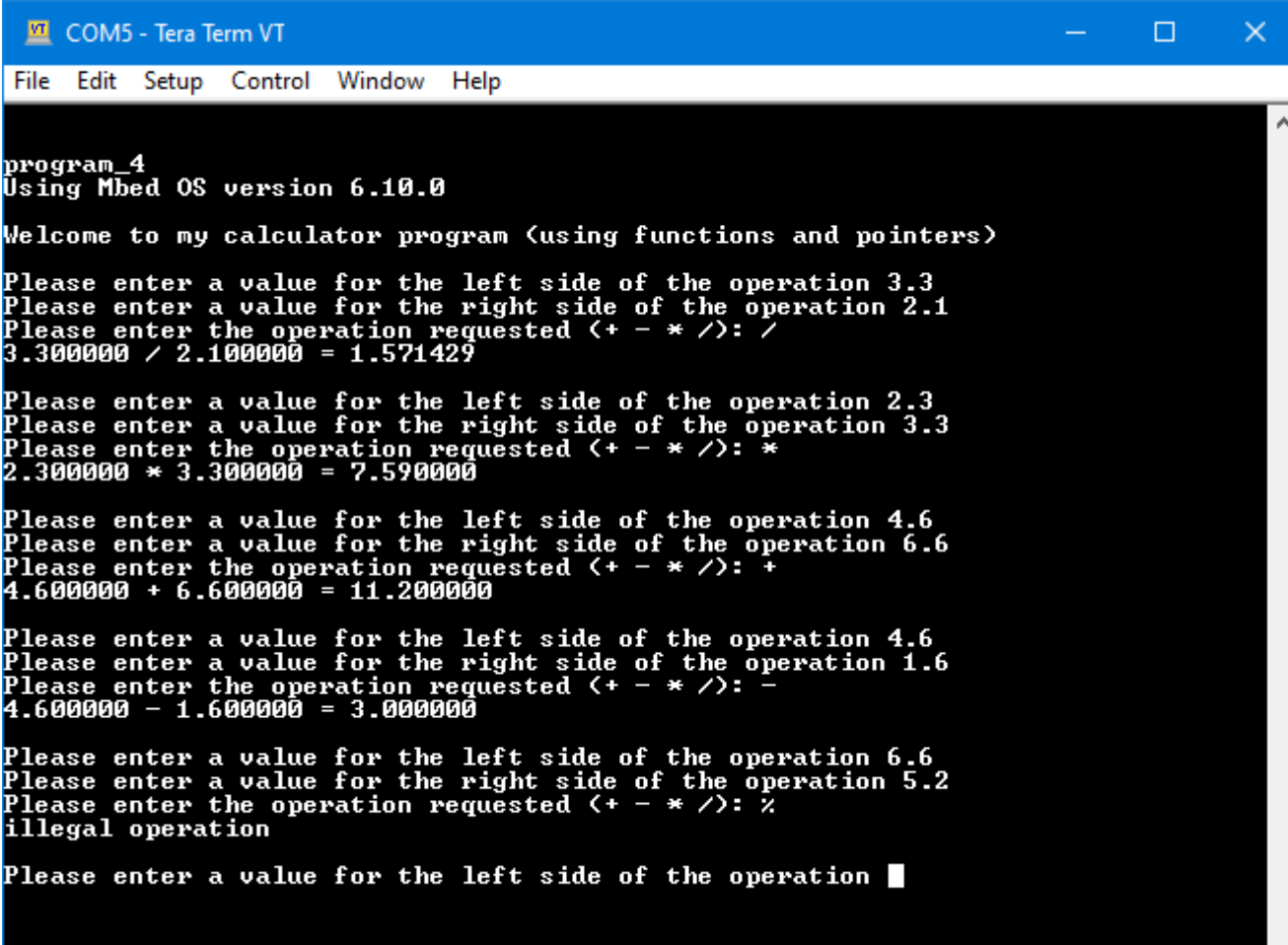
        // control printing
        if(legal){
            // perform the calculation
            calc_result(val1, val2, operation, &answer);

            // print the eqn and results
            print_results(val1, val2, operation, answer);
        } else {
            printf("illegal operation\n\n");
        }
    }

    return 0;
}
// end main
```



End up with something like this – check your values!



```
COM5 - Tera Term VT
File Edit Setup Control Window Help

program_4
Using Mbed OS version 6.10.0

Welcome to my calculator program (using functions and pointers)

Please enter a value for the left side of the operation 3.3
Please enter a value for the right side of the operation 2.1
Please enter the operation requested (<+ - * />): /
3.300000 / 2.100000 = 1.571429

Please enter a value for the left side of the operation 2.3
Please enter a value for the right side of the operation 3.3
Please enter the operation requested (<+ - * />): *
2.300000 * 3.300000 = 7.590000

Please enter a value for the left side of the operation 4.6
Please enter a value for the right side of the operation 6.6
Please enter the operation requested (<+ - * />): +
4.600000 + 6.600000 = 11.200000

Please enter a value for the left side of the operation 4.6
Please enter a value for the right side of the operation 1.6
Please enter the operation requested (<+ - * />): -
4.600000 - 1.600000 = 3.000000

Please enter a value for the left side of the operation 6.6
Please enter a value for the right side of the operation 5.2
Please enter the operation requested (<+ - * />): %
illegal operation

Please enter a value for the left side of the operation █
```