**CS2263 Assignment 1**

Kohdy Nicholson

isprime.c:

```c
/*
    isprime.c

    Description:
    Simple function for determine whether or not a given value is prime

    Author:
    Kohdy Nicholson

    Date:
    2020-05-06
*/

#include <limits.h>

int isprime(int number){
    // Check for inputs outside limits.
    if(number < 1 || number > INT_MAX){
        return -1;
    }

    int divisor = number - 1;
    while(divisor > 1){
        if(number % divisor == 0){
            return 0;
        }

        divisor--;
    }
    return 1;
}
```

helpers.h:

```c
/*
    helpers.h

    Description:
    Header file for the helper functions.
```

```
    Author:
    Kohdy Nicholson

    Date:
    2020-05-06
*/

int isprime(int number);
int isfib(int number);
```

testingprimitives.c:

```
/*
    testingprimitives.c

    Description:
    Test program for user

    Author:
    Kohdy Nicholson

    Date:
    2020-05-06
*/

#include <stdio.h>
#include "helpers.h"

int main(int argc, char** argv){
    int val;
    int result;
    int input;

    printf("\nPlease enter a value: ");
    input = scanf("%d", &val);

    if(input != 1){
        printf("Unable to read the value.\n");
        return 1;
    }

    result = isprime(val);

    switch (result){
        case 0:
```

```
            printf("%d is not a prime number.\n\n", val);
            break;
        case 1:
            printf("%d is a prime number.\n\n", val);
            break;
        case -1:
            printf("Invalid input. Please enter a valid integer.\n\n");
            break;
        default:
            break;
    }

    return 0;
}
```

testingprimitives.exe output:

```
PS C:\Users\Kohdy\Documents\CS2263\W1Ass\B> gcc isprime.c testingprimitives.c -o testingprimitives
PS C:\Users\Kohdy\Documents\CS2263\W1Ass\B> .\testingprimitives.exe

Please enter a value: 8
8 is not a prime number.

PS C:\Users\Kohdy\Documents\CS2263\W1Ass\B> .\testingprimitives.exe

Please enter a value: 11
11 is a prime number.

PS C:\Users\Kohdy\Documents\CS2263\W1Ass\B> .\testingprimitives.exe

Please enter a value: -42
Invalid input. Please enter a valid integer.

PS C:\Users\Kohdy\Documents\CS2263\W1Ass\B>
```

unittests.exe output:

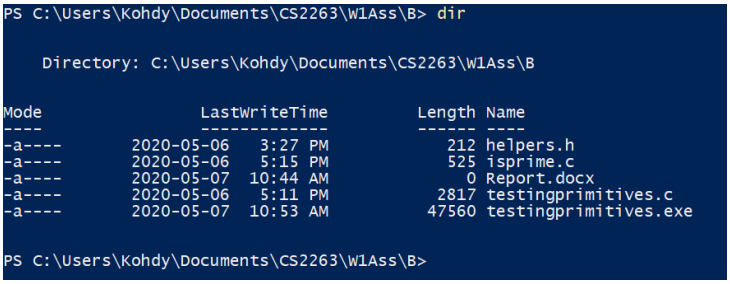
```
PS C:\Users\Kohdy\Documents\CS2263\W1Ass\B> gcc isprime.c unittests.c -o unittest
PS C:\Users\Kohdy\Documents\CS2263\W1Ass\B> .\unittest.exe

*** Running tests for isprime.c ***


NAME                                    INPUTS          RESULT
----                                    ------          ------
isPrimeTest():                          13              SUCCESS
isNotPrimeTest():                       8               SUCCESS
passOnLowerBoundTest():                 1               SUCCESS
passOnUpperBoundTest():                 2147483647      SUCCESS
failOnGreaterThanIntMaxValueTest():     4294967295      SUCCESS
failOnNegativeValueTest():              -42             SUCCESS
failOnZeroValueTest():                  0               SUCCESS

*** Running tests completed! ***
```

Directory Listing:


PS C:\Users\Kohdy\Documents\CS2263\W1Ass\B> dir
Directory: C:\Users\Kohdy\Documents\CS2263\W1Ass\B
Mode LastWriteTime Length Name
---- ------------- ------ ----
-a---- 2020-05-06 3:27 PM 212 helpers.h
-a---- 2020-05-06 5:15 PM 525 isprime.c
-a---- 2020-05-07 10:44 AM 0 Report.docx
-a---- 2020-05-06 5:11 PM 2817 testingprimitives.c
-a---- 2020-05-07 10:53 AM 47560 testingprimitives.exe
PS C:\Users\Kohdy\Documents\CS2263\W1Ass\B>