

UE20CS152 Week 1

Anirudh Rowjee PES2UG20CS050

The Program that will be used for this assignment (takes an input, validates it, gives error and/or output) is as follows

```
#include <stdio.h>

int main()
{
    int a, b, c;

    printf("Hello, world!\n");
    printf("Enter two numbers whose sum is less than 10.\n");

    scanf("%d %d", &a, &b);
    c = a + b;

    if (c >= 10)
    {
        fprintf(stderr, "The sum of these two numbers is greater than 10\n");
        return 1;
    }
    else
    {
        printf("The sum of these two numbers is less than 10\n");
        return 0;
    }
    return 0;
}
```

```
# use this command to build and run the program
$ gcc -o test test.c && ./test
```

Task 1

Redirect Standard Output: Write to New File

```
nidavellir :: sem2/UE20CS152/week0 » ./test > example1.txt
1 2
nidavellir :: sem2/UE20CS152/week0 » cat example1.txt
Hello, world!
Enter two numbers whose sum is less than 10.
The sum of these two numbers is less than 10
nidavellir :: sem2/UE20CS152/week0 »
```

Task 2

Redirect Standard Output: Writes to the Same File

```
nidavellir :: sem2/UE20CS152/week0 » ./test >> example1.txt
3 4
nidavellir :: sem2/UE20CS152/week0 » cat example1.txt
Hello, world!
Enter two numbers whose sum is less than 10.
The sum of these two numbers is less than 10
Hello, world!
Enter two numbers whose sum is less than 10.
The sum of these two numbers is less than 10
nidavellir :: sem2/UE20CS152/week0 »
```

Task 3

Redirect Standard Error To a File

```
nidavellir :: sem2/UE20CS152/week0 » ./test 2> error.txt
Hello, world!
Enter two numbers whose sum is less than 10.
10 20
nidavellir :: sem2/UE20CS152/week0 » cat error.txt
The sum of these two numbers is greater than 10
nidavellir :: sem2/UE20CS152/week0 »
```

Task 4

Redirect All Output: Writes to Same File

```
nidavellir :: sem2/UE20CS152/week0 » ./test &> combined.txt
10 20
nidavellir :: sem2/UE20CS152/week0 » cat combined.txt
The sum of these two numbers is greater than 10
Hello, world!
Enter two numbers whose sum is less than 10.
nidavellir :: sem2/UE20CS152/week0 »
```

Task 5

Input Redirection-Taking input from file

```
nidavellir :: sem2/UE20CS152/week0 » echo "10 20" > input.txt
nidavellir :: sem2/UE20CS152/week0 » ./test < input.txt
Hello, world!
Enter two numbers whose sum is less than 10.
The sum of these two numbers is greater than 10
nidavellir :: sem2/UE20CS152/week0 » cat input.txt
10 20
nidavellir :: sem2/UE20CS152/week0 »
```

Task 6

Options in gcc compiler

gcc --help

```
nidavellir :: sem2/UE20CS152/week0 » gcc --help
Usage: gcc [options] file...
Options:
  -pass-exit-codes      Exit with highest error code from a phase.
  --help                Display this information.
  --target-help         Display target specific command line options.
  --help={common|optimizers|params|target|warnings|[^]}{joined|separate|undocument
                        Display specific types of command line options.
  (Use '-v --help' to display command line options of sub-processes).
  --version             Display compiler version information.
  -dumpspecs            Display all of the built in spec strings.
  -dumpversion          Display the version of the compiler.
  -dumpmachine          Display the compiler's target processor.
  -print-search-dirs    Display the directories in the compiler's search path.
  ...
```

gcc -E test.c

```
# 1 "test.c"
# 1 "<built-in>"
# 1 "<command-line>"
# 31 "<command-line>"
# 1 "/usr/include/stdc-predef.h" 1 3 4
# 32 "<command-line>" 2
# 1 "test.c"
# 1 "/usr/include/stdio.h" 1 3 4
# 27 "/usr/include/stdio.h" 3 4
# 1 "/usr/include/x86_64-linux-gnu/bits/libc-header-start.h" 1 3 4
# 33 "/usr/include/x86_64-linux-gnu/bits/libc-header-start.h" 3 4
# 1 "/usr/include/features.h" 1 3 4
# 461 "/usr/include/features.h" 3 4
# 1 "/usr/include/x86_64-linux-gnu/sys/cdefs.h" 1 3 4
# 452 "/usr/include/x86_64-linux-gnu/sys/cdefs.h" 3 4
# 1 "/usr/include/x86_64-linux-gnu/bits/wordsize.h" 1 3 4
```

```

# 453 "/usr/include/x86_64-linux-gnu/sys/cdefs.h" 2 3 4
# 1 "/usr/include/x86_64-linux-gnu/bits/long-double.h" 1 3 4
# 454 "/usr/include/x86_64-linux-gnu/sys/cdefs.h" 2 3 4
# 462 "/usr/include/features.h" 2 3 4
# 485 "/usr/include/features.h" 3 4
# 1 "/usr/include/x86_64-linux-gnu/gnu/stubs.h" 1 3 4
# 10 "/usr/include/x86_64-linux-gnu/gnu/stubs.h" 3 4
# 1 "/usr/include/x86_64-linux-gnu/gnu/stubs-64.h" 1 3 4
# 11 "/usr/include/x86_64-linux-gnu/gnu/stubs.h" 2 3 4
# 486 "/usr/include/features.h" 2 3 4
# 34 "/usr/include/x86_64-linux-gnu/bits/libc-header-start.h" 2 3 4
# 28 "/usr/include/stdio.h" 2 3 4

...

# 1 "/usr/lib/gcc/x86_64-linux-gnu/9/include/stddef.h" 1 3 4
# 209 "/usr/lib/gcc/x86_64-linux-gnu/9/include/stddef.h" 3 4

# 209 "/usr/lib/gcc/x86_64-linux-gnu/9/include/stddef.h" 3 4
typedef long unsigned int size_t;
# 34 "/usr/include/stdio.h" 2 3 4

# 1 "/usr/lib/gcc/x86_64-linux-gnu/9/include/stdarg.h" 1 3 4
# 40 "/usr/lib/gcc/x86_64-linux-gnu/9/include/stdarg.h" 3 4
typedef __builtin_va_list __gnuc_va_list;

extern void funlockfile (FILE *__stream) __attribute__ ((__nothrow__ , __leaf__));
# 858 "/usr/include/stdio.h" 3 4
extern int __uflow (FILE *);
extern int __overflow (FILE *, int);
# 873 "/usr/include/stdio.h" 3 4

# 2 "test.c" 2

# 3 "test.c"
int main()
{
    int a, b, c;

    printf("Hello, world!\n");
    printf("Enter two numbers whose sum is less than 10.\n");

    scanf("%d %d", &a, &b);
    c = a + b;

    if (c >= 10)
    {
        fprintf(
# 15 "test.c" 3 4
            stderr
# 15 "test.c"
            , "The sum of these two numbers is greater than 10\n");
    }
}

```

```
        return 1;
    }
    else
    {
        printf("The sum of these two numbers is less than 10\n");
        return 0;
    }
    return 0;
}
```

gcc -c test.c

```
nidavellir :: sem2/UE20CS152/week0 » gcc -c test.c
nidavellir :: sem2/UE20CS152/week0 » ls | grep test.o
test.o
nidavellir :: sem2/UE20CS152/week0 »
```

gcc -o test test.c

```
nidavellir :: sem2/UE20CS152/week0 » gcc -o test test.c
nidavellir :: sem2/UE20CS152/week0 » ls | grep test
test
test.c
test.o
nidavellir :: sem2/UE20CS152/week0 »
```