James Stockton
31658237

C1 Preparation – Introduction to C Programming

Test typing

2. Preparation

	Program 1	Program 2	Program 3
No Error	Yes		
Preprocessor Error		Yes	
Compiler Error			Yes
Linker Error			

```
8    int num = 10;
```

This is a variable named “num”, it has an integer (positive whole number) type and the value of 10.

```
C err_hello.c > main()
1   /* hello.c
2   /* A famous test for the C build process. */
3
4   #include <stdio.h>
5
6   int main() {
7       printf("Hello World!");
8       return 0;
9   }
```

```
Microsoft Windows [Version 10.0.19041.508]
(c) 2020 Microsoft Corporation. All rights reserved.

D:\2020+21\ELEC1201 Programming\Week 1\c1>gcc err_hello.c

D:\2020+21\ELEC1201 Programming\Week 1\c1>err_hello.exe
Hello World!
D:\2020+21\ELEC1201 Programming\Week 1\c1>
```

```
c1 > C err_hello.c > main()
1   /* hello.c
2   /* A famous test for the C build process. */
3
4   #include <mystdio.h>
5
6   int main() {
7       printf("Hello World!");
8       return 0;
9   }
```

```
D:\2020+21\ELEC1201 Programming\Week 1\c1>gcc err_hello.c -o err_hello
err_hello.c:4:21: fatal error: mystdio.h: No such file or directory
 #include <mystdio.h>
                     ^
compilation terminated.

D:\2020+21\ELEC1201 Programming\Week 1\c1>
```

```
c1 > C err_hello.c > main()
1   /* hello.c
2   /* A famous test for the C build process. */
3
4   #include <stdio.h>
5
6   int main() {
7       myprintf("Hello World!");
8       return 0;
9   }
```

```
D:\2020+21\ELEC1201 Programming\Week 1\c1>gcc err_hello.c -o err_hello
err_hello.c: In function 'main':
err_hello.c:7:5: warning: implicit declaration of function 'myprintf' [-Wimplicit-function-declaration]
     myprintf("Hello World!");
     ^~~~~~~~
C:\Users\james\AppData\Local\Temp\ccEAR9Fq.o:err_hello.c:(.text+0x16): undefined reference to `myprintf'
collect2.exe: error: ld returned 1 exit status

D:\2020+21\ELEC1201 Programming\Week 1\c1>
```

James Stockton
31658237

3. Laboratory Work

```c
/* hello.c */
/* A famous test for the C build process. */

#include <stdio.h>

#define SUCCESS 0

int main() {
    /* A new-line control character (\n)   */
    /* is used here, in case the terminal  */
    /* collects complete lines before      */
    /* showing them.                       */
    printf("Hello world!\n");
    return SUCCESS;
}
```

```
D:\2020+21\ELEC1201 Programming\Week 1\c1>gcc hello.c -o hello

D:\2020+21\ELEC1201 Programming\Week 1\c1>dir
 Volume in drive D is Data Volume
 Volume Serial Number is 3228-CA89

 Directory of D:\2020+21\ELEC1201 Programming\Week 1\c1

06/10/2020  19:59    <DIR>          .
06/10/2020  19:59    <DIR>          ..
06/10/2020  13:35               348 hello.c
06/10/2020  19:59            40,764 hello.exe
               2 File(s)         41,112 bytes
               2 Dir(s)  249,911,341,056 bytes free

D:\2020+21\ELEC1201 Programming\Week 1\c1>
```

3.2 Part 2

Type / Format Specifier	Output
%d	0
%x	0
%f	0.000000
%e	1.268987e-307
%c	

```
D:\2020+21\ELEC1201 Programming\Week 1\c1>gcc helloyou.c -o helloyou

D:\2020+21\ELEC1201 Programming\Week 1\c1>helloyou.exe
Hello human!

D:\2020+21\ELEC1201 Programming\Week 1\c1>
```

James Stockton
31658237

3.3 Part 3

If the input is larger than the buffer size then the data will overflow into the following memory spaces.

When you input 10 characters into a buffer of 5, only 5 characters show up.

```
D:\2020+21\ELEC1201 Programming\Week 1\c1>gcc hello-input.c -o hello_input

D:\2020+21\ELEC1201 Programming\Week 1\c1>hello_input.exe
What is your name?  James
Hello James!

D:\2020+21\ELEC1201 Programming\Week 1\c1>
```

James Stockton
31658237

4. Optional Additional Work

c1 > C helloyou.c > main()

```c
/* helloyou.c */
/* Hello with text string. */

#include <stdio.h>

#define SUCCESS 0

int num = 10;

char name[]="human";



#ifndef DEBUG
#define MARK printf("%d\n", __LINE__);
#endif

int main() {
    printf("Hello %s!\n", name);
#ifndef DEBUG
    MARK
#endif
    return SUCCESS;
}

```

```
D:\2020+21\ELEC1201 Programming\Week 1\c1>gcc helloyou.c -o helloyou

D:\2020+21\ELEC1201 Programming\Week 1\c1>helloyou.exe
Hello human!
21

D:\2020+21\ELEC1201 Programming\Week 1\c1>
```

c1 > C helloyou.c > ...

```c
/* helloyou.c */
/* Hello with text string. */

#include <stdio.h>

#define SUCCESS 0
#define DEBUG

int num = 10;

char name[]="human";



#ifndef DEBUG
#define MARK printf("%d\n", __LINE__);
#endif

int main() {
    printf("Hello %s!\n", name);
#ifndef DEBUG
    MARK
#endif
    return SUCCESS;
}

```

```
D:\2020+21\ELEC1201 Programming\Week 1\c1>gcc helloyou.c -o helloyou

D:\2020+21\ELEC1201 Programming\Week 1\c1>helloyou.exe
Hello human!

D:\2020+21\ELEC1201 Programming\Week 1\c1>
```

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