

CSC 2400: Computer Systems I  
Practice – Characters in C

1. Log into your Unix account on **tanner**. Change your current directory to **csc2400**.
2. In your csc2400 directory, create another directory called **characters**. Change your current directory to **characters**. All programs below should be created in this directory.

```
mkdir ~/csc2400/characters
```

3. Write a C program **ascii.c** that reads from the user one character, and prints out the ASCII code of the character in both decimal and hexadecimal format. Use the function **getchar** to read in a character. Use **emacs** to edit your file. Remember your short list of emacs editing commands:

CTRL-g:	Whenever in trouble
CTRL-x CTRL-c:	Exit the editor
CTRL-x CTRL-s:	Save the file
CTRL-x u:	Undo
CTRL-k:	Cut the current line

*Sample output:*

```
Please enter a character:  
a  
Ascii code of 'a' is (97, 0x61)
```

4. Add a loop to your **ascii.c** program, so that the user continues to reads characters and print out their ASCII code, until the user types in a single dot (character **\.'**), which should mark the end of the loop.

*Sample output (user input is shown in italics):*

```
Please enter characters in a loop.  
Type in . to terminate.  
a  
Ascii code for 'a' is (97, 0x61)  
Ascii code for '  
'  
 is (10, 0xa) /* This is the '\n' character */  
A  
Ascii code for 'A' is (65, 0x41)  
Ascii code for '  
'  
 is (10, 0xa) /* This is the '\n' character */  
.  
Good bye!
```

5. Change your code from part 4. to recognize EOF as a loop terminator, instead of the dot `.'` character. In Unix, CONTROL-D inserts an EOF into the character stream.

*Sample output (user input is shown in italics):*

```
Please enter characters in a loop.
Type in CTRL-D to terminate.
a
Ascii code for 'a' is (97, 0x61)
Ascii code for '
' is (10, 0xa)
A
Ascii code for 'A' is (65, 0x41)
Ascii code for '
' is (10, 0xa)
CTRL-D
Good bye!
```

6. Write a C program `uppercase.c` that reads in characters from the user, one at a time, and does the following: if the character is a lowercase letter, print out the uppercase equivalent of the letter; otherwise, print out the character as it is. Use EOF to mark the end of user input.

*Sample output (user input is shown in italics):*

```
Please enter some text. Type in CTRL-D to finish.
Hello csc2400
HELLO CSC2400
Bye <CTRL-D>
BYE
```

7. Change the code from part 6. to capitalize *only the first letter* of each word. Words are separated by whitespaces (space `' '`, tab `'\t'`, newline `'\n'`).

*Sample output (user input is shown in italics):*

```
Please enter some text. Type in CTRL-D to finish.
Welcome to csc2400
Welcome To Csc2400
Have fun, and learn lots!
Have Fun, And Learn Lots!
CTRL-D
```