

Workshop 10

(out of 10 marks - 3% of your final grade)
(V1.1)

In this workshop, you will work with the string library functions to build a formatted string out of raw data.

LEARNING OUTCOMES

Upon successful completion of this workshop, you will have demonstrated the abilities to:

- use C-style string definition to resize and modify strings
- use strcpy to copy strings
- use strlen to find the length of strings
- use strcmp to compare two strings
- use strcat to concatenate one string to another

SUBMISSION POLICY

The "in-lab" section is to be completed during your assigned lab section. It is to be completed and submitted by the end of the workshop period. If you attend the lab period and cannot complete the in-lab portion of the workshop during that period, ask your instructor for permission to complete the in-lab portion after the period. If you do not attend the workshop, you can submit the "in-lab" section along with your "at-home" section (with a penalty; see below). The "at-home" portion of the lab is due on the day of your next scheduled workshop (23:59).

All your work (all the files you create or modify) must contain your name, Seneca email and student number.

You are responsible to regularly back up your work.

Late submission penalties:

- In-lab submitted late, with at-home: Maximum of 20/50 for inlab and Maximum of 50/50 for at home
- Workshop late for one week: in-lab, at-home and reflection must all be submitted for maximum of 50 / 100
- Workshop late for more than one week: in-lab, at-home and reflection must all be submitted for maximum of 30 / 100
- If any of in-lab, at-home or reflection is missing the mark will be zero.

IN-LAB

Download or clone workshop 10 from <https://github.com/Seneca-144100/IPC-Workshop10>

There are two text data-files in this lab; **starwars_directory.csv** and **jedi_master.txt**. **starwars_directory.csv** holds the name and phone numbers of all StarWars heroes in the galaxy in the following format:

Full Name,phone number<NEWLINE>

Full Name,NPA CO NUMBER<NEWLINE>
Maximilian Veers,416 555 0128<NEWLINE>

Full Name is less than or equal to 30 characters in length in the file.

NPA is exactly 3 characters in the file.

CO is exactly 3 characters in the file.

NUMBER is exactly 4 characters in the file.

jedi_master.txt holds the names of all Jedi Masters in the galaxy.

This file contains one full-name per line. Each full-name is less than or equal to 30 characters in the file.

Open [144_w10.c](#) and complete the code of two functions to format the phone records into a string.

```
int isJediMaster(const char name[]);
```

Reads the **full-names** from the **Jedi Master** file, one by one, and **compares** each of them with the string stored at the address **name** received in the function's parameter. If one of the full-name in the file matches the string, your function will return **true (1)**; otherwise **false (0)**;

Note: Remember that you must have only one return statement in a function.

This function will be used to check and see if the name read from the phone directory belongs to a Jedi Master.

```
void formatJediPhoneRecord(char formattedRecord[],  
                           const char fullName[],  
                           const char npa[],
```

```
const char co[],  
const char number[]);
```

Receives Jedi phone record through the addresses received in parameters **fullname**, **npa**, **co** and **number** and formats the strings at these addresses into a single C-style string as follows:

```
Padme Amidala      (418) 555-0105  
Mace Windu         (438) 555-0155 Jedi Master.  
Emperor Palpat.. (450) 555-0143
```

Formatting steps:

- First, if the name is longer than 16 characters, shorten it to 14 and then concatenate two dots ("**..**") to the end of the truncated string to make it exactly 16 characters. If dots are presents, the viewer will notice that the name has been truncated. *(see the third line in the above example)*
- Otherwise (if the name has less than 16 characters), make the name exactly 16 characters by concatenating a string full of spaces and of length (16 – Length of name). *(see lines 1 and 2 in the example above)*
- Copy this name into **formattedRecord**.
- Concatenate the following to **formattedRecord**.
 - a **space** and an **opening parenthesis**
 - the **npa** string
 - **closing parenthesis** and a **space**
 - the **co** string
 - a **dash** ("**-**")
 - the **number** string
 - if this the name is of a Jedi Master, concatenate (" **Jedi Master**") *(see third line in the example above)*

After completing the two functions, the compiled source code for the workshop should generate the following output:

```
Nien Nunb          (403) 555-0163  
Baron Notluwis.. (587) 555-0155  
Bib Fortuna        (780) 555-0179  
Salacious B Cr.. (902) 555-0167  
Jar Jar Binks      (867) 555-0149  
Biggs Darkligh.. (226) 555-0119  
Wilhelm Scream.. (249) 555-0122  
Maximilian Veers (289) 555-0128  
Cornelius Evazan (343) 555-0180  
Anakin Skywalker (365) 555-0110 Jedi Master  
General Grievous (416) 555-0147  
Darth Maul         (437) 555-0160  
Grand Moff Tar.. (519) 555-0131  
Mon Mothma         (613) 555-0196  
Count Dooku        (647) 555-0140  
Lando Calrissian (705) 555-0132
```

Admiral Motti	(807)	555-0102	
Wedge Antilles	(905)	555-0100	
Padme Amidala	(418)	555-0105	
Mace Windu	(438)	555-0155	Jedi Master
Emperor Palpat..	(450)	555-0143	
Qui-Gon Jinn	(514)	555-0138	Jedi Master
Jabba the Hutt	(579)	555-0178	
Admiral Ackbar	(581)	555-0120	
Chewbacca	(819)	555-0168	
Yoda	(873)	555-0153	Jedi Master
Boba Fett	(306)	555-0131	
Luke Skywalker	(639)	555-0176	
R2-D2	(867)	555-0121	
C-3PO	(403)	555-0113	
Han Solo	(250)	555-0161	
Princess Leia	(604)	555-2121	
Obi-Wan Kenobi	(365)	555-3113	Jedi Master
Darth Vader	(416)	555-4161	

IN-LAB SUBMISSION

To test and demonstrate execution of your program use the same data as the output example above.

If not on matrix already, upload [144_w10.c](#) and [144_w10_tester.c](#) to your matrix account. Compile and run your code and make sure everything works properly.

Then run the following script from your account: (replace profname.proflastname with your professors Seneca userid)

```
~profname.proflastname/submit 144_w10_lab <ENTER>
```

and follow the instructions.

Please note that a successful submission does not guarantee full credit for this workshop.

If the professor is not satisfied with your implementation, your professor may ask you to resubmit. Resubmissions will attract a penalty.

AT-HOME

Please provide answers to the following questions in a text file named [reflect.txt](#).

WORKSHOP QUESTIONS:

- 1- Compare a string to an array of chars. What is the difference?
- 2- What format string do you use to ensure that the number of input characters read by scanf() into a C-style string does not exceed the 10 bytes of space that you have allocated for the string?
- 3- Why does strcmp(const char*, const char*) return 0 for two matching strings?
- 4- If you concatenate "Hello" to "C" how many bytes of memory do you need to store the result?
- 5- What was the most interesting thing you learned this semester?
- 6- Do you feel that the quizzes about the week's readings helped you learn more than you might have otherwise done.
- 7- Are there any things that you particularly like about the way that the course is delivered?
- 8- Are there any things that you particularly dislike about the way that the course is delivered?
- 9- Is there anything you would like to see added to the way the course is delivered?
- 10- How would you rate your level of understanding of the course topics?
 - a. Very good
 - b. Pretty good
 - c. Adequate
 - d. Poor
- 11- Did you enjoy doing the workshops? Why?
- 12- Did you enjoy the LabA activities?
- 13- Do you feel that LabA helped you understand how to think like a programmer?
- 14- The content of this course was
 - a. Too little
 - b. Just right
 - c. Too much

AT-HOME SUBMISSION

If not on matrix already, upload [reflect.txt](#) to your matrix account.

Then run the following script from your account: (replace profname.proflastname with your professors Seneca userid)

```
~profname.proflastname/submit 144_w10_home <ENTER>
```

and follow the instructions.

Please note that a successful submission does not guarantee full credit for this workshop.

If the professor is not satisfied with your implementation, your professor may ask you to resubmit. Resubmissions will attract a penalty.