

# CSC1300: LAB 2 – Array of friend structures



## Concepts:

* Arrays
* Structures
* Functions

## Description / Specifications

You are creating a program to inventory your friends. Your program should allow you to enter your friends and print your friends in alphabetical order.

Name your program file **lab10.cpp**. There will only be one file in this submission.

## structure

You will create one structure named **Friends** that will hold the following information about each friend:

* Name
* Birthday (string)
* Age (int)
* Description

## Functions

Below you will find details of what should happen in each function. Make sure to follow the specifications!

### Function: main

1. Ask the user how many friends they have.

How many friends do you have?

3

1. Dynamically allocate an array of Friend structures based on the number of friends the user said they had.
2. Create a menu of options that will continue to display until the user selects to end the program.

Choose from the following options:

1. Enter friends

2. Print my friends

3. End Program

CHOOSE 1-3:

1. Validate the user’s choice
2. If the user selects “Enter friends”, then call the **enterFriends** function, sending the Friends array and the number of friends to this function.
3. If the user selects “Print my friends”, then call the **sortFriends** function and then the **printFriends** function. For both function call statements, send the Friends array and the number of friends.
4. IF the user selects “End program”, print a message to the screen and then the program should end.

Choose from the following options:

1. Enter friends

2. Print my friends

3. End Program

CHOOSE 1-3: 3

**Thanks for using my friend program!!**

### enterFriends

This function should allow the user to enter in all their friend’s information. Refer to the sample output below, which highlights the user’s input in yellow.

Choose from the following options:

1. Enter friends

2. Print my friends

3. End Program

CHOOSE 1-3: 1

Enter your friend's information!

FRIEND 1

Name: Ron Swanson

Birthday: June 26, 1970

Age: 50

Description: Ron Swanson is the parks and recreation director, although he allows Leslie to do almost all the real work in the department. Despite working in a government job, Ron is a steadfast libertarian who believes in as little government as possible and feels the parks department should not even run or maintain parks. He advocates for program cuts wherever possible, actively works to make city hall less effective, and especially detests interacting with Pawnee taxpayers.

FRIEND 2

Name: April Ludgate

Birthday: June 26, 1984

Age: 36

Description: April Ludgate is an extremely sarcastic, apathetic and goth-like college student who started the show working as an intern in the parks and recreation department, but is eventually hired on as Ron Swansons full-time assistant. She always speaks in a deadpan and uninterested tone of voice, often making dry comments or mocking those around her, and expresses litter interest in her job.

FRIEND 3

Name: Leslie Knope

Birthday: September 16, 1971

Age: 48

Description: Leslie Knope is the deputy director of the Pawnee Parks and Recreation Department, and the protagonist of Parks and Recreation. Leslie is a passionate, hard-working and ambitious woman who loves her hometown of Pawnee and, unlike many around her, has not lost her optimism in the face of government bureaucracy. She believes strongly in the mission of her job, sometimes going over-the-top in her dedication to helping people. Her dream is to become the first female President of the United States.

### printfriends

This function should print all the data from the Friends array. Since you have already called the sortfriends function, the names will be printed in alphabetical order. Look at the sample output below.

FRIEND 1

Name: April Ludgate

Birthday: June 26, 1984

Age: 36

Description: April Ludgate is an extremely sarcastic, apathetic and goth-like college student who started the show working as an intern in the parks and recreation department, but is eventually hired on as Ron Swansons full-time assistant. She always speaks in a deadpan and uninterested tone of voice, often making dry comments or mocking those around her, and expresses litter interest in her job.

FRIEND 2

Name: Leslie Knope

Birthday: September 16, 1971

Age: 48

Description: Leslie Knope is the deputy director of the Pawnee Parks and Recreation Department, and the protagonist of Parks and Recreation. Leslie is a passionate, hard-working and ambitious woman who loves her hometown of Pawnee and, unlike many around her, has not lost her optimism in the face of government bureaucracy. She believes strongly in the mission of her job, sometimes going over-the-top in her dedication to helping people. Her dream is to become the first female President of the United States.

FRIEND 3

Name: Ron Swanson

Birthday: June 26, 1970

Age: 50

Description: Ron Swanson is the parks and recreation director, although he allows Leslie to do almost all the real work in the department. Despite working in a government job, Ron is a steadfast libertarian who believes in as little government as possible and feels the parks department should not even run or maintain parks. He advocates for program cuts wherever possible, actively works to make city hall less effective, and especially detests interacting with Pawnee taxpayers.

### sortfriends

I am giving you the code to this function. The algorithm used for this sort function is called selection sort.

**void sortFriends(Friends\* myFriends, int numFriends)**

**{**

**int lowest;**

**Friends temp;**

**cout << "\n\nSorting your friends!\n\n";**

**for(int i=0; i<numFriends; i++)**

**{**

**//find next lowest name (alphabetically)**

**lowest = i;**

**for(int x=i; x<numFriends; x++)**

**if(myFriends[x].name < myFriends[lowest].name)**

**lowest = x;**

**//swap**

**temp = myFriends[lowest];**

**myFriends[lowest] = myFriends[i];**

**myFriends[i] = temp;**

**}**

**}**

## What to Turn In

Zip the following files & upload to ilearn:

* **Lab10.cpp**