

Lab #13: Struct

Getting started

Download lab13 material from D2L

Enter Mimir IDE.

Change into the cse220 directory.

Create a new directory called lab13.

Change into the new directory.

Implement the program below in your lab13 directory.

Program: Structures and Enumeration

We want to construct a structure variable to store information of capacitors. For each capacitor, it has the following four attributes:

- **modelName**, which is a character array. We assume the length of each **modelName** is no longer than 20.
- **capacitance**, which is an integer.
- **voltage**, which is a float.
- **cost**, which is a float.
- **CapType**. There are four different types of capacitors: **Ceramic**, **Aluminum**, **Film**, **Supercapacitor**. (Hint: use Enumerations from cse220-19-custom-types, page 33 and 34)

You are given **capacitorsInfo.c** file, which already has main function (Hint: Don't make any change to **capacitorsInfo.c**). Please complete two new files, **capacitor.h** and **capacitor.c** (Hint: Don't name the two files in other ways, otherwise bugs will appear). By completing the two new files, your codes will be able to cover the following functions:

1. Construct a structure variable named **Capacitor**, which has the mentioned four attributes. (Hint: cse220-19-custom-types)
2. Complete the **displayCapacitorInfo()** function in **capacitor.h** and **capacitor.c**, so that the information of a capacitor can be printed like the following examples show.
3. Complete the **largestCapacitance()** function in **capacitor.h** and **capacitor.c**, so that the capacitor with the largest cost from a capacitor array can be found and printed like the following example shows. (Hint: **capacitorsInfo.c** provides a capacitor array named **capArray** to help you test your code.)

Example output:

```
user@mimir: ~/cse220/lab13 > ./capacitorsInfo
Capacitor 11-123U:
  *Capacitance: 100 uF
  *Voltage: 25.00 V
  *Cost: $6.00
  *Type: 2
Capacitor 65T91a:
  *Capacitance: 22000 uF
  *Voltage: 20.00 V
  *Cost: $20.00
  *Type: 0
Capacitor M-1045:
  *Capacitance: 22 uF
  *Voltage: 2.70 V
  *Cost: $8.00
  *Type: 1
Capacitor M-6600:
  *Capacitance: 6600 uF
  *Voltage: 4.50 V
  *Cost: $95.00
  *Type: 3
Largest cost: 95.00
```