CSCI-1411 Fundamentals Of Computing Lab

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Lab 7: Arrays

☐ One-Dimensional Arrays:
  ◻ Array is a collection of memory locations, all of which have the same data type, grouped together under one name.

0	1	2	3	4	5	......	97	98	99
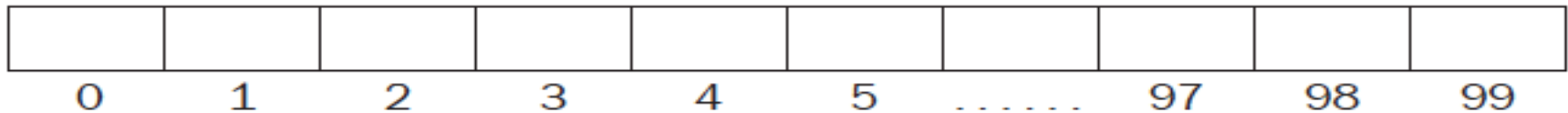
  ◻ Define a 1D array:

  datatype name_of_array[#elements]

→ For ex.: int ageFrequency[100]

  ◻ To access the value of one element in the 1D array,

  name_of_array[index_of_element]

→ For example: ageFrequency[5] → the 6th element

  ◻ *The index of the first element starts from 0.*

☐ **Two-Dimensional Arrays:**

◘ Define a 2D array:

datatype name_of_array[#rows] [#columns]

→ For ex.: float profit[3][4]

◘ To access the value of one element in the 2D array,

name_of_array[row_index] [column_index]

→ For example: profit [1][2]

Lab 7: Arrays

- Arrays as Arguments:
  - Arrays are always *passed by pointer*.
  - Function prototype

    void getData(int arrayData[], int sizeOfArray)

  - Or
    - 1. first define an array as a new datatype in the global section and
    - 2. then define a variable whose datatype is the new one.

      typedef int GradeType[TotalGrades];

    void getData(GradeType array, int sizeOfArray)

Lab 7: Arrays

☐ Overview:
- ◻ Lab 7 Components
  - ■ Lab Sections (7.1, 7.2, 7.3, 7.4)
  - ■ Obviously very similar to PA2

Lab 7: Arrays

☐ 7.1 Working with One-Dimensional Arrays
  ◻ (testscore.cpp)
  ◻ Be sure to implement Exercise 3 (gradfile.txt)
  ◻ Answer questions asked in exercise 2

☐ 7.2 Strings as Arrays of Characters
  ◻ (student.cpp)
  ◻ Match the resulting output

Lab 7: Arrays

- 7.3 Working with Two-Dimensional Arrays
  - (price.cpp)
  - Don't do Exercise 6 or 7
  - Answer questions asked in exercise 2 & 5

- 7.4 Pick One
  - Choose 1 of the 3 options
  - Name the source file: main.cpp
  - No Design Document

Lab 7: Arrays

- Submission File Checklist
  - Submit all files on Canvas (One at a time or all of them in a single zip file). Be sure to include all source files and documents.

  - 7.1 testscore.cpp
  - 7.2 student.cpp
  - 7.3 price (without exercise 6 and 7)
  - 7.4 main.cpp (For any option you choose)