CC4– DATA STRUCTURES AND ALGORITHMS

Laboratory Exercise #2

Address Calculation

Name: Date:

Code/Schedule: Terminal #:

Topic(s) Covered: Sorting Algorithms

Estimated Completion Time:2 weeks

Objectives:

1. Simulate array address calculations
2. Simulate record address calculations
3. Use the appropriate data types in address calculations

Discussion:

Address calculations whether it is array or record follow the same algorithm. Only difference is, in array it is homogeneous while records are heterogeneous. Theoretically, there is no limit as to the dimensions and sizes for both. Formula in address calculation can be derived and can be implemented in a program structure that is dynamic in nature. The main objective is search for an element in the array or record at the speed of O(1).

Activity**:**

Part I : Array Address Calculations (Individually)

* Dynamically derive formula based from the number of dimensions
* Accept input from the user
* Compute and display the total number of elements
* Compute and display the address from the given problem as provided

Part II : Record Address Calculations (Individually)

* Dynamically derive formula based from the problem provided
* Accept input from the user
* Compute and display the total number of elements
* Compute and display the address from the given problem as provided

Laboratory Exercise Score Sheet

Criteria (Part I: Array Address Calculations) Score

1. Correct derived formula 20
2. Display correct number of elements 40
3. Display correct array address as required 40

Criteria (Part II: Record Address Calculations) Score

1. Correct derived formula 20
2. Display correct number of elements 40
3. Display correct record address as required 40