

UCS 2312 Data Structures Lab

Assignment 1: Array ADT and its application

Date of Assignment: 07.10.2022

Create an ADT for the array data structure with the following functions. *arrADT* will have the integer array and size. [CO1, K3]

- `create(arrADT,size, array)` – Create the array with the required elements
- `deleteAt(arrADT, pos)` – Delete the specified element
- `insertAtEvery(arrADT,data)` – Insert data before every element
- `search(arrADT, key)` – return the position of the second occurrence of the element. If found return the position, otherwise return 1
- `printArray(arrADT)` – prints the elements of the array

Write an application to use the *arrADT* to do the following:

Test the operations of *arrADT* with the following test cases

Operation	Expected Output
<code>create(arrADT,20,[2,4,6,8,10])</code>	2,4,6,8,10
<code>deleteAt(arrADT, 3, data)</code>	2,4,6,10
<code>insertAtEvery(arrADT,1)</code>	1,2,1,4,1,6,1,10
<code>search(arrADT,1)</code>	2
<code>search(arrADT,2)</code>	-1
<code>printArray(arrADT)</code>	1,2,1,4,1,6,1,10

Best practices to be followed:

- Design before coding
- Usage of algorithm notation
- Use of multi-file C program
- Versioning of code