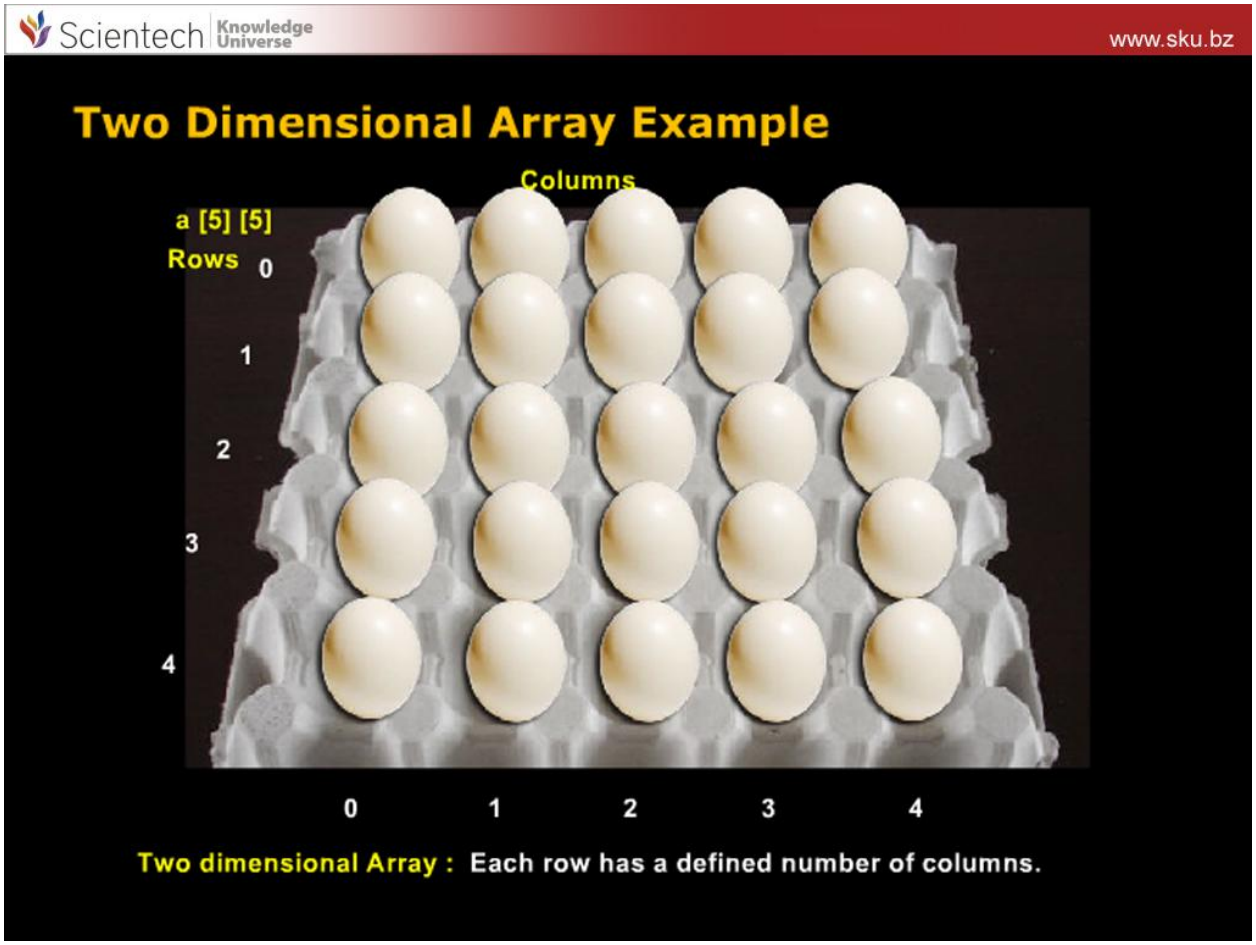
SKU-Data Structure

SKU-Data Structure is an online training course designed for the students of Computer Science. This is a self study package explains basic concepts in interesting and innovative manner with graphical user interface. Different topics are explained with flash animations, analogies and suitable illustrative examples. Interactive simulations are provided for clear understanding of the concepts. Frequently asked questions and quiz are provided with every topic for self evaluation of students. This course is suitable for Computer Science students.



Topics covered in SKU-Data Structure:

Introduction

Topics Covered: Structural programming ,top-down design. abstract data type, implementation of arrays, triangular arrays, structures, character strings, Pointers dynamic memory management.

Stack & Queue

Topics Covered: Stacks - their concepts and implementation, multiple stacks. Conversion of infix to postfix notation using stack, evaluation of postfix expression, recursion, how recursion- works, queues their concepts and implementation, Dqueue, primary queues.

General List

Topics Covered: Singly linked list, implementation linked list using arrays, implementation of linked list using dynamic memory allocation circular link list, Josphus problem, doubly linked list, polynomial manipulation using linked list, representation of sparse matrices , drawback of linked list.

Trees

Topics Covered: Definition Height, Depth, Order ,Degree, Parent and children relationship, Binary tree - their representation and operations, Complete Binary tree, almost binary tree, tree traversals- post order, pre order and in order, their recursive and non recursive implementations, expression tree evaluation threaded binary trees, forests, conversion of forest into tree , conversion of general trees to binary trees, applications of trees, height balanced tree and weight balanced trees, Heap Definition.

Basic Idea of AVL Tree, insertion & Deletion operation , Basic Idea of B Tree definition , Order , degree, Insertion & Deletion. B+ Tree – definition , order , degree , insertion & deletion.

Searching, Sorting and Hashing

Topics Covered: Requirement of search algorithm, Sequential searching, binary search, indexed sequential search , interpolation search, multiway search trees, digital search,

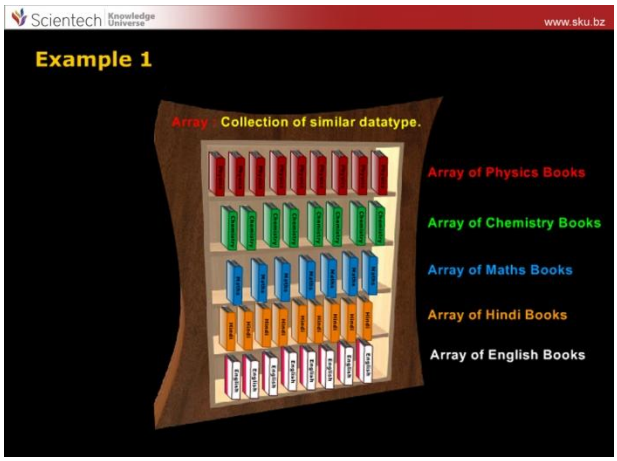
Hashing basic methods, collision, chaining. hashing and collision - resolution techniques.

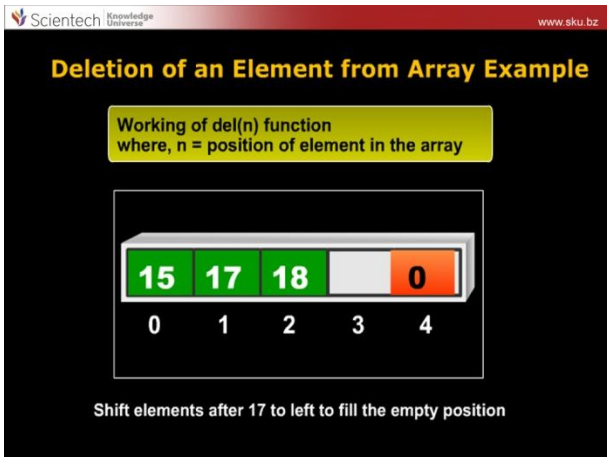
Various sorting algorithms viz. bubble sort, selection sort, inserted sort, Quicksort, merge sort, shell sort address calculation sort and heap sort, tree sort, complexity of the algorithm.

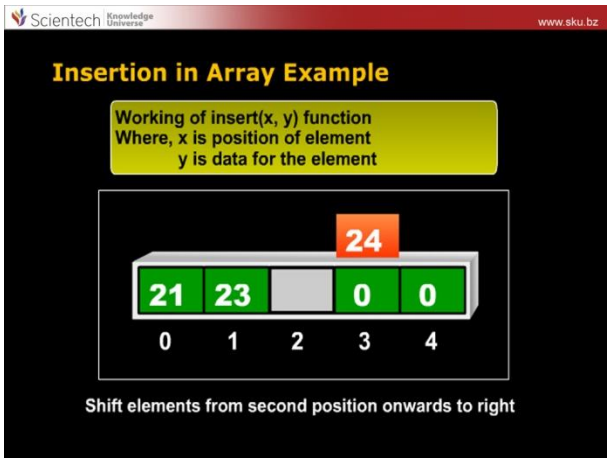
Graphs

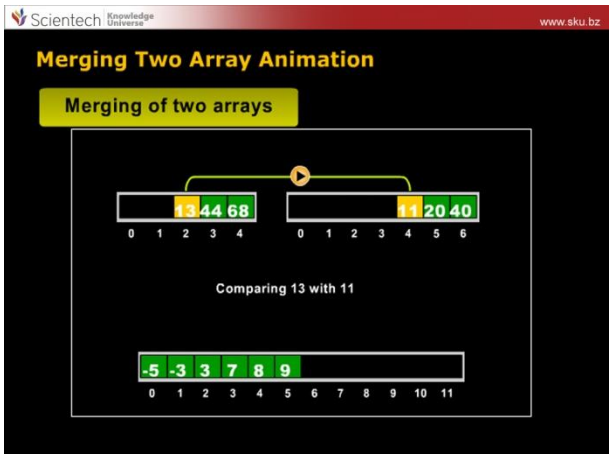
Topics Covered: Related definitions :Graphs, representation of graphs – adjacency matrix, adjacency multilist, traversal schemes- depth first search, breadth first search , Minimum Spanning Tree, reachability, shortest path algorithm, kruskal & Dijkstra algorithm, critical events, Graph traversals, application of graph.

Print Shots of SKU-Data Structure:


Scientech Knowledge Universe
www.sku.bz
Example 1
Array Collection of similar datatype.
Array of Physics Books
Array of Chemistry Books
Array of Maths Books
Array of Hindi Books
Array of English Books


Scientech Knowledge Universe
www.sku.bz
Deletion of an Element from Array Example
Working of del(n) function
where, n = position of element in the array
15 17 18 0
0 1 2 3 4
Shift elements after 17 to left to fill the empty position


Scientech Knowledge Universe
www.sku.bz
Insertion in Array Example
Working of insert(x, y) function
Where, x is position of element
y is data for the element
24
21 23 0 0
0 1 2 3 4
Shift elements from second position onwards to right


Scientech Knowledge Universe
www.sku.bz
Merging Two Array Animation
Merging of two arrays
13 44 68
0 1 2 3 4
11 20 40
0 1 2 3 4 5 6
Comparing 13 with 11
-5 -3 3 7 8 9
0 1 2 3 4 5 6 7 8 9 10 11