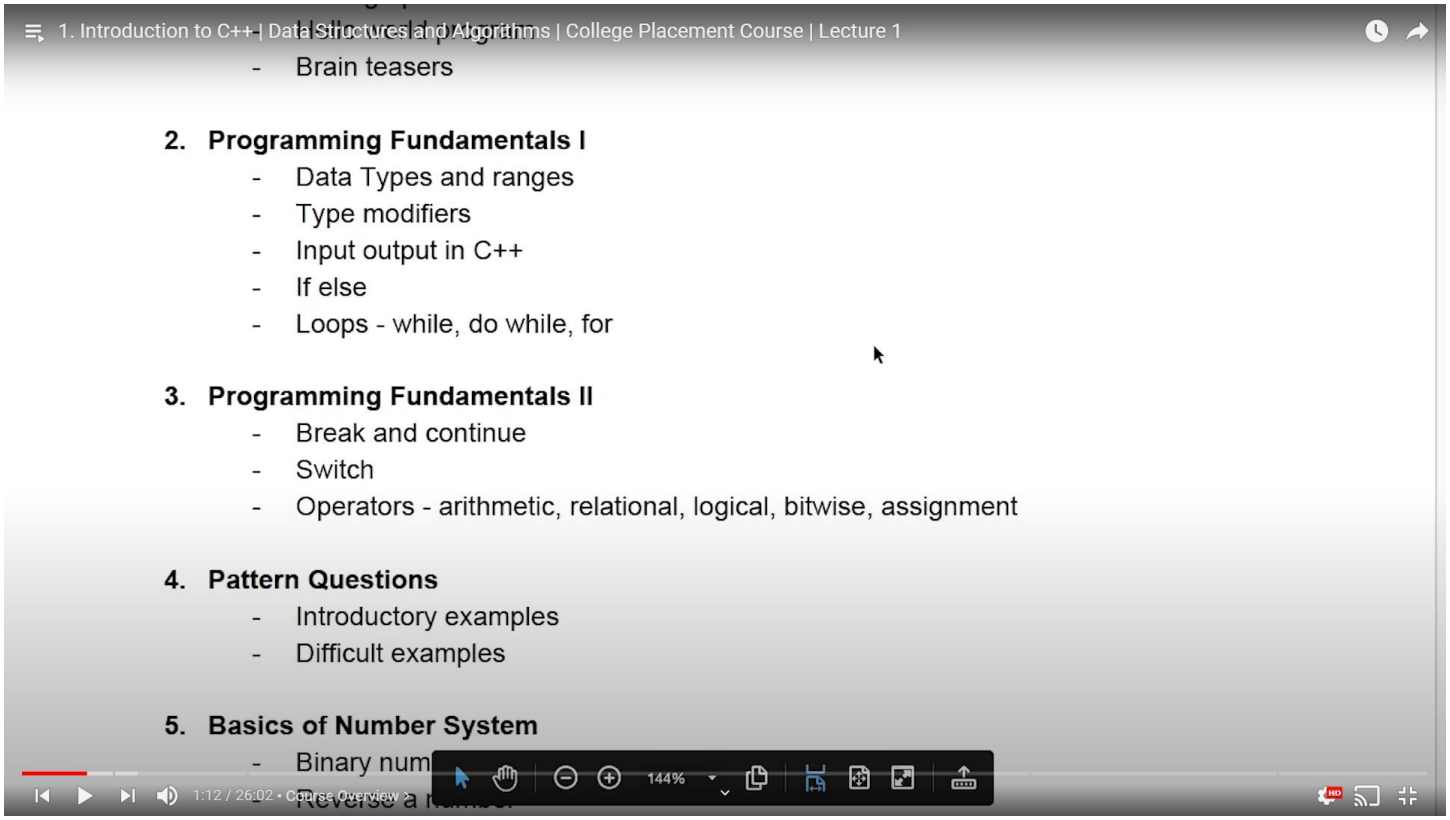
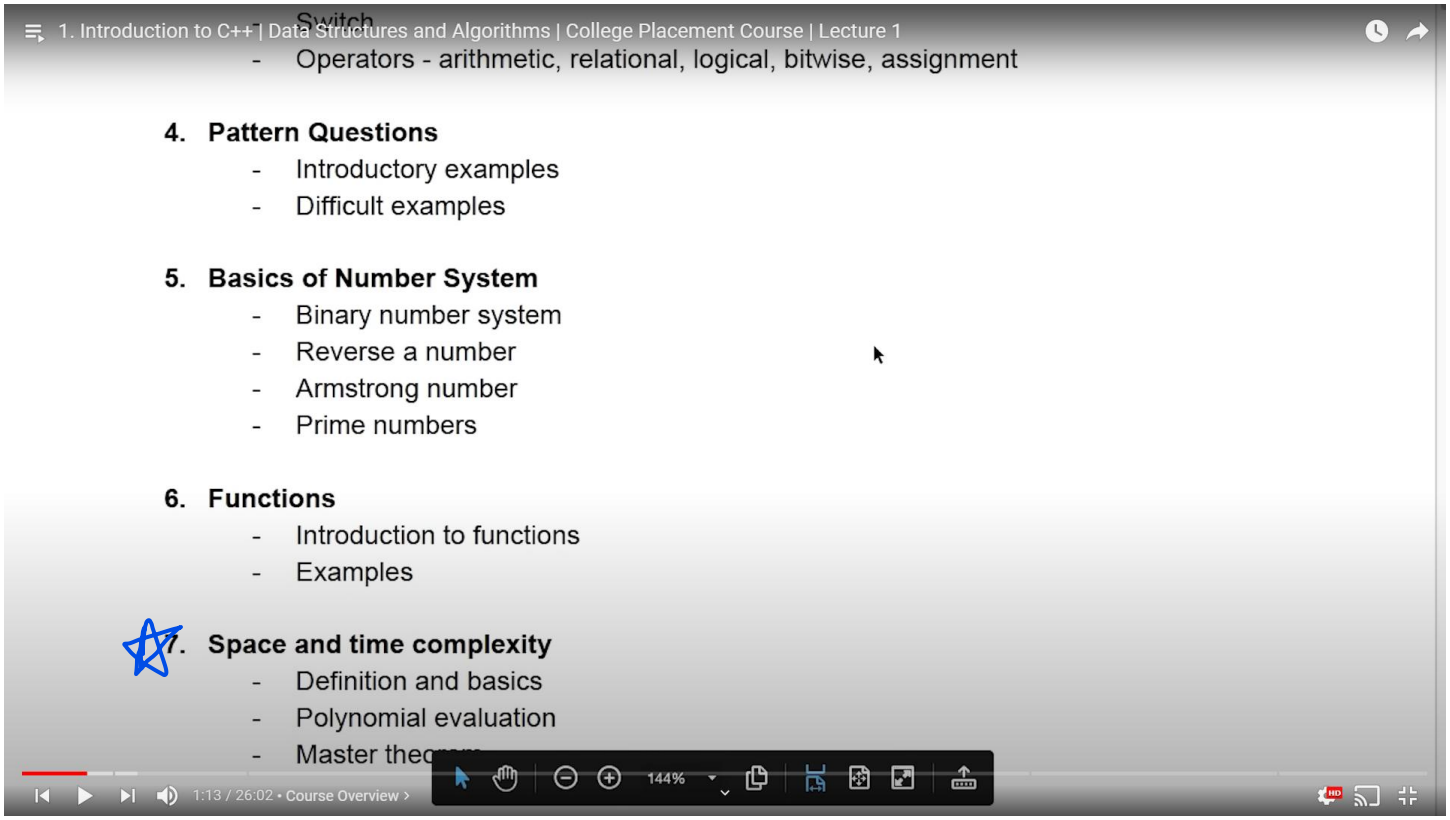
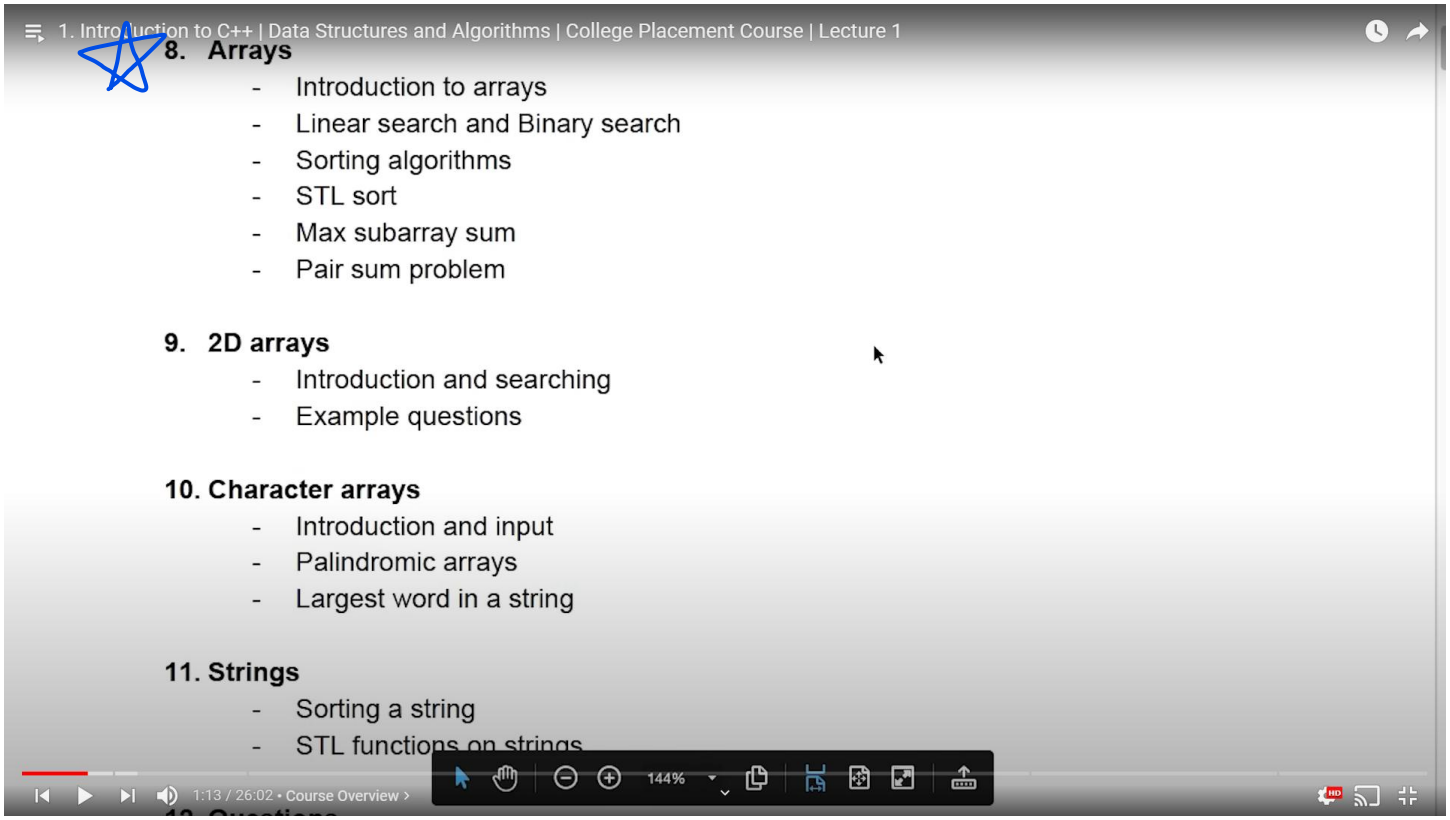
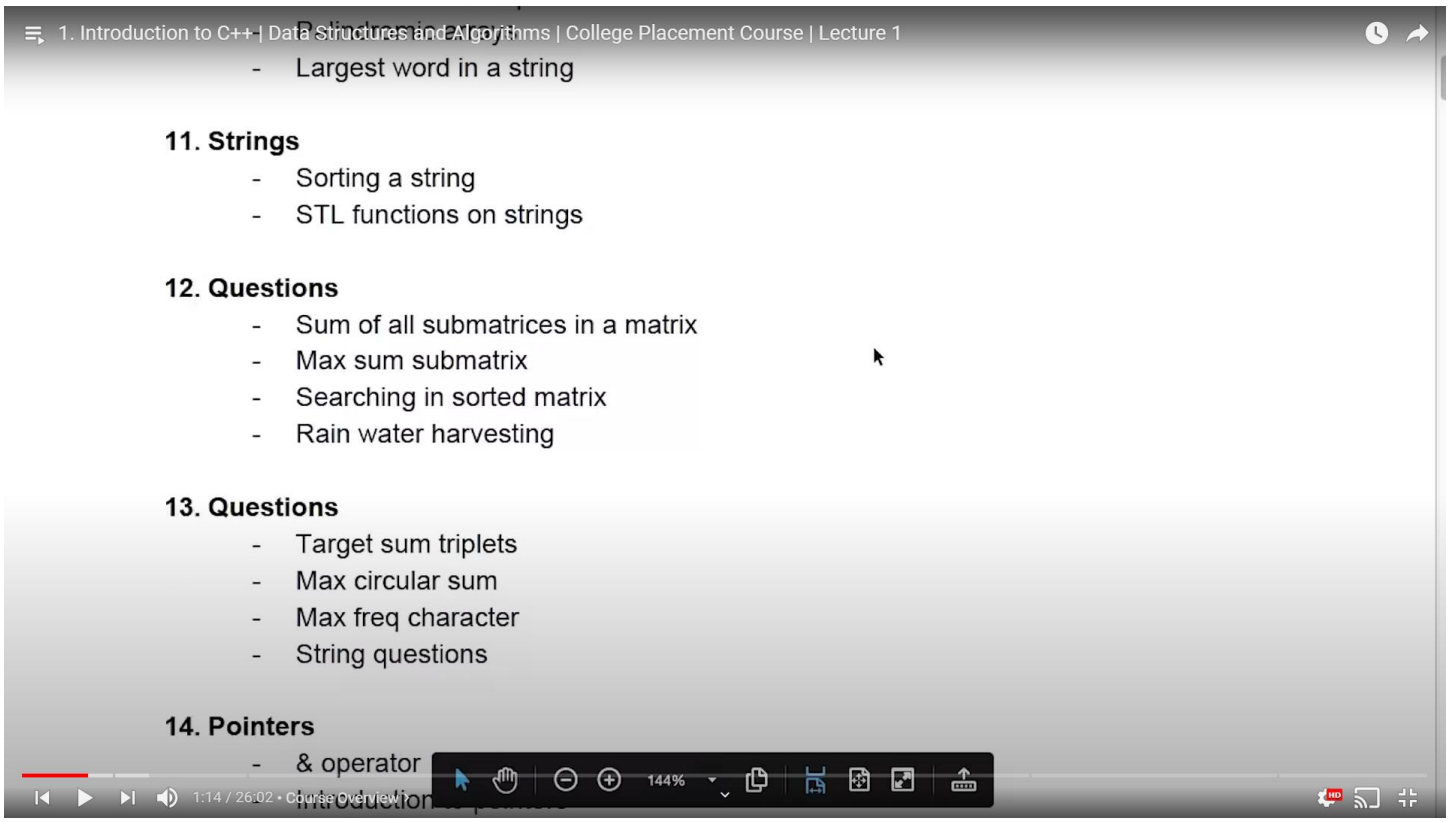
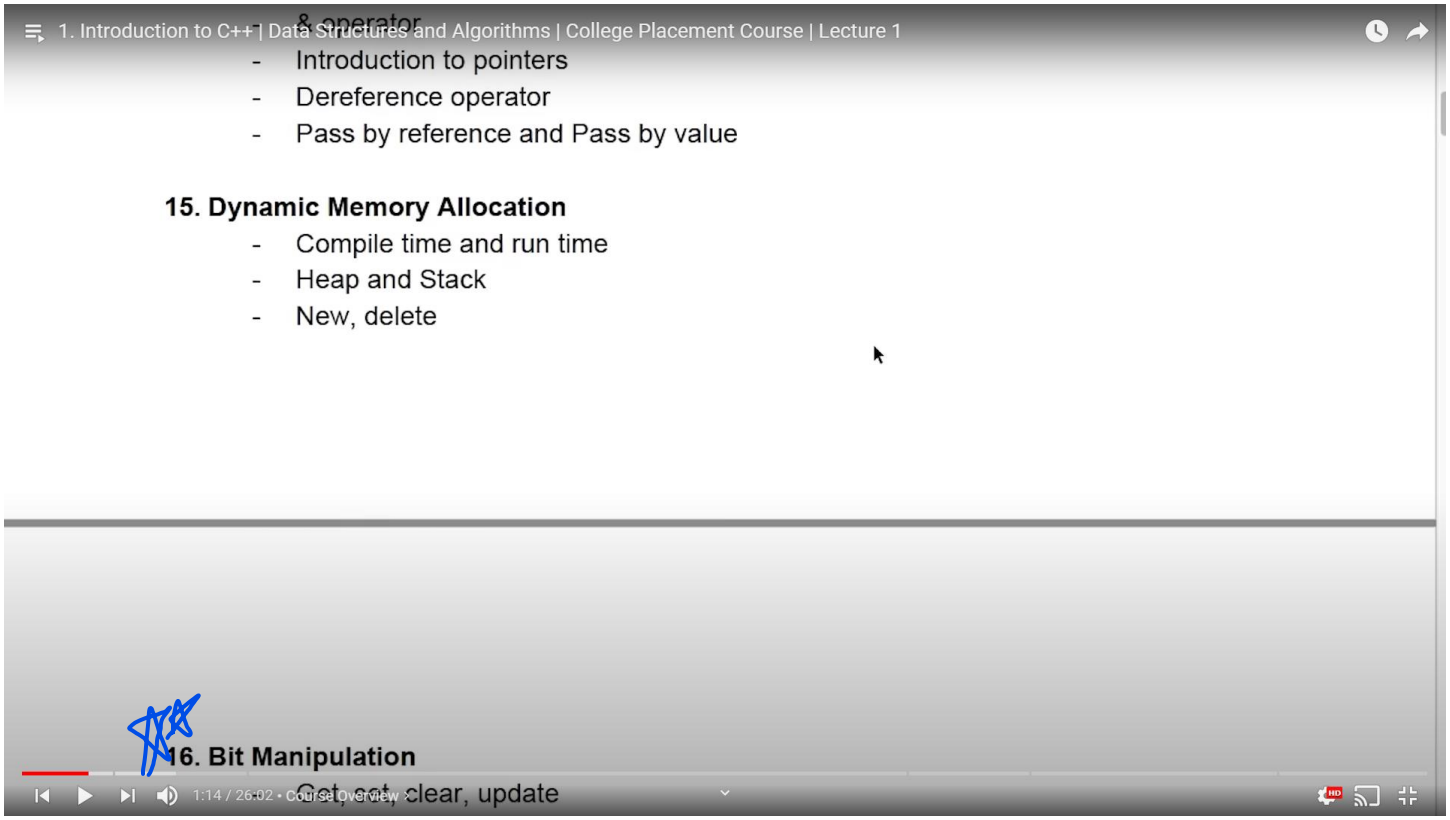
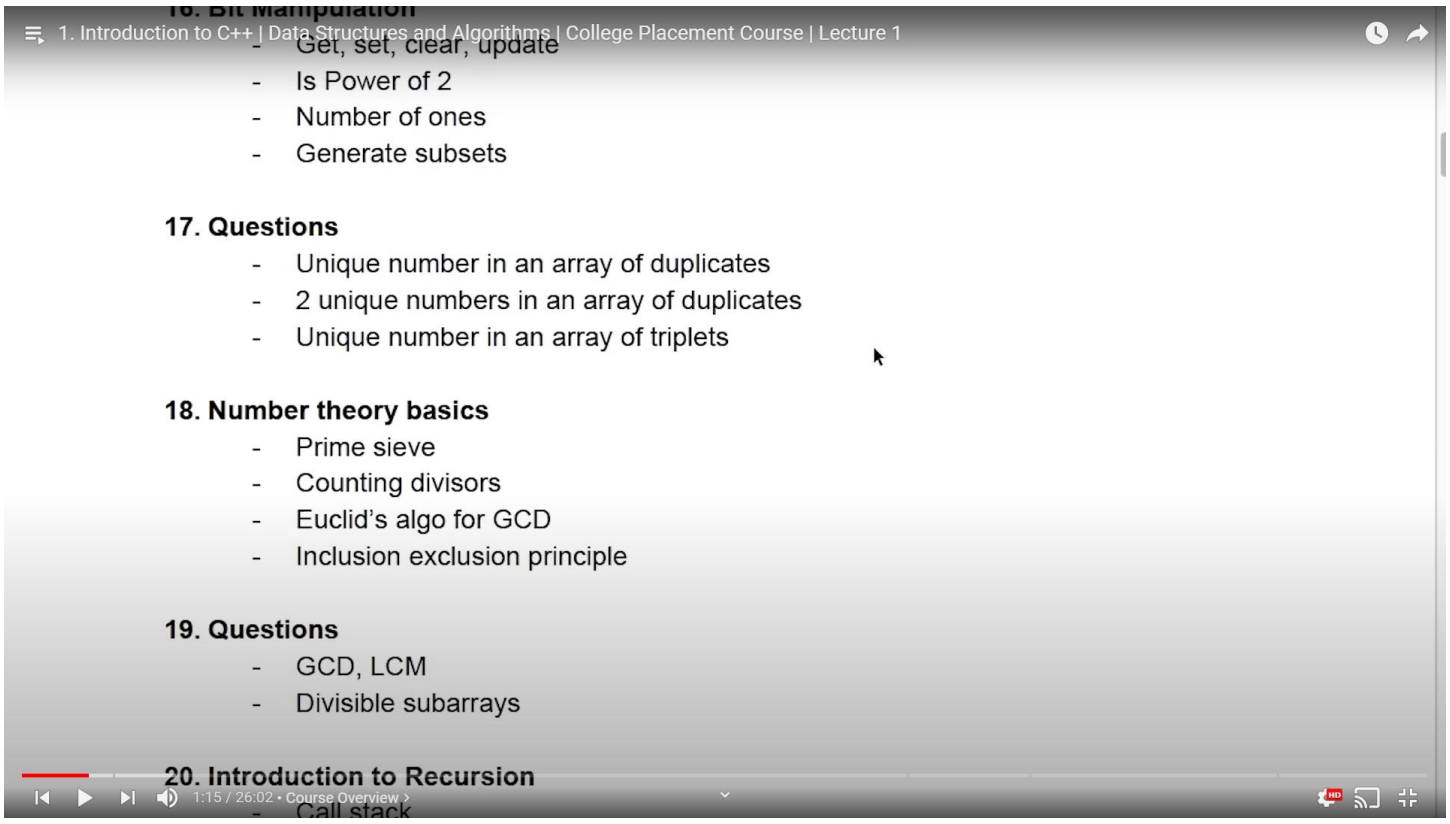

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
- Brain teasers
2. Programming Fundamentals I
- Data Types and ranges
- Type modifiers
- Input output in C++
- If else
- Loops - while, do while, for
3. Programming Fundamentals II
- Break and continue
- Switch
- Operators - arithmetic, relational, logical, bitwise, assignment
4. Pattern Questions
- Introductory examples
- Difficult examples
5. Basics of Number System
144%
1:12 / 26:02 • Course Overview >

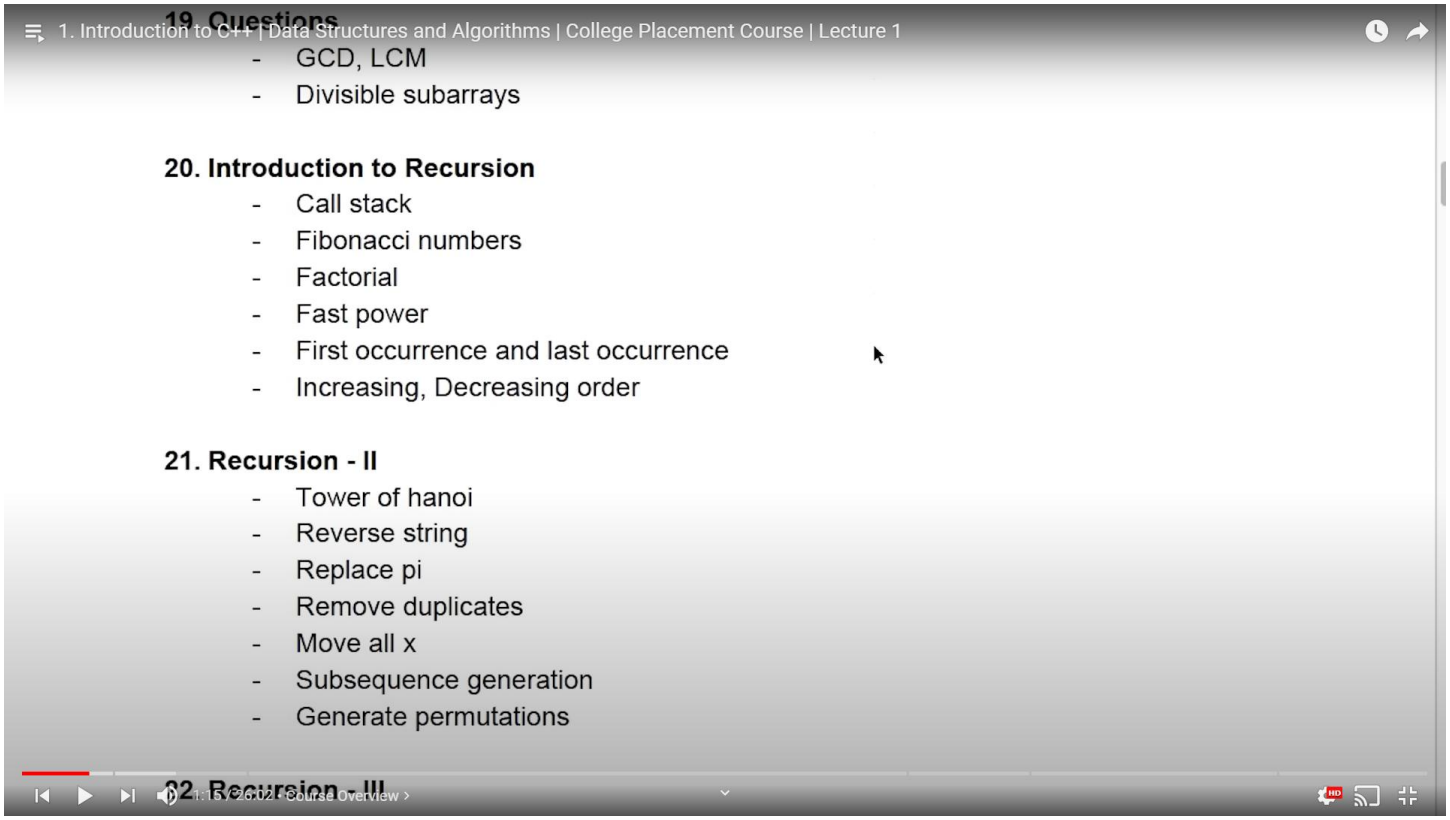

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
- Operators - arithmetic, relational, logical, bitwise, assignment
4. Pattern Questions
- Introductory examples
- Difficult examples
5. Basics of Number System
- Binary number system
- Reverse a number
- Armstrong number
- Prime numbers
6. Functions
- Introduction to functions
- Examples
7. Space and time complexity
- Definition and basics
- Polynomial evaluation
144%
1:13 / 26:02 • Course Overview >

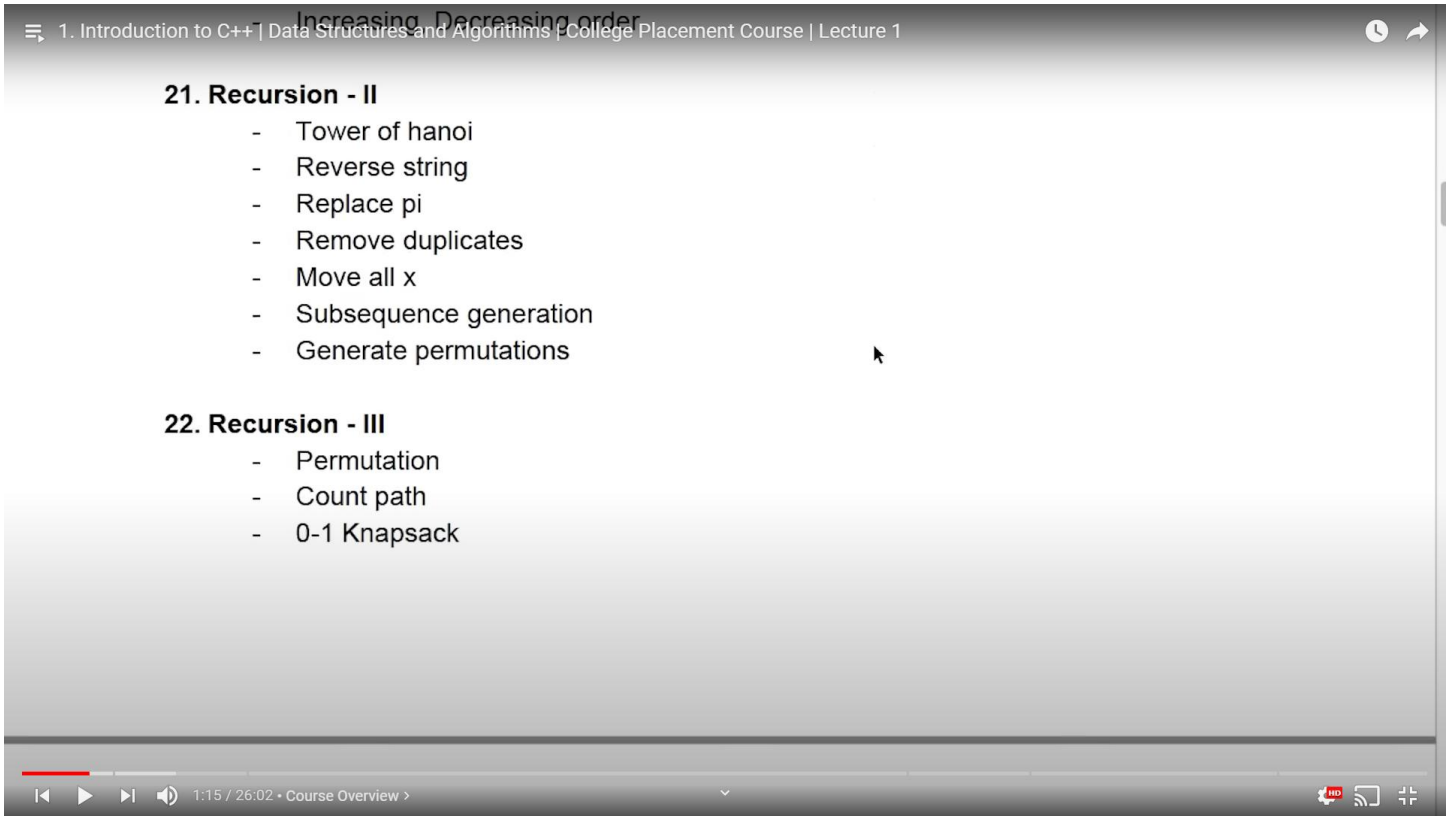

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
8. Arrays
- Introduction to arrays
- Linear search and Binary search
- Sorting algorithms
- STL sort
- Max subarray sum
- Pair sum problem
9. 2D arrays
- Introduction and searching
- Example questions
10. Character arrays
- Introduction and input
- Palindromic arrays
- Largest word in a string
11. Strings
- Sorting a string
- STL functions on strings
144%
1:13 / 26:02 • Course Overview ›

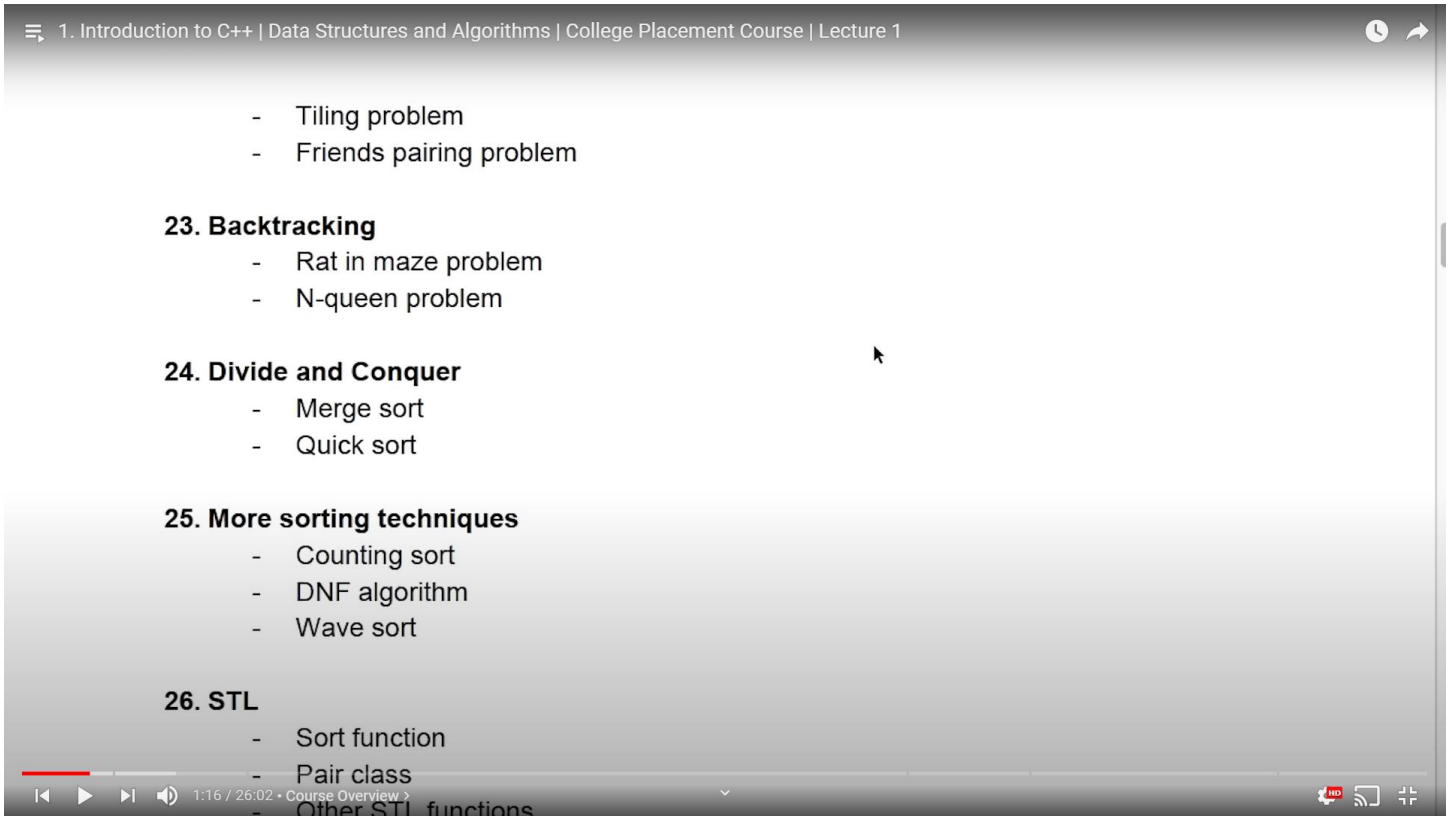

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
- Largest word in a string
11. Strings
- Sorting a string
- STL functions on strings
12. Questions
- Sum of all submatrices in a matrix
- Max sum submatrix
- Searching in sorted matrix
- Rain water harvesting
13. Questions
- Target sum triplets
- Max circular sum
- Max freq character
- String questions
14. Pointers
- & operator
144%
1:14 / 26:02 • Course Overview

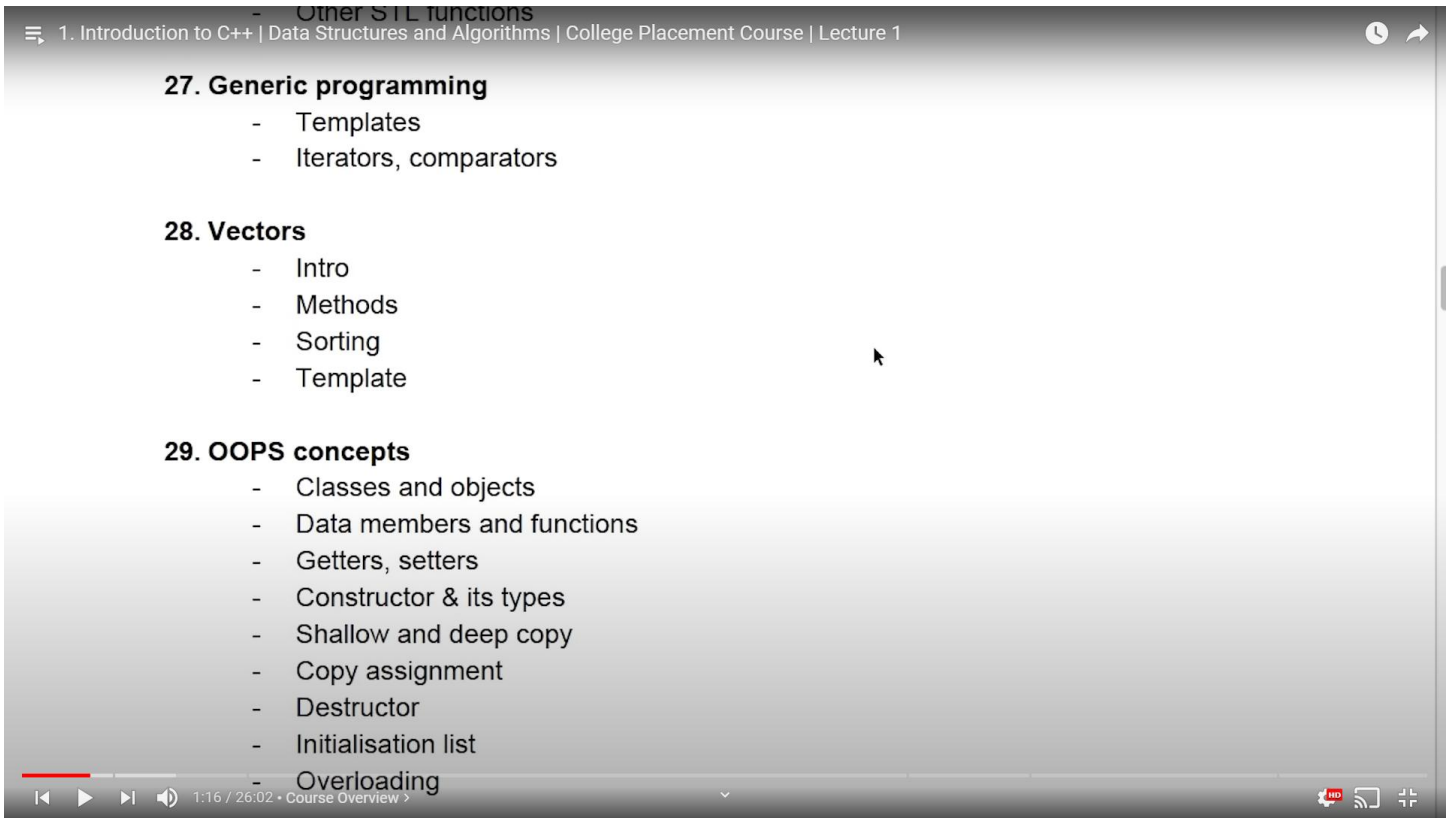

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
& operator
- Introduction to pointers
- Dereference operator
- Pass by reference and Pass by value
15. Dynamic Memory Allocation
- Compile time and run time
- Heap and Stack
- New, delete
16. Bit Manipulation
Get, set, clear, update
1:14 / 26:02 • Course Overview ›

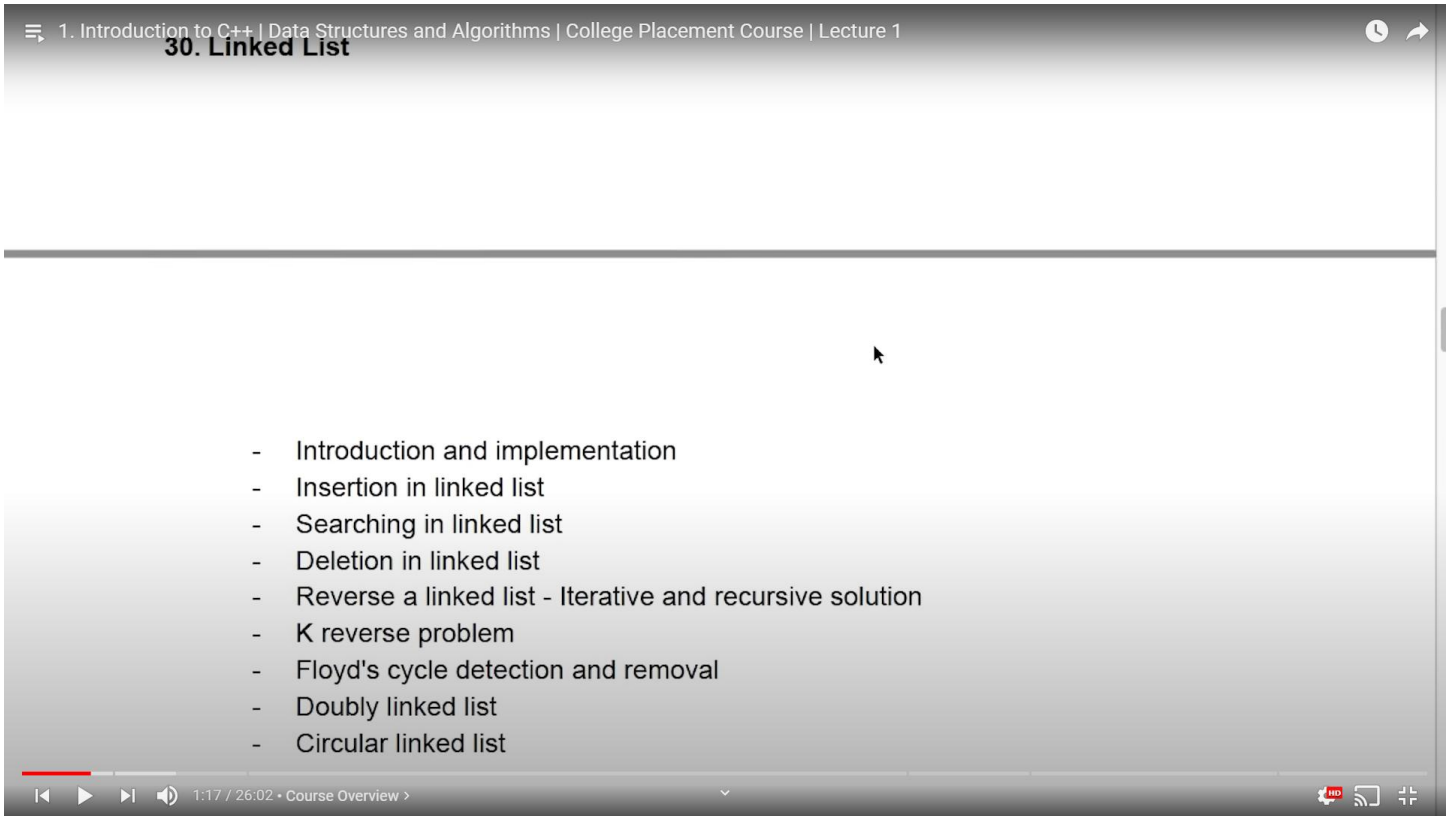

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
- Get, set, clear, update
- Is Power of 2
- Number of ones
- Generate subsets
17. Questions
- Unique number in an array of duplicates
- 2 unique numbers in an array of duplicates
- Unique number in an array of triplets
18. Number theory basics
- Prime sieve
- Counting divisors
- Euclid's algo for GCD
- Inclusion exclusion principle
19. Questions
- GCD, LCM
- Divisible subarrays
20. Introduction to Recursion
- Call stack
1:15 / 26:02 • Course Overview ›

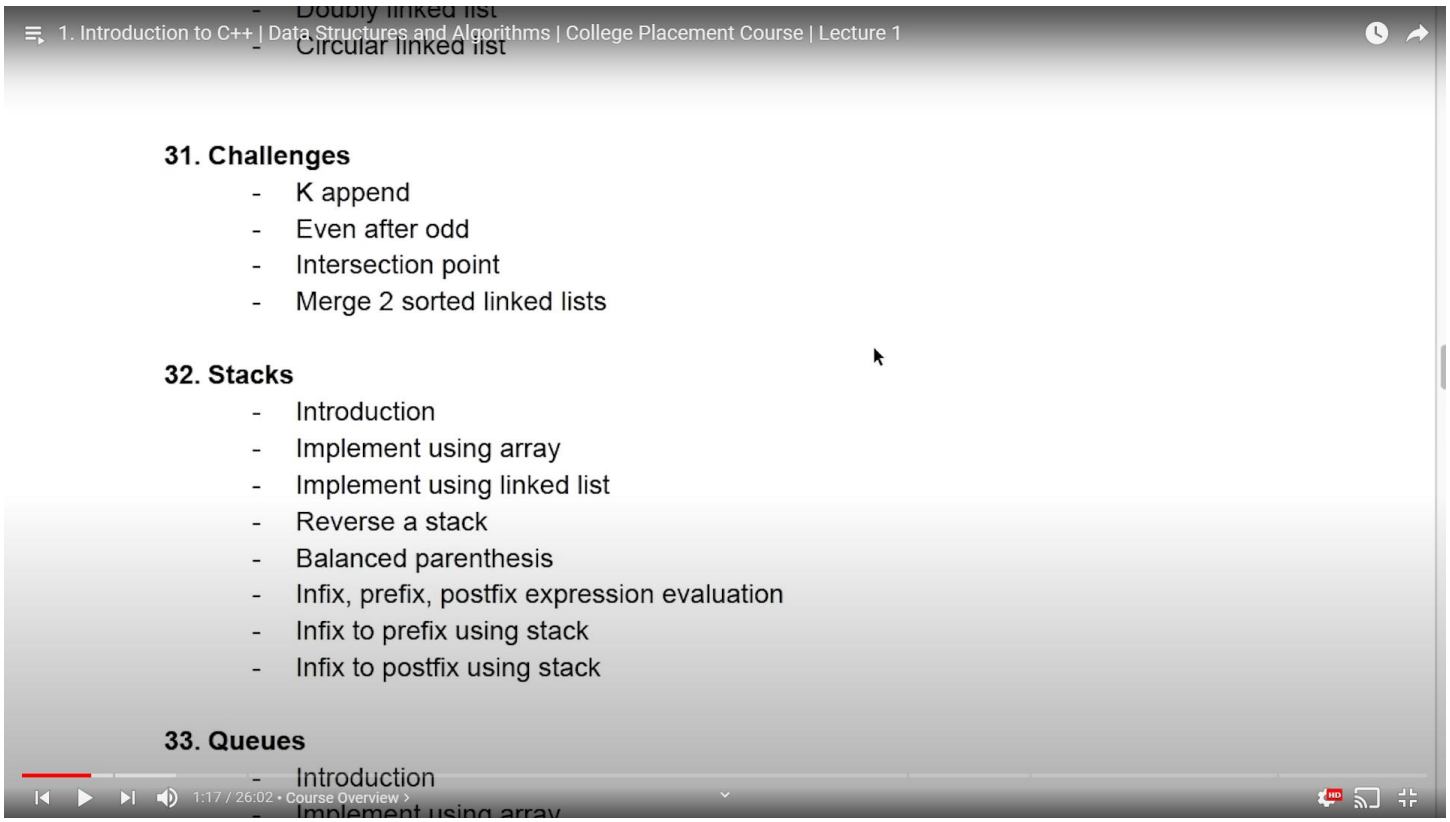

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
19. Questions
- GCD, LCM
- Divisible subarrays
20. Introduction to Recursion
- Call stack
- Fibonacci numbers
- Factorial
- Fast power
- First occurrence and last occurrence
- Increasing, Decreasing order
21. Recursion - II
- Tower of hanoi
- Reverse string
- Replace pi
- Remove duplicates
- Move all x
- Subsequence generation
- Generate permutations
22. Recursion - III
1:15 / 26:02 • Course Overview ›

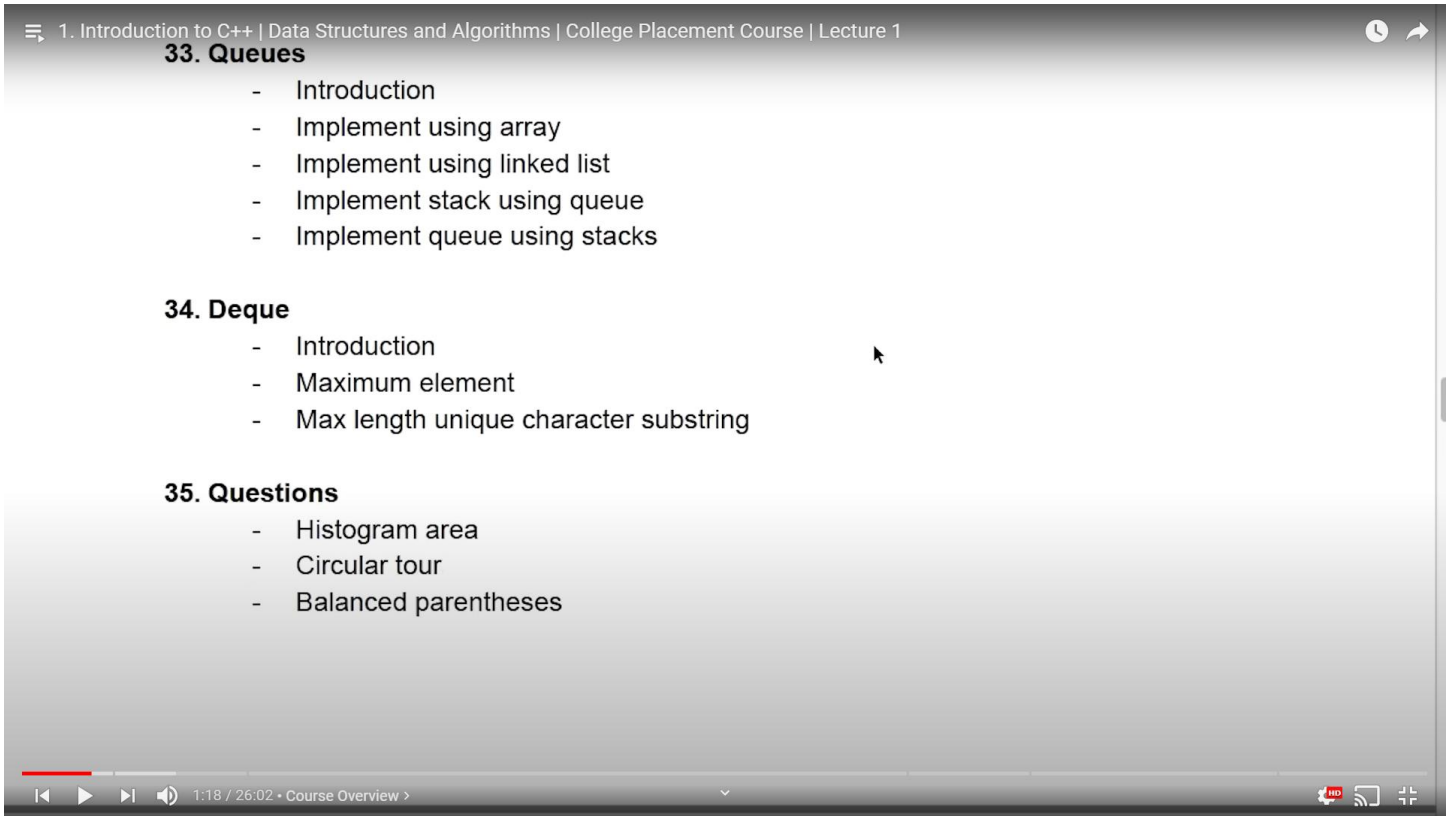

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
- Increasing, Decreasing order
21. Recursion - II
- Tower of hanoi
- Reverse string
- Replace pi
- Remove duplicates
- Move all x
- Subsequence generation
- Generate permutations
22. Recursion - III
- Permutation
- Count path
- 0-1 Knapsack
1:15 / 26:02 • Course Overview ›

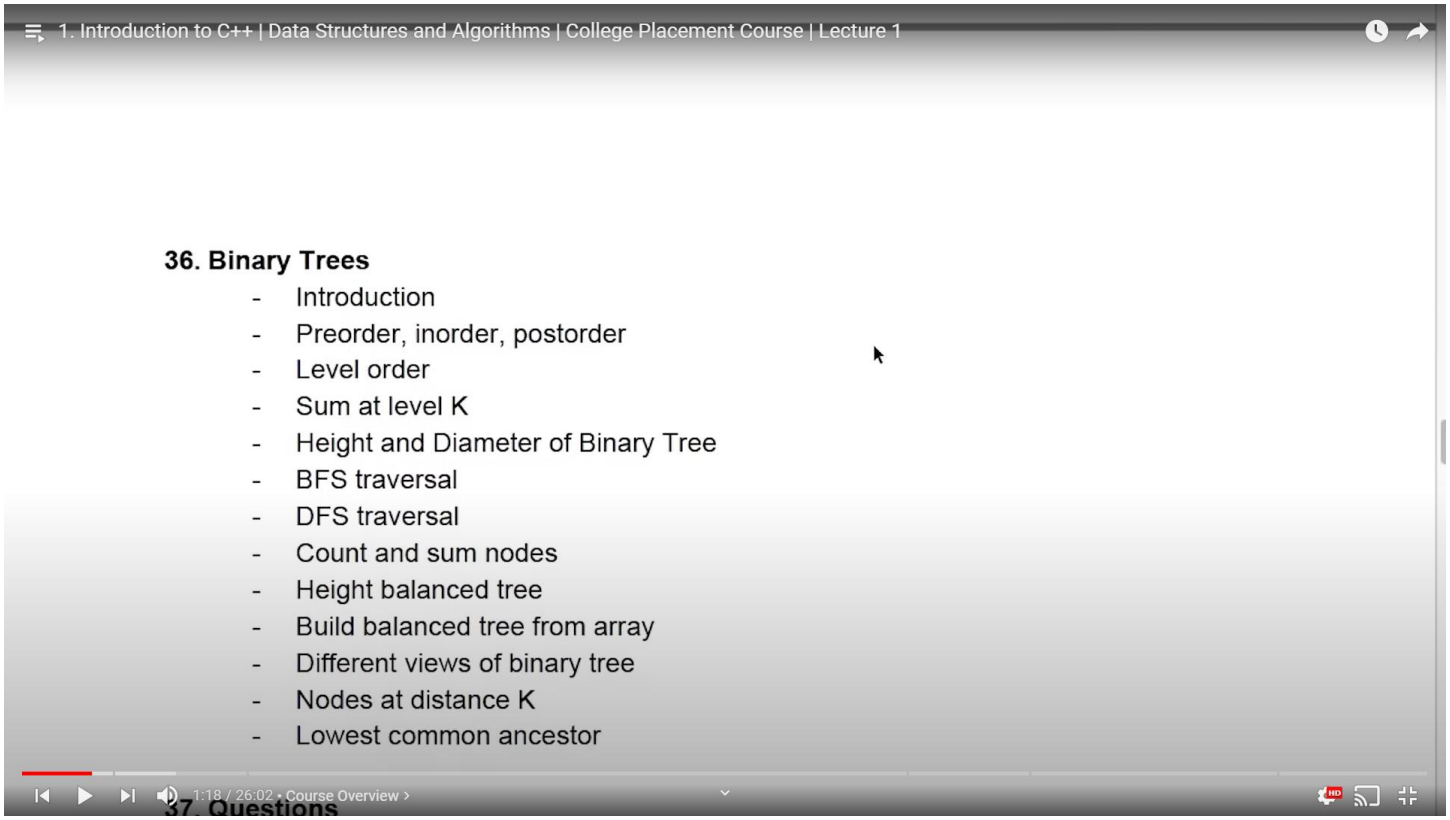

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
- Tiling problem
- Friends pairing problem
23. Backtracking
- Rat in maze problem
- N-queen problem
24. Divide and Conquer
- Merge sort
- Quick sort
25. More sorting techniques
- Counting sort
- DNF algorithm
- Wave sort
26. STL
- Sort function
- Pair class
1:16 / 26:02 • Course Overview

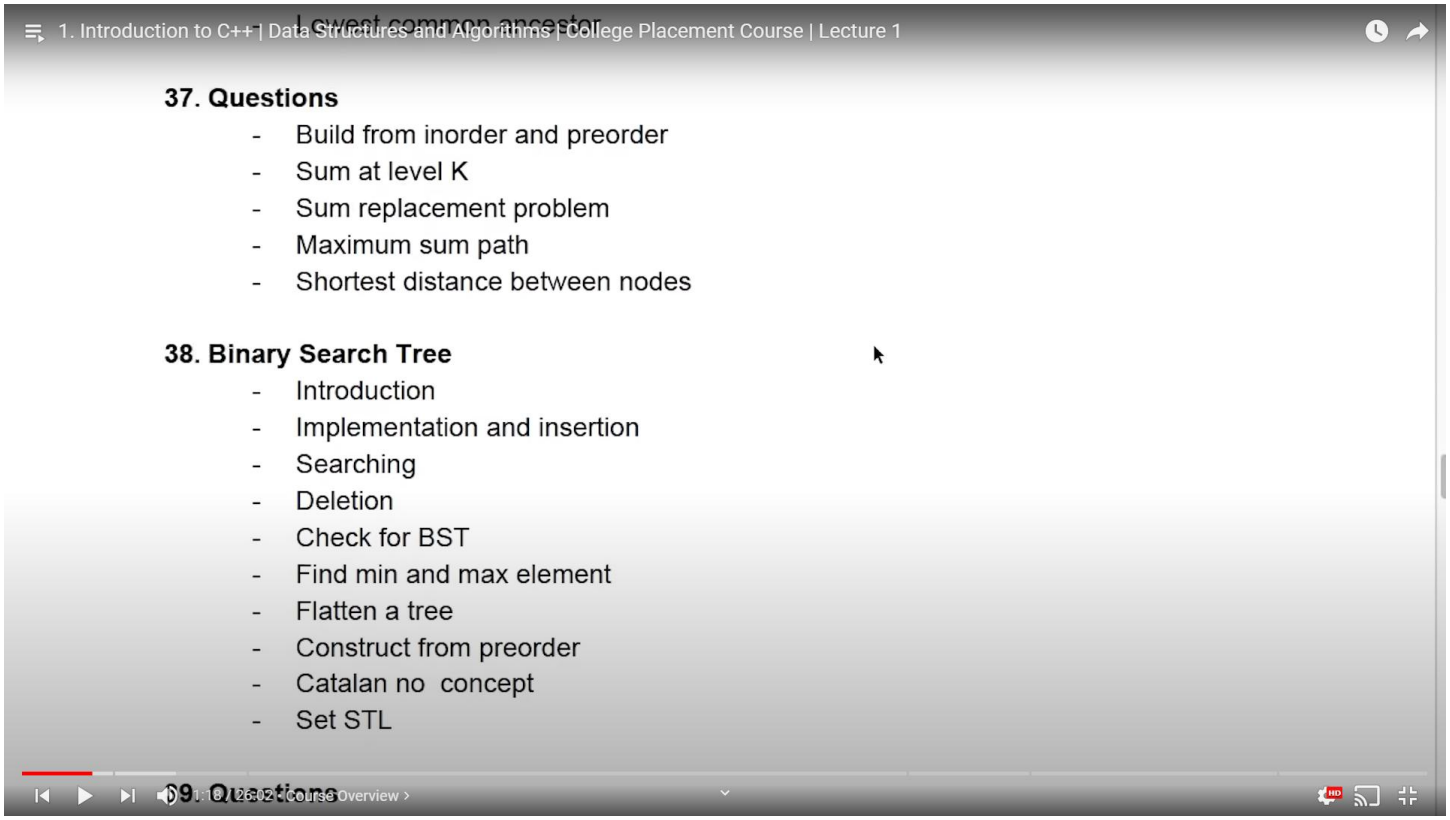

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
- Other STL functions
27. Generic programming
- Templates
- Iterators, comparators
28. Vectors
- Intro
- Methods
- Sorting
- Template
29. OOPS concepts
- Classes and objects
- Data members and functions
- Getters, setters
- Constructor & its types
- Shallow and deep copy
- Copy assignment
- Destructor
- Initialisation list
- Overloading
1:16 / 26:02 • Course Overview

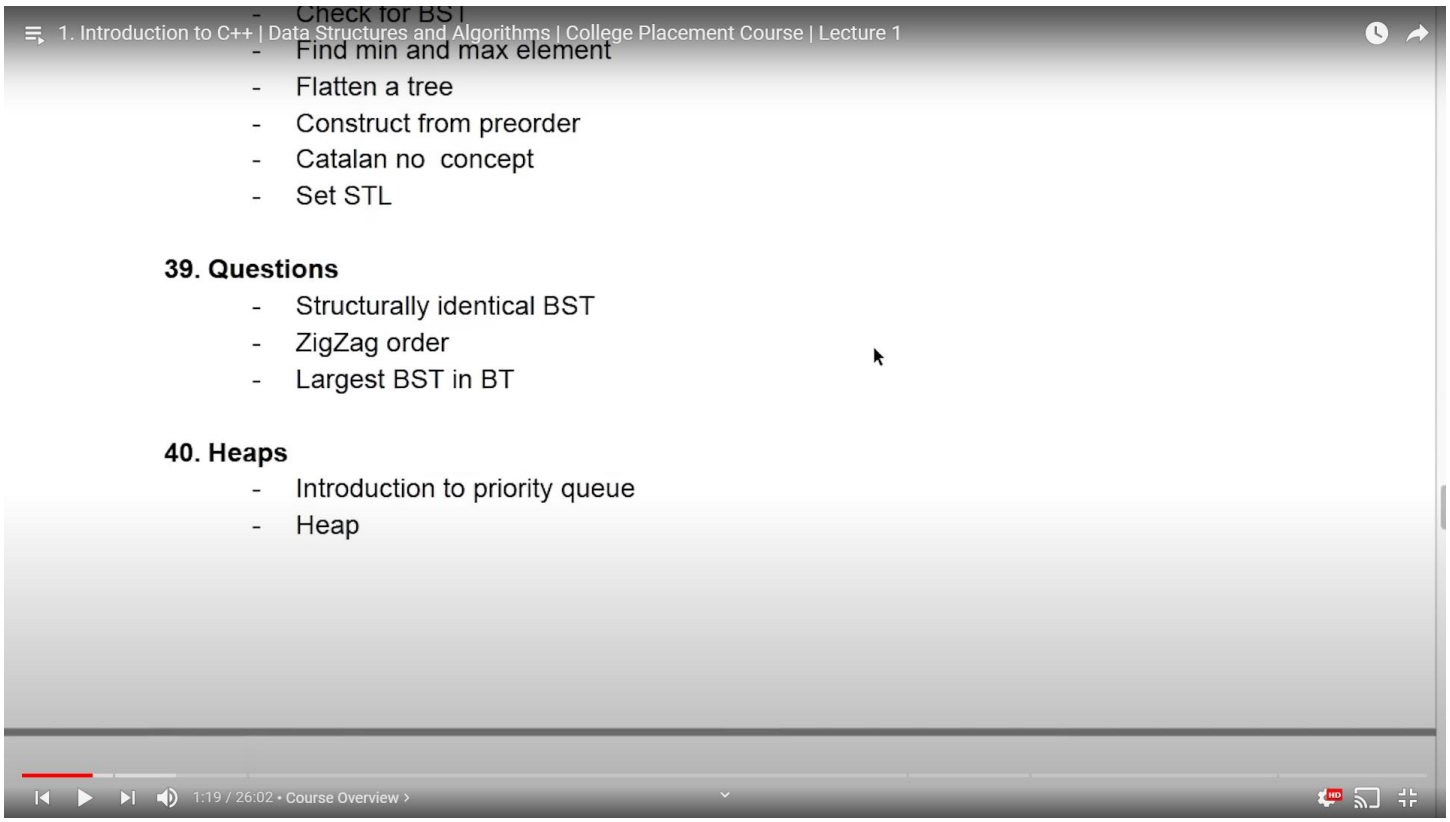

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
30. Linked List
- Introduction and implementation
- Insertion in linked list
- Searching in linked list
- Deletion in linked list
- Reverse a linked list - Iterative and recursive solution
- K reverse problem
- Floyd's cycle detection and removal
- Doubly linked list
- Circular linked list
1:17 / 26:02 • Course Overview ›

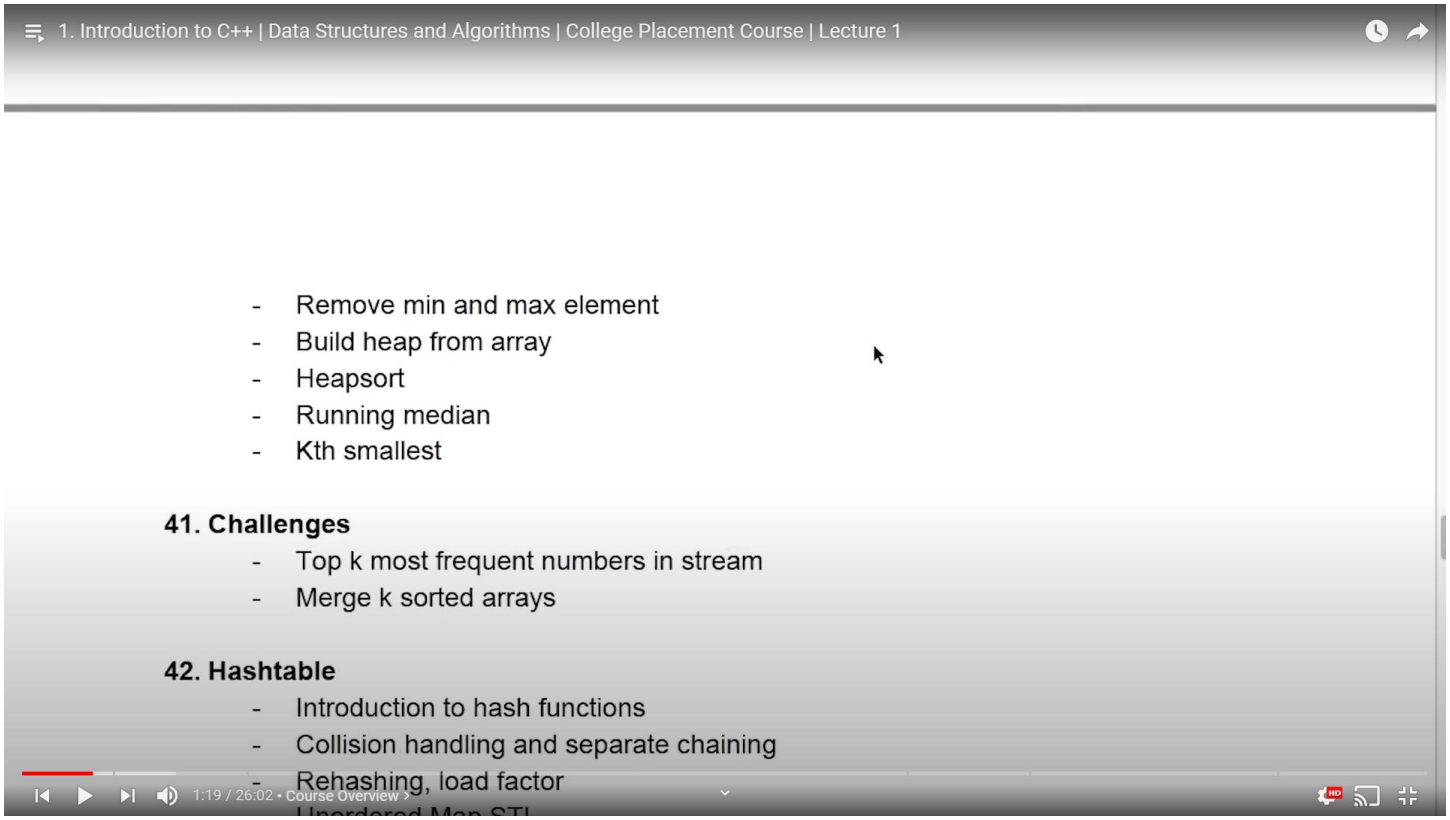

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
- Doubly linked list
- Circular linked list
31. Challenges
- K append
- Even after odd
- Intersection point
- Merge 2 sorted linked lists
32. Stacks
- Introduction
- Implement using array
- Implement using linked list
- Reverse a stack
- Balanced parenthesis
- Infix, prefix, postfix expression evaluation
- Infix to prefix using stack
- Infix to postfix using stack
33. Queues
- Introduction
- Implement using array
1:17 / 26:02 • Course Overview ›

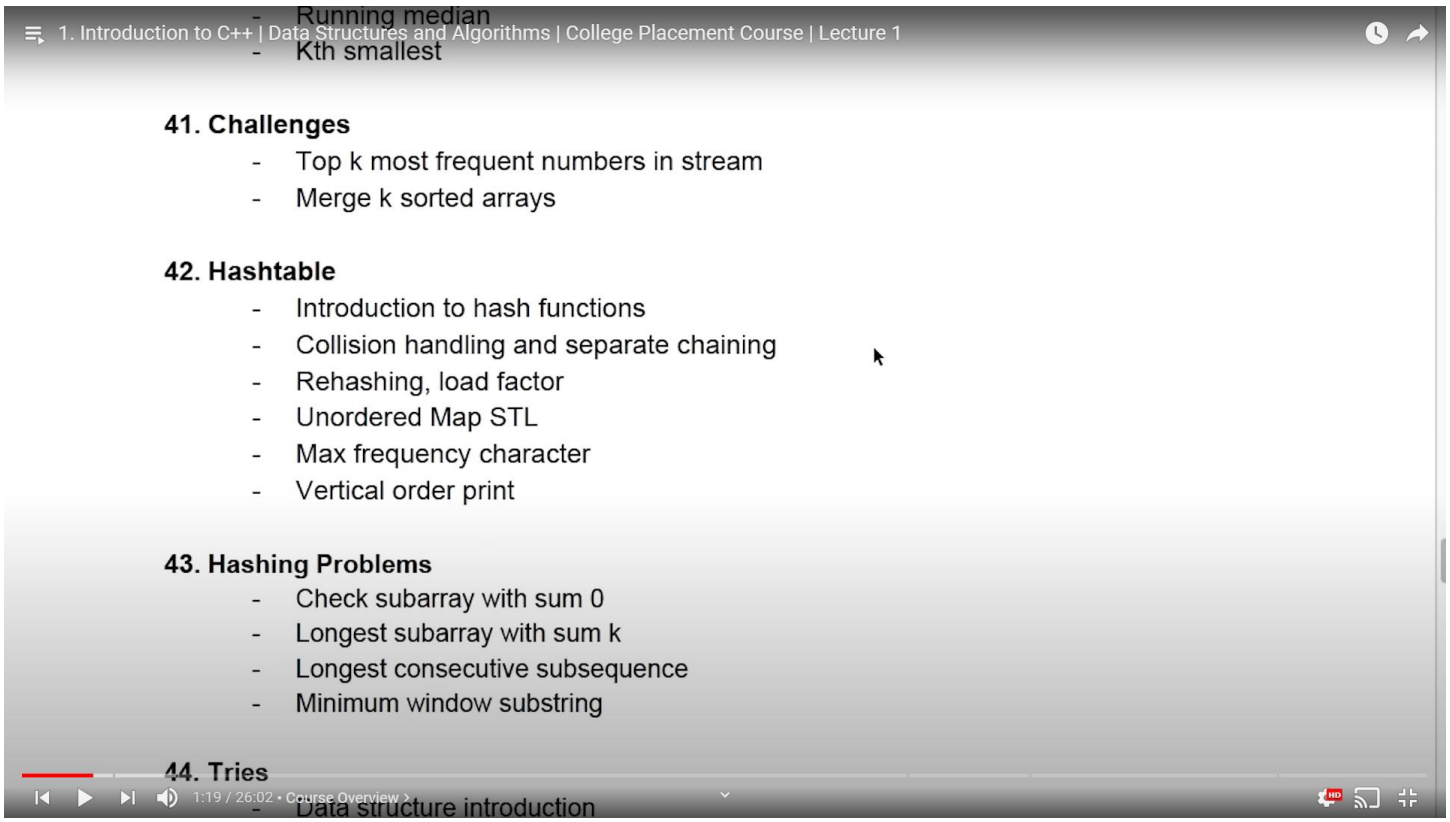

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
33. Queues
- Introduction
- Implement using array
- Implement using linked list
- Implement stack using queue
- Implement queue using stacks
34. Deque
- Introduction
- Maximum element
- Max length unique character substring
35. Questions
- Histogram area
- Circular tour
- Balanced parentheses
1:18 / 26:02 • Course Overview ›

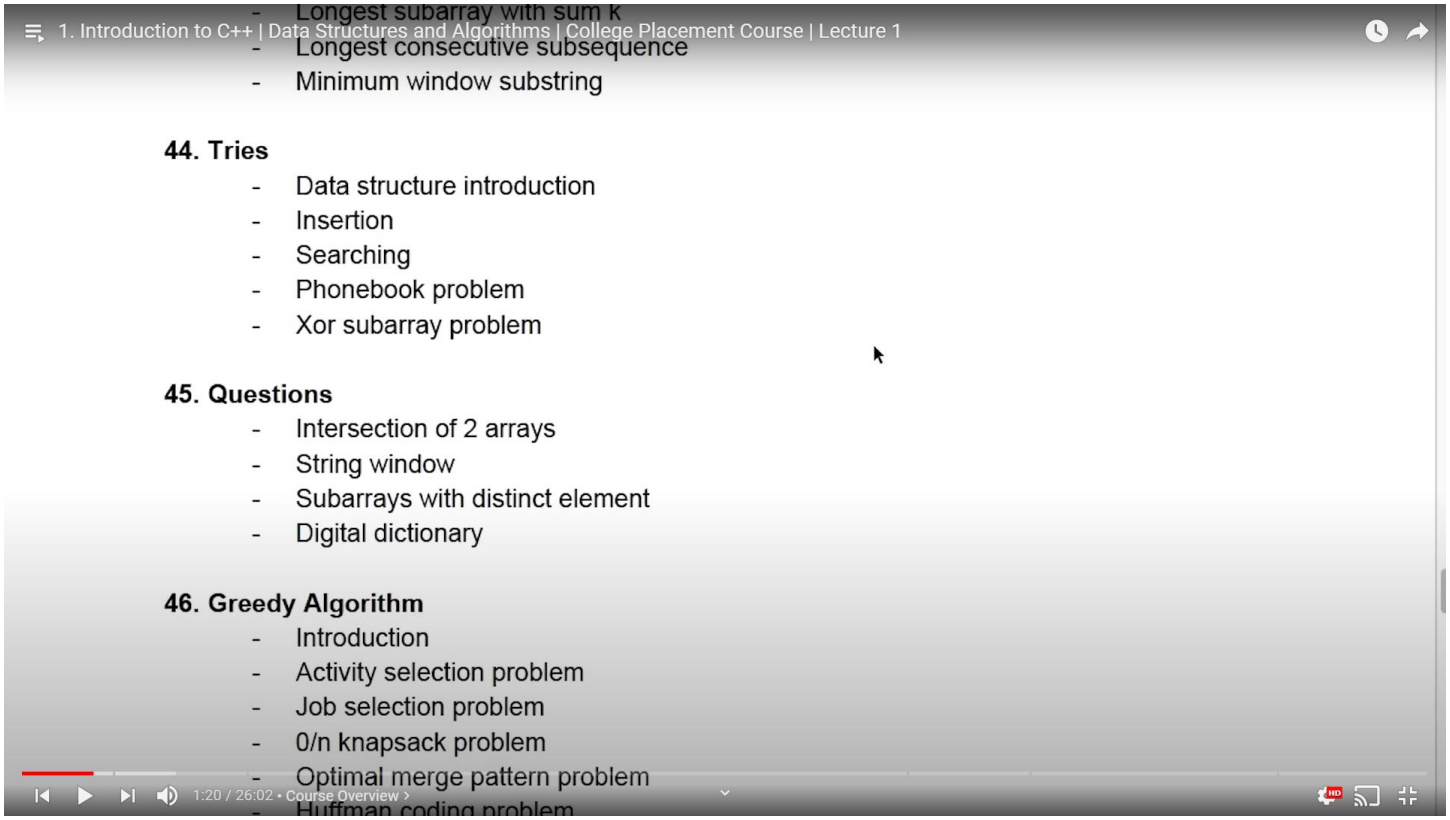

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
36. Binary Trees
- Introduction
- Preorder, inorder, postorder
- Level order
- Sum at level K
- Height and Diameter of Binary Tree
- BFS traversal
- DFS traversal
- Count and sum nodes
- Height balanced tree
- Build balanced tree from array
- Different views of binary tree
- Nodes at distance K
- Lowest common ancestor
1:18 / 26:02 • Course Overview ›
37. Questions

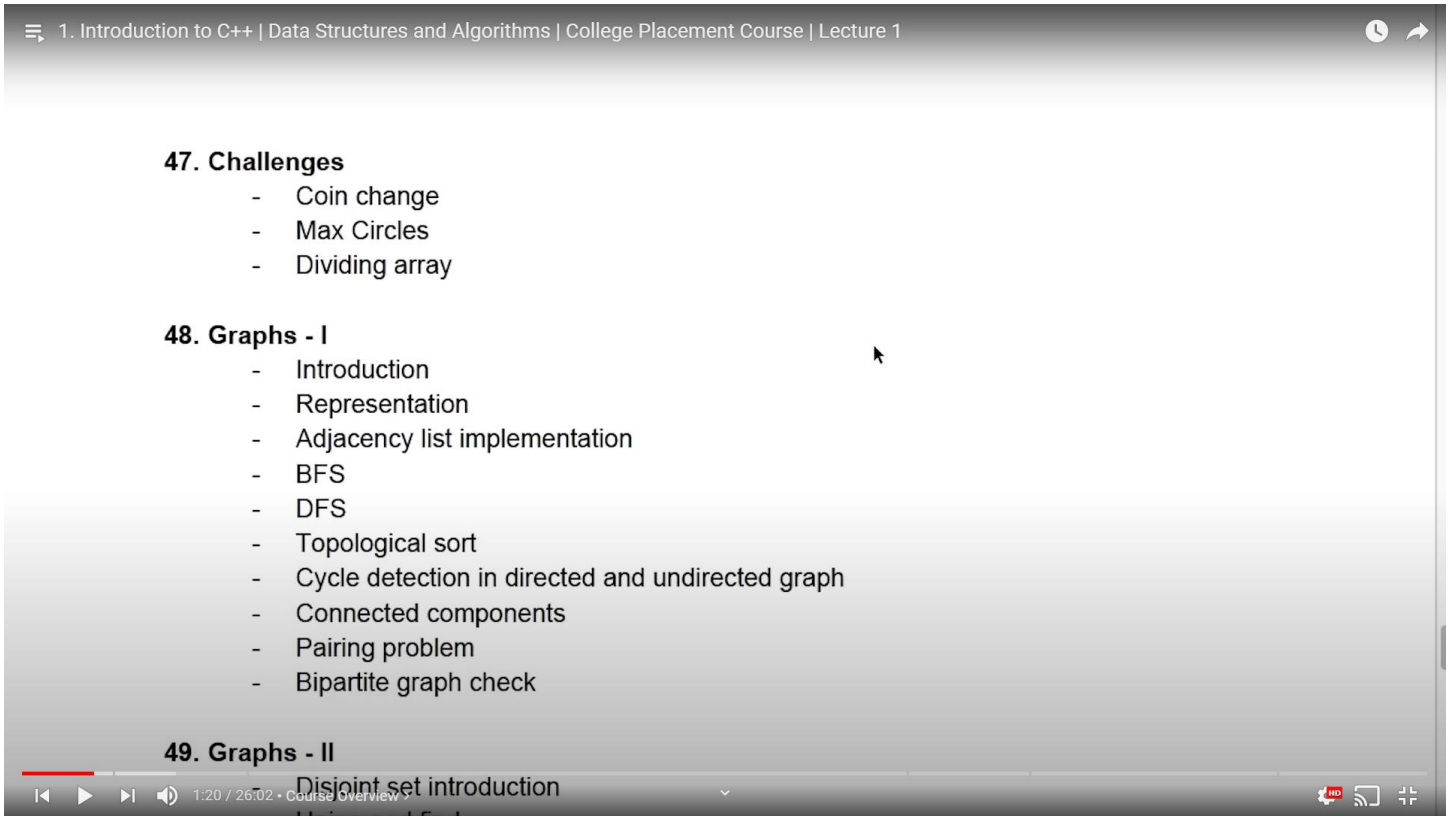

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
Lowest common ancestor
37. Questions
- Build from inorder and preorder
- Sum at level K
- Sum replacement problem
- Maximum sum path
- Shortest distance between nodes
38. Binary Search Tree
- Introduction
- Implementation and insertion
- Searching
- Deletion
- Check for BST
- Find min and max element
- Flatten a tree
- Construct from preorder
- Catalan no concept
- Set STL
39. Questions
1:19 / 26:02 • Course Overview ›

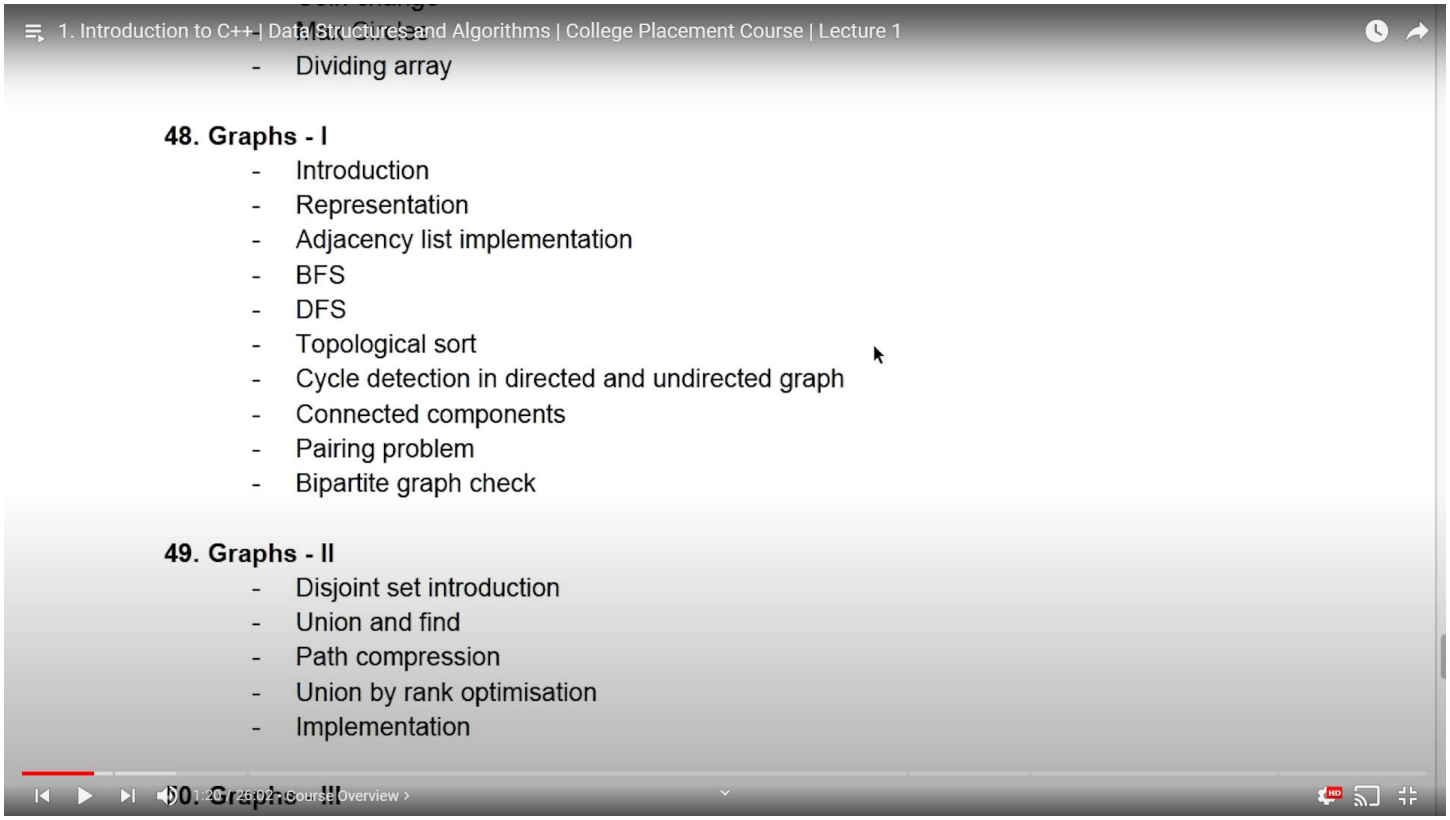

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
- Check for BST
- Find min and max element
- Flatten a tree
- Construct from preorder
- Catalan no concept
- Set STL
39. Questions
- Structurally identical BST
- ZigZag order
- Largest BST in BT
40. Heaps
- Introduction to priority queue
- Heap
1:19 / 26:02 • Course Overview ›

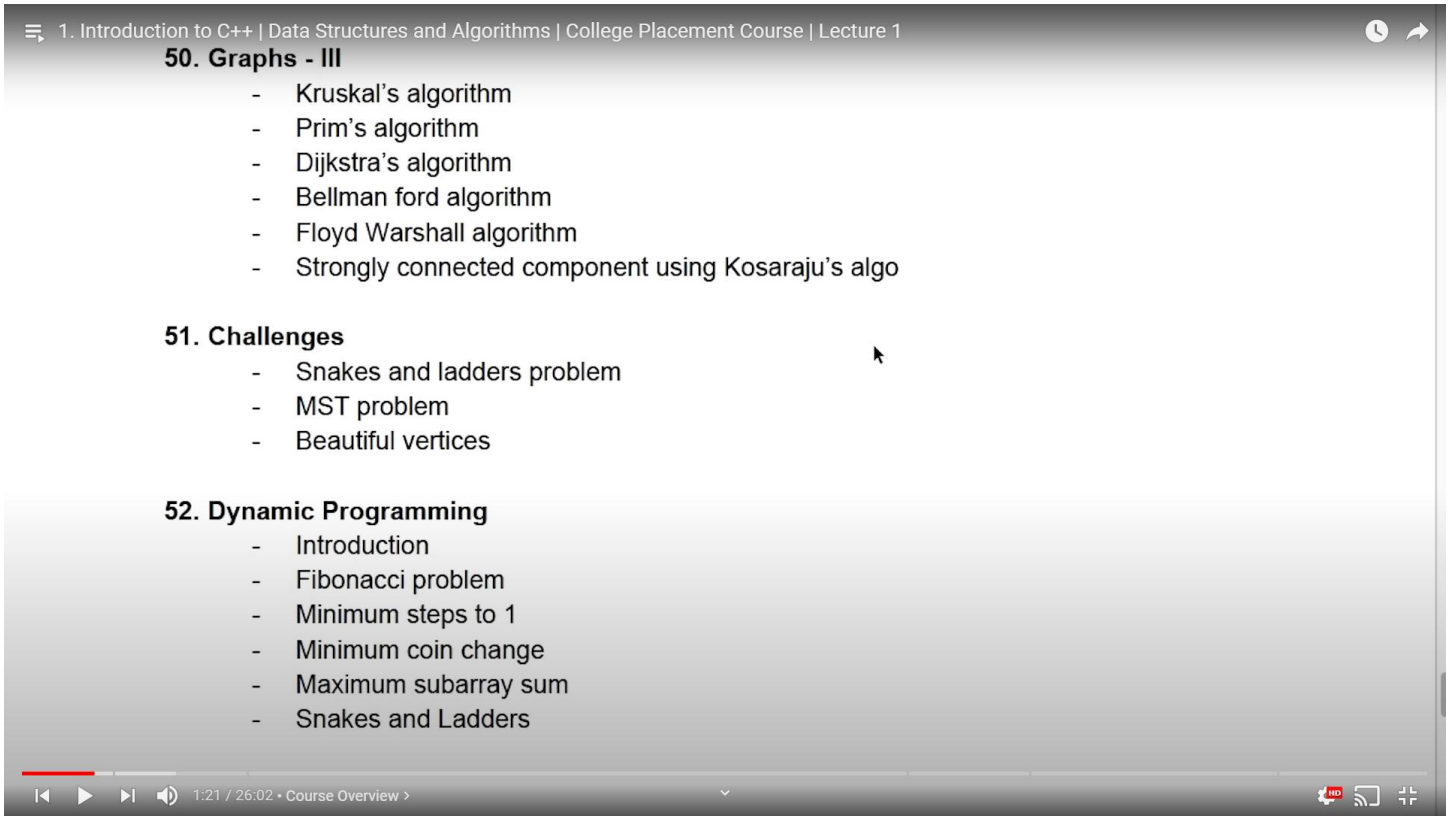

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
- Remove min and max element
- Build heap from array
- Heapsort
- Running median
- Kth smallest
41. Challenges
- Top k most frequent numbers in stream
- Merge k sorted arrays
42. Hashtable
- Introduction to hash functions
- Collision handling and separate chaining
- Rehashing, load factor
1:19 / 26:02 • Course Overview ›

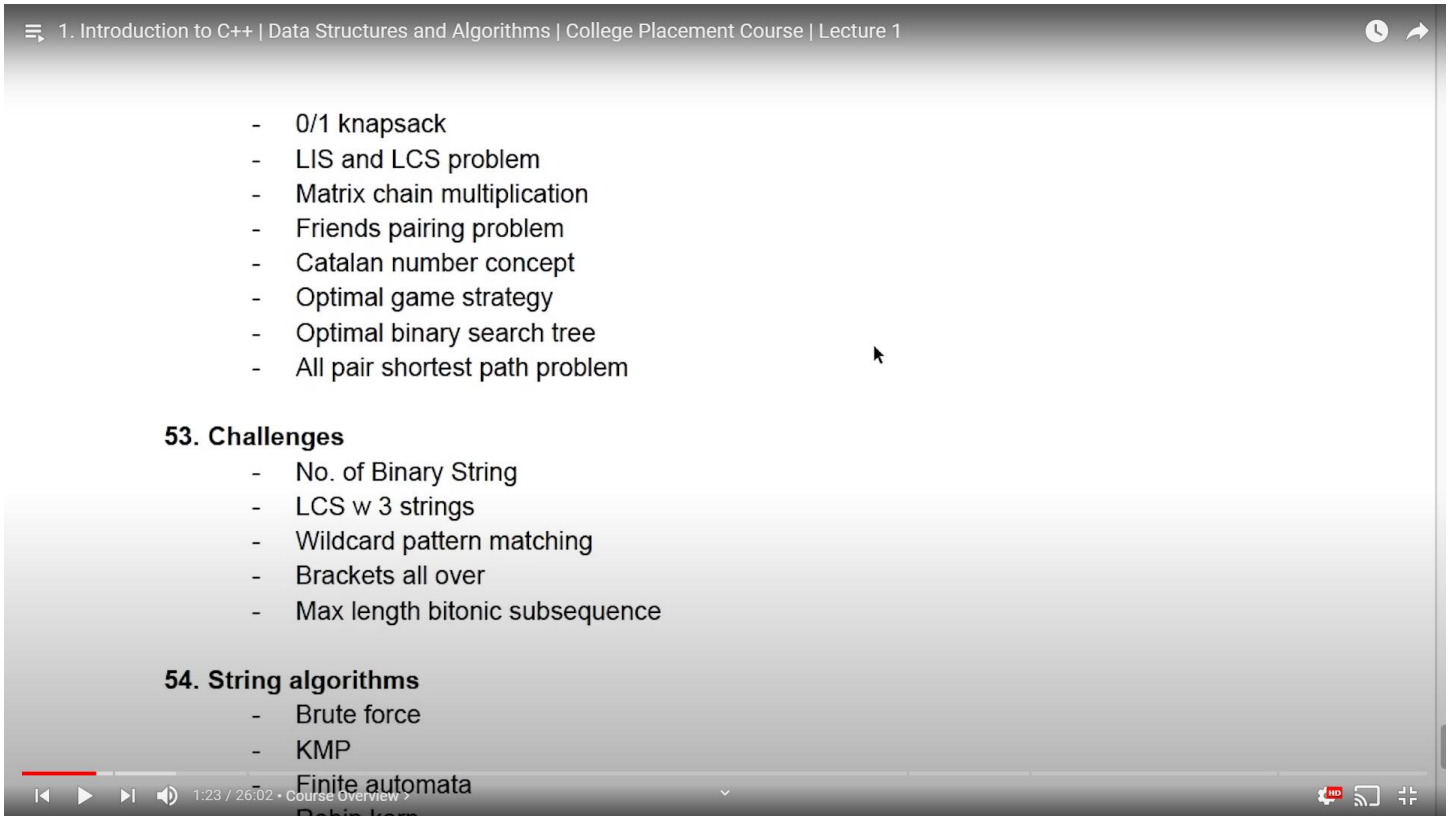

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
- Running median
- Kth smallest
41. Challenges
- Top k most frequent numbers in stream
- Merge k sorted arrays
42. Hashtable
- Introduction to hash functions
- Collision handling and separate chaining
- Rehashing, load factor
- Unordered Map STL
- Max frequency character
- Vertical order print
43. Hashing Problems
- Check subarray with sum 0
- Longest subarray with sum k
- Longest consecutive subsequence
- Minimum window substring
44. Tries
- Data structure introduction
1:19 / 26:02 • Course Overview ›

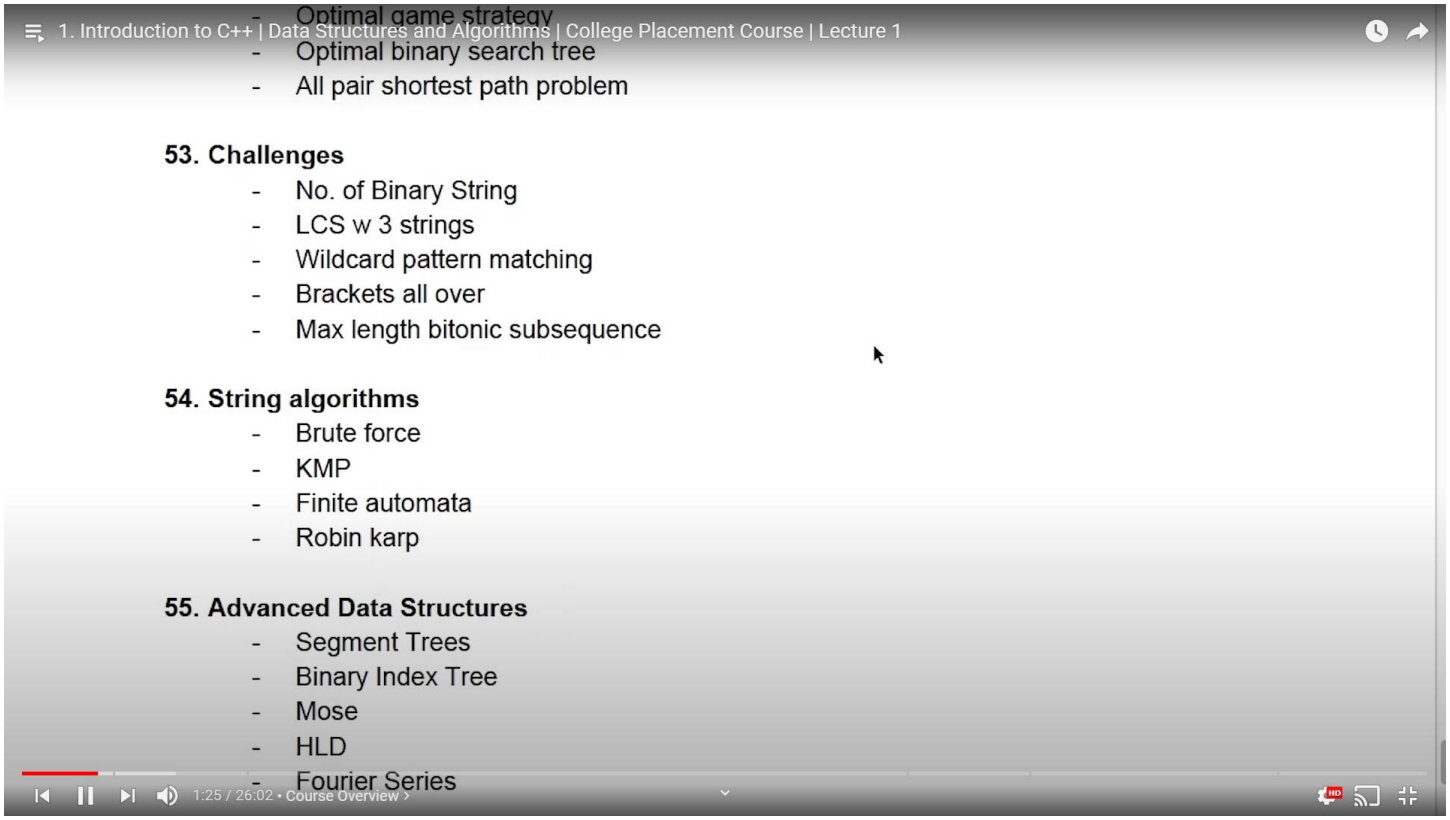

1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
- Longest subarray with sum k
- Longest consecutive subsequence
- Minimum window substring
44. Tries
- Data structure introduction
- Insertion
- Searching
- Phonebook problem
- Xor subarray problem
45. Questions
- Intersection of 2 arrays
- String window
- Subarrays with distinct element
- Digital dictionary
46. Greedy Algorithm
- Introduction
- Activity selection problem
- Job selection problem
- 0/n knapsack problem
- Optimal merge pattern problem
- Huffman coding problem
1:20 / 26:02 • Course Overview ›


1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
47. Challenges
- Coin change
- Max Circles
- Dividing array
48. Graphs - I
- Introduction
- Representation
- Adjacency list implementation
- BFS
- DFS
- Topological sort
- Cycle detection in directed and undirected graph
- Connected components
- Pairing problem
- Bipartite graph check
49. Graphs - II
- Disjoint set introduction
1:20 / 26:02 • Course Overview ›


1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
- Dividing array
48. Graphs - I
- Introduction
- Representation
- Adjacency list implementation
- BFS
- DFS
- Topological sort
- Cycle detection in directed and undirected graph
- Connected components
- Pairing problem
- Bipartite graph check
49. Graphs - II
- Disjoint set introduction
- Union and find
- Path compression
- Union by rank optimisation
- Implementation
1:20 / 26:02 • Course Overview ›


1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
50. Graphs - III
- Kruskal's algorithm
- Prim's algorithm
- Dijkstra's algorithm
- Bellman ford algorithm
- Floyd Warshall algorithm
- Strongly connected component using Kosaraju's algo
51. Challenges
- Snakes and ladders problem
- MST problem
- Beautiful vertices
52. Dynamic Programming
- Introduction
- Fibonacci problem
- Minimum steps to 1
- Minimum coin change
- Maximum subarray sum
- Snakes and Ladders
1:21 / 26:02 • Course Overview ›


1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
- 0/1 knapsack
- LIS and LCS problem
- Matrix chain multiplication
- Friends pairing problem
- Catalan number concept
- Optimal game strategy
- Optimal binary search tree
- All pair shortest path problem
53. Challenges
- No. of Binary String
- LCS w 3 strings
- Wildcard pattern matching
- Brackets all over
- Max length bitonic subsequence
54. String algorithms
- Brute force
- KMP
- Finite automata
1:23 / 26:02 • Course Overview


1. Introduction to C++ | Data Structures and Algorithms | College Placement Course | Lecture 1
- Optimal game strategy
- Optimal binary search tree
- All pair shortest path problem
53. Challenges
- No. of Binary String
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- Wildcard pattern matching
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- Max length bitonic subsequence
54. String algorithms
- Brute force
- KMP
- Finite automata
- Robin karp
55. Advanced Data Structures
- Segment Trees
- Binary Index Tree
- Mose
- HLD
- Fourier Series
1:25 / 26:02 • Course Overview