Java Plus DSA Sheet By Shashwat Tiwari			
Main Topics	Subtopics	Details	Video Links
Java Basics	Programming Language and Memory Management		https://youtu.be/DEC268j2hk0
		What is a programming Language	
		Machine Language	
		Assembly Language	
		High Level Language	
		Procedural Language	
		Functional Language	
		Object Oriented Language	
		Scripting Language	
		Stack Memory	
		Heap Memory	
		Garbage Collection	
	Flow of a program		https://youtu.be/wL6sbJOzF5A
		Flowchart	
		Psuedocode	
		Algorithm	
	How Java Program Compiles		https://youtu.be/2Uer9X75EPI
		Byte code	
		Machine code	
		why java is platform independent	
		JDK, JRE, JVM, JIT	
	Writing your first program		https://youtu.be/1Z2QzcbLicY
		installation of Java	
		installation of IDE	
		"Hello Coder"	
		entrypoint of program	
		commandline arguments	
		generating byte code in style	
		How computer runs your program?	
		writing comments in java	
	Java being Java		https://youtu.be/FVs7Z9RfIJE
		Variables and constants	
		Literals and keywords	
		data types	
		Program to swap two numbers	
		Type casting Implicit and explicit	
		Automatic type promotion	
		Wrapper class	
		ASCII Values	
		Unicode style	
	Inputs and Operators		https://youtu.be/NZF0Rwrubs0
		Operators in java	
		How to take input	
	Organize your code		https://youtu.be/Axw8usR3rEA
		Java Packages	
		Access Specifiers	
	Control Statements		https://youtu.be/N6unLhAxy8s
		if-else	
		switch case	
		while loop	
		do-while Loop	
		for each loop	
	Functions in Java		https://youtu.be/IkOkAzNuefc
		Functions	
		Types of functions	
		create your own functions	
		call by value and call by reference	
	Mini Project -1		https://youtu.be/FM1ujSiOSi0
		Calculator Application	
		Temperature convertor	
Maths in DSA	Mathematics in DSA - Part 1		https://youtu.be/q0kKRFpGmiE
		Number system	
		Conversion from one system to other	
		Digit extraction	
		Reverse a Number.	
		Find even odd	
		Find Power of a number.	
		Fast exponentiation	
	Mathematics in DSA - Part 2		https://youtu.be/bvmoEgSp9O4
		count digits	
		count digits using log	
		using log formulas	
		Armstrong Number	
		Pallindrome Number	
		Print all divisors	
		Check if Number is Prime	
		Sieve Algorithm	
		Newton Raphson Algorithm for square root	
		Greatest Common Divisor	
		Euclidian GCD Algorithm	
		lcm of two numbers	
		Modular Arithmetics	
		fast exponentiation with modular arithmetics	
		factorial of a number	
		find trailing zeros in a factorial	
		ceiling and floor of a number	
Bits Manipulation	Bits and Binary Operations		https://youtu.be/cn_KKSd3T2g
		Least Significant Bits	
		Most Significant Bits	
		Signed and unsigned Numbers	
		Calculate range of data type	
		How to add binary numbers	
		How to find 1's complement	
		How to find 2's complement	

		Left shift and Right shift	
		Trick to divide or multiply any number.	
		Bitwise NOT, Bitwise AND, Bitwise OR	
	Play with Bits / Bit Manipulation		https://youtu.be/wGrEXbLQX1k
		Find the i-th Bit	
		Set the i-th Bit	
		Toggle the i-th Bit	
		Unset the i-th Bit	
		Print the number in binary without conversion	
		Find if a number is even / odd using bit manipulation	
		Find if a number is power of 2.	
		Count the number of set bits.	
		Unset the right most set bit.	
	Bit Manipulation		https://youtu.be/UTVvLfkuSEs
		Bitwise Operators	
		Bit Manipulation	
		Bit Masking	
		Advanced XoR problems of Bit Manipulation	
Arrays	Arrays in Java		https://youtu.be/TsoTexsJWII
		what are arrays	
		concept of indexing	
		Insert, update, delete, traverse	
		How arrays work in memory	
		what is a sorted array	
		How to create a 2d array	
		Operations on functions	
		Jagged Array	
		passing arrays to functions	
Searching Algorithms	Searching Algorithms - 1		https://youtu.be/slqFdKVMjeQ
		Linear Search	
		Q. search an Element / first occurrence	
		Q. Find the minimum element in an array (1D/2D)	
		Q. Find the maximum element in an array (1D/2D)	
		Q. Find max sum 1D array in a 2D array	
		Q. Search all occurrences (1D/2D)	
		Q. Search last occurrence (1D/2D)	
	Searching Algorithms - 2		https://youtu.be/kOIECDEUzaI
		Binary Search	
		Sorted in increasing	
		Sorted in decreasing	
		Order Agnostic Binary Search	
	Questions on Binary Search Part 1		https://youtu.be/P-vl_BrdxJA
		Q1. Ceiling of a Number	
		Q2. Floor of a Number	
		Q3. First and Last Position of element in sorted array	
		Q4. Count all occurrence of element in an array	
		Q5. Next smallest letter in sorted array	
	Questions on Binary Search Part 2		https://youtu.be/DoVawmdh5NM
		Binary Search in range	
		Q6. Find Minimum Difference in a Sorted array.	
		Q7. Find an element in an array of Infinite size	
		Q8. Find first 1 in an infinite and sorted array of 0s and 1s	
	Questions on Binary Search Part 3		https://youtu.be/_MsDtDHEDtA
		Bitonic Array	
		Q9. Find pivot in bitonic array	
		Q10. search in bitonic array	
	Questions on Binary Search Part 4		https://youtu.be/n12QcCu8oBI
		Sorted and Rotated Array (Clockwise and Anticlockwise)	
		Q11. count number of rotations	
		Q12. search in rotated sorted array (with and without duplicates)	
		Q13 Find min / max (peak) element in rotated and sorted array	
	Questions on Binary Search Part 5		https://youtu.be/_4LmUWmmYbY
		Q14. Allocated minimum number of pages	
		Q15. Capacity to Ship within D Days	
	Q16. Koko Eating bananas		https://youtu.be/BUFHoQlOnAs
	Q17. Smallest Divisor given a threshold		https://youtu.be/pSGtbhpuhbk
	Q18. Minimize Maximum of products distributed to any store		https://youtu.be/4Q6wrTtUQvY
	Q19. Aggressive cows		https://youtu.be/86xSPxfc4iQ
	Q20. Median of two sorted arrays		https://youtu.be/2BOgAlmyTkc
	Q21. Kth element of two sorted arrays		https://youtu.be/SB6j8D95eHM
	Questions on Binary Search Part 6		https://youtu.be/f09DayNeigg
		Q22. Single Element in a Sorted Array	
		Q23. Finding square root	
		Q24. Count Squares	
	Other Searching Algorithms		https://youtu.be/rFwBm-VT99A
		Jump Search	
		Interpolation Search	
		Exponential Search	
		Ternary Search	
	Q. Median of a Sorted Matrix		https://youtu.be/aNIfGl1ZKQE
	Q. Kth Smallest element of a Matrix		https://youtu.be/HuOcDlB1uXk
Matrix	Questions on Matrix - 1		https://youtu.be/EXcmeMx3Dq0
		Q. Search in a row wise and column wise sorted Matrix	
		Q. Search in a sorted matrix	
	Questions on Matrix - 2		https://youtu.be/hA_yvtCpjsg
		Q. Transpose a Matrix	
		Q. Rotate a Matrix by 90 degree clockwise	
		Q. Rotate a Matrix by 90 degree anticlockwise	
	Questions on Matrix - 3		https://youtu.be/uAaoWcYX2_8
		Q. Spiral Matrix - 1	
		Q. Spiral Matrix - 2	

Time & Space Complexity	Time and Space Complexity		https://youtu.be/ZltvAvQXIEo
		What is Algorithm Complexity	
		Asymptotic Notations	
		Time Complexity	
		Space Complexity	
		Big Oh cheat sheet.	
		How to calculate time complexity	
		Algorithm optimizations	
Sorting Algorithms	Insertion Sort		https://youtu.be/EHBeilm59Yk
	Selection Sort [Uni and Bi - directional]		https://youtu.be/CfEZKDoVRcw
	Bubble Sort and Brick Sort		https://youtu.be/vXwKKzn6D4E
	Counting Sort		https://youtu.be/e644HVGFAJY
	Radix Sort		https://youtu.be/HuwqdPVEwCc
	Pigeonhole Sort		https://youtu.be/sWX1eMPYzSU
	Cyclic Sort		https://youtu.be/vJn71L7CPH4
	Q. Find missing element in range of 0 to N		https://youtu.be/blHpx5NN2bg
	Q. Given an array [1 to N] return all elements in range [1 to N] that are absent in the array		https://youtu.be/xxFebE0VznM
	Questions on Duplicate Numbers		https://youtu.be/Us63C10ozzw
		Q. Find the duplicate Number in an array [1 to N] (inclusive)	
		Q. Given an array [1 to N] with elements appearing once or twice, return all elements that appear twice	
	Q. Find the missing and repeating element in an array [1 to N]		TBD
	Q. Return the smallest positive number missing		TBD
String Manipulation	Strings in Java		https://youtu.be/aqjGYjtczvY
		characters	
		string literals	
		string constant pool	
		subsequences	
		substrings	
		String comparison	
		String with new operator	
		Reference Comparision	
	More on Strings		https://youtu.be/rXSUJ-PwU4g
		String Builder	
		String Buffer	
		Next vs NextLine	
		Taking string as a user input	
		compareTo function	
		trim function	
		split function	
		startsWith function	
		endsWith function	
		IndexOf function	
		lastIndexOf function	
		charAt function	
		toLowerCase function	
		toUpperCase function	
		toCharArray function	
	Playing with String		https://youtu.be/SrPyIYakYt8
		Input Buffer and delimeters	
		String formatting	
		String Concatination	
	Q. Print all substrings		https://youtu.be/l1rgYRi1tXE
	Q. Reverse a string		https://youtu.be/m9QAjIVnmp4
	Q. Check if a string is pallindrome		https://youtu.be/-HGtMO4MkWs
	Q. Reverse words in a String		https://youtu.be/KhNAMB3jDOU
	Q. Check if two strings are anagram		https://youtu.be/SFF3ND7TPc0
	Q. Reverse Words in a String -iii		https://youtu.be/ajhV7EYLfOY
Stack	Stack Data Structure		https://youtu.be/TpuQWpma7ug
		Stack	
		Stack using Arrays	
	Q. Check parenthesis		https://youtu.be/CNOoP25NpfQ
	Q. Remove minimum brackets to balance string		https://youtu.be/FB6wSdPjVGw
	Q. Add minimum brackets to balance string		https://youtu.be/BNFBv1KtcDM
	Q. Swap minimum brackets to balance string		https://youtu.be/RZTapGf3pzI
	Q. Swap adjacent brackets to balance string		https://youtu.be/U48xDsqb8OE
	Q. Asteroid Collision		https://youtu.be/OtddlksWtS4
	Q. Stock Span Problem		https://youtu.be/1_Bbq5qOraY
	Q. Next Greater element		https://youtu.be/8P3e34EgVyY
	Q. Next Smaller element		https://youtu.be/MqQchOMmTGY
	Q. Next Greater / Smaller element in circular array		https://youtu.be/ahlaBL4gG1s
	Q. Largest Rectangle in Histogram + Previous smaller element		https://youtu.be/qUS-DZU4fj4
	Q. Max Rectangle		https://youtu.be/DPkDmhCyyuc
	Q. Longest Valid Parentheses		https://youtu.be/gqQsbdTcey0
Queue	Queue Data Structure		https://youtu.be/9m4SZPRQXQI?si=izPej7j2qhbiKrys
		Queue	
		Queue using Array	
		Circular Queue	
		Double ended Queue	
	Implement queue using stack		https://youtu.be/Enygu8ivr0w?si=SgzjEHke5oc_cwdk
	Implement stack using queue		https://youtu.be/z4FxPUgXn90?si=86tva8iOIGV5E74n
	Q. LRU Cache		TBL
	Q. LFU Cache		TBL
	Q. Rotten Oranges		TBL
	Q. Sliding Window Maximum		TBL
	Q. Find Maximum and Minimum of Every Window Size		TBL
Object Oriented Programming	Classes and Objects		https://youtu.be/yGT6-P3XGrg?si=A8C7Bhnk9Jw9_3Eo
	Pillars of Oops		https://youtu.be/G5djyUY_LKc?si=3pWEptBtHSDmXZdw
	Inheritance		https://youtu.be/5_pMrxQ17rY?si=3KP2Dq9CFLHYbF4r
	Important Keywords		https://youtu.be/txtsaKx3eME?si=F5RFc62AkV6TCvKW
	Constructor Calling and Access Specifier		https://youtu.be/7VLroC57Exk?si=Gojo6PdpxLRQEk46
	Getters and Setters		https://youtu.be/W1P7tvRWZvs?si=_VVQEdr-AJFUvFUi
	Function Overriding		https://youtu.be/_Xog65pQgDk?si=WpwfA8BgXA5urOgL
	Abstract Classes		https://youtu.be/MrK_eL96fnY?si=7HCmcqIDdDFCJzUp

	Java Interfaces		https://youtu.be/a2QGa30h3Is?si=Fo2_E2upIdm_6YRe
	Nested Classes		https://youtu.be/rjWDZt7hbD8?si=rRLug4uAy0i81Tbt
	Java Generics		https://youtu.be/vGG9d_FEl60?si=IfDlHPpCONjSEbod
	Comparator and Comparable		https://youtu.be/quegYlReztM?si=ywgPQvHFaTwPKrFC
Collections Framework	Collections in One Shot	Introduction	https://youtu.be/CRG9tcCr8iU
		Need of Data Structure and Algorithms	
		Data and Object in real world	
		Need for a framework	
		What is collection framework?	
		Modules Vs Framework Vs Library Vs Package	
		How to Import Collections Framework	
		Hierarchy of Collections Framework - Interfaces & Classes	
		Functions in Collection Interface	
		Java Generics and AutoBoxing	
		List Interface	
		ArrayList & its functions	
		How to Iterate your List using Iterator	
		Internal Working of ArrayList	
		Sorting using Comparator	
		Sorting based on Custom Comparator	
		How to Iterate your List using ListIterator	
		Time Complexity of ArrayList	
		LinkedList & its functions	
		ArrayList VS LinkedList	
		Time Complexity of LinkedList	
		Vectors and their use	
		Stack & its functions	
		Time Complexity of Stack	
		Queue & its functions	
		Queue using LinkedList	
		Queue using ArrayDeque	
		Deque Interface using ArrayDeque & LinkedList	
		PriorityQueue Implementation of Queue	
		Map Interface	
		Hashing Concept	
		How Map uses Hashing Concept	
		HashMap & its functions	
		How to traverse a Map using Entry Interface	
		Map using LinkedHashMap	
		Map using TreeMap	
		BST	
		Self Balanced BST or Red-Black Tree	
		TreeMap & its functions	
		Set Interface	
		HashSet	
		How HashSet works Internally	
		LinkedHashSet	
		TreeSet	
Two Pointers	Q. Container with Most Water		TBD
	Q. Trapping Rainwater		TBD
	Q. Find Pair with a given sum in sorted Array		TBD
	Q. Remove Duplicates from Sorted Array		TBD
	Q. Maximum Consecutive ones		TBD
	Q. Reverse Pairs		TBD
	Q. The Celebrity Problem		TBD
Recursion	Recursion - I	playing with function calls	
		Types of recursion	
		Q. convert decimal to binary	
		Q. reverse a number / string	
		Q. reverse an array inplace	
		Q. reverse a stack	
	Recursion - II	Leap of Faith	
		Q. Tower of Hanoi	
		Q. Count ways in a Matrix	
	Time and Space Complexity Analysis	Notations	
		Recurrence Relation	
		Trick	
	Backtracking and All it's variants	Q. Rat in a Maze	
		Q. All permutations	
		Q. Pallindrome Partitioning	
		Q. Letter Combination of a Phone Number	
		Q. Print Subdequences of a String	
		Q. Subsequences with sum equal K	
	Backtracking with Pruning	Q. Combination Sum - I	
		Q. Combination Sum - II	
		Q. Combination Sum - III	
		Q. Combination Sum - IV	
	More Questions on Backtracking	Q. Number of islands	
		Q. Knights tour problem	
		Q. N Queens problem	
		Q. Suduko Solver	
		Q. Josephus problem - Kill in circle	
	Recursion - III	Binary Search using recursion	
	Divide and Conquer	Q. calculating power (x^n)	

		Q. Merge Sort	
		Q. Quick Sort	
		Q. Count Inversion	
		Strassen's Matrix Multiplication	
Linked List	Linked List Data Structure		https://youtu.be/cf4RNGYI6hk?si=aY6v4j2CUzgaPlpm
		Intro to linked list Data Structure	
		Types of linked list	
		All operations of Single linked list	
		Time Complexity	
		Applications of linked list	
		Implementation of linked list data structure	
	Doubly Linked List		https://youtu.be/JxIC0XeTl4Y?si=5HZNJ_-u8IqktXam
		Intro to Doubly linked list	
		All operations and their time complexity	
		Implementation of linked list	
	Q. Find Middle of Linked List (Hare Tortoise Algorithm)		https://youtu.be/NUbqd8-lHl4?si=gByqGlulWwtiPV__
	Q. Delete Middle of Linked list		https://youtu.be/uLIJJHpq7hw?si=Fm2c_sOMqUx5QPqP
	Q. Pairwise swap nodes of Linked List		https://youtu.be/92f3L2p31Oc?si=oyC441Kt3bph4ZCZ
	Q. Add two numbers using Linked List		https://youtu.be/OqSnJa9pDk0?si=fRMC6sMYZcrkZr07
	Q. Reverse the linked list (Iterative + Recursive)		https://youtu.be/6GkwvqS9Cq4?si=gGSvqdH_iCcI3q_K
	Q. Palindrome linked list		https://youtu.be/uXB8S875uyw?si=JVxHNQHRKatVqKPy
	Q. Detect Cycle in a linked list		https://youtu.be/6VRqzaOT2G0?si=Tx8_Z5poHSB09yyd
	Q. Segregate a linked list into odd and even list		https://youtu.be/EqsLvheH5fA?si=-GLAb-yfSnpr3oFc
	Q. Reverse Nodes in K Group		https://youtu.be/zsuqutkRYcs?si=7bmdLeSN25CvQwve
	Q. Remove Nth node from the end of linked list		https://youtu.be/XLPiw_Dz5-A?si=_dkqHPvLVig4yrFR
	Q. Sort a linked list of 0's, 1's and 2's		https://youtu.be/c2C4lbstw1w?si=hG4blZtDKCcPpg5e
	Q. Intersection of two Sorted linked list		https://youtu.be/19unN7dz54A?si=KiqIImUyRioMkqhU
	Q. Intersection point of two linked list		https://youtu.be/qw0ZKmP-GTk?si=hLR5f5AShqMgMBdB
	Q. Insert in a sorted list		https://youtu.be/wa4fTaf3qSw?si=Iu6oK0TRh503HGk0
	Q. Insertion Sort on Linked List		https://youtu.be/fzx8CWqbxxI?si=LB1C44XQCKC9T9JU
	Q. Merge Sort on Linked List		https://youtu.be/13UkRumpqZw?si=uw-eXXBmA6YeHaFu
	Q. Split a circular linked list into two circular lists		https://youtu.be/dBxiAxuT2I8?si=utMWpF083dismeIJ
	Q. Clone a linked list with random and next pointer		TBL
String Manipulation	Q. Longest Pallindrome		TBD
	Q. Find all Anagrams		TBD
	Q. K-Anagrams		TBD
	Q. Roman to Integer		TBD
	Q. First Repeated word in a string		TBD
	Q. Isomorphic String checker		TBD
	Rabin Karp Algorithm		TBD
	KMP Algorithm		TBD
	LPS Algorithm		TBD
Hashing	Hashing		https://youtu.be/vB3WKXNH-v4?si=oAOjWmxgCLXQvjC2
		Components of Hashing	
		How hashing works?	
		Types of Hash Functions	
		Collisions	
		Collision Resolution Techniques - Separate chaining	
		Collision Resolution Techniques - Open Addressing	
		Load Factor	
		Rehashing	
		Applications and Advantages	
	Hashmap Data Structure		https://youtu.be/CMA0MQQ3jhA?si=qi9VRUEUv4Rldbv2
		What is hashmap?	
		How to use custom key-value pair	
	Implement HashMap in Java		https://youtu.be/B4VukYcQG_E?si=D4bP5zpwtOFPzNQM
		All Methods	
		Hashcode function	
		Rehashing	
	Q. Most frequent element in an array		https://youtu.be/O5iUfFHxCZc?si=wKCy3r5x7hgIDEib
	Q. Check if an array is subset of another array		https://youtu.be/V4hi-l-xNXU?si=LMEB14_uTicW-6vM
	Q. Count Pairs with given sum		https://youtu.be/NC9r8D2QnHk?si=nWVnSK7h3P9V8k7u
	Hashset Data Structure		https://youtu.be/3euKVlloIWY?si=Uvz3qkcdHLIlsnbX
		what is hashset data structure	
		Usage of map keys	
		Set Iterator	
	Q. Minimum number of subsets with distinct elements		https://youtu.be/h6jzp9waCyk?si=GTlG-0HGVxzwzuvK
	Questions on K-SUM Subarray Pattern		https://youtu.be/S6tARGbBGEo?si=7wRtd-jYnSdHRYmk
		Q. Check if subarray with K sum Exists or Not	
		Q. Find the starting and ending index of K sum subarray	
		Q. Find the maximum length subarray with K sum	
		Q. Find the minimum length subarray with K sum	Homework
		Q. Count the total subarrays with sum K	
		Q. Find largest subarray with 0 sum	Homework
	Q. Longest subarray with sum divisible by K		https://youtu.be/L03d0qThnJQ?si=1TEHDMBGaDGVeElr
	Q. Longest increasing concecutive subsequence		https://youtu.be/4ohND5Hq-wQ?si=-Rdz-tpJZ4W1ke-g
	Q. Count distinct elements in every window of size K		TBD
	Q. Largest subarray with equal number of 0s and 1s		https://youtu.be/qOCuB-IC9KA?si=NEEgvm_zlI-dvSm_
	Q. Find pairs with given sum such that elements of pair are in different rows		TBD
	Bucket Sort Algorithm		https://youtu.be/5Pe3YSnqGh8?si=8cnivpNvhCX6X0hf
Sliding Window	Sliding Window Technique		https://youtu.be/DQMxp7TS2BI?si=WN_ksJt1fWPXuLmF
	Q. Maximum Sum Subarray of Size K		https://youtu.be/rGl2Z6fuAas?si=t3JH4diL-nDnBwGe
	Q. First Negative Number in Each Subarray of Size K		https://youtu.be/RotOy4cmlNw?si=TAp7sbW1OOQkW57C
	Q. Chocolate Distribution Problem		https://youtu.be/oYNU1TD9W5Y?si=1rn_BjF9-LIJDwcH

	Q. Smallest subarray with sum greater than x		https://youtu.be/UXValb-h70s?si=VaCxJsB7-WKbL4nW
	Q. Longest Substring with K unique Elements		https://youtu.be/Yp3T06_27MY?si=GUuisgzt8fXO5gF6
	Q. Longest Substring without repeating elements		https://youtu.be/Vqo7tvBm8OU?si=fxl1Ggsz3C_sMllj
	Q. Count Occurances of Anagrams		https://youtu.be/PVXVsSkItpY?si=0zBiqLK0x9yzN85K
	Q. Minimum Window Substring		https://youtu.be/26E3K8Njm7M
	Q. Sliding Window Maximum		https://youtu.be/jOoZuTrfpjc
Trees	Linear and Non Linear Data Structures		https://youtu.be/jeQ_B7-nihM
		Linear Data Structure	
		Non Linear Data Structure	
	Intro to Tree Data Structure		https://youtu.be/qfHkWUl1zlc?si=Z1PWfLJg3e8wL6GC
		What is a tree Data Structure.	
		Types of trees.	
		Binary Trees.	
		N-ary Trees.	
		Ternary Trees.	
		Non Linear Data Strcuture.	
		Hierarical Data Structure.	
		Properties of a Tree Data Structure.	
		Neighbour in Tree.	
		Siblings in Tree.	
		Cousin in Tree.	
		Depth of a Tree.	
		1Height of a Tree.	
		Child of a node in tree.	
		Parent of a node in tree.	
	Tree Traversal BFS		https://youtu.be/4NZV0XBbKfA?si=wn_pcNP-l7dmDcXA
	BFS on N-Ary Trees		https://youtu.be/4NZV0XBbKfA?si=wn_pcNP-l7dmDcXA
	Tree Traversal DFS - Recursive		https://youtu.be/aQKJ9juD87k?si=Gou7Ob0zLS2xOoU2
	Preorder Iterative		https://youtu.be/Tp2kzBIunWk?si=LYmDgBNvOFJoqvt1
	Inorder Iterative		https://youtu.be/-VzRxq3Jwp4?si=8XJFCAnFCXWss35l
	Postorder Iterative		https://youtu.be/xEPe6aWlRd0?si=rRWVNq5RqT8w9Z6e
	Q. Construct tree using inorder and postorder.		https://youtu.be/uDuOuMcSHwo?si=8bymVQfdrdovJImK
	Q. Maximum Depth of Binary Tree		https://youtu.be/zbZEcUV0t7k?si=iyca3V-SbEKcEthY
	Q. Maximum Depth of N-Ary Tree		https://youtu.be/Mehu7yep3ag?si=jVmAzUOxVZRD-JYV
	Q. Diameter of Binary Tree	Q. Size of Binary Tree	https://youtu.be/Dt-U4vzYDTM?si=NdWKcECHM7PslySR
	Q. Diameter of N-ary Tree		https://youtu.be/mPTJyH6Qs4c?si=vBK8aPbfmdQjYs8f
	Q. Count number of node in compete Binary Tree		https://youtu.be/1m3F7zEW9qc?si=YI6cXSo8StZmYUAY
	Q. Left and Right View of Binary Tree		https://youtu.be/JgRsVsw_ZSw
	Q. Top and Bottom View of Binary Tree		https://youtu.be/zbA4yWuEoYE
	Q. Vertical Order Traversal of Binary Tree		https://youtu.be/X-XLc_jOmHE
	Q. Boundary Traversal of Binary Tree		https://youtu.be/c2uD7WBjE5A
	Q. ZigZag Level Order Traversal of Binary Tree		https://youtu.be/9VLBM60-AVs
	Q. Balanced Binary Tree		https://youtu.be/PPD2X52uzMc
	Q. Lowest Common Ancestor of Binary Tree (LCA)		https://youtu.be/m9NKcTvrh5c
	Introduction to Binary Search Tree		https://youtu.be/WikD4AEvRq0
	Delete a Node in BST		https://youtu.be/kdXBGjmiVCE
	Q. Validate BST		https://youtu.be/GcY4pTdHzq0
	Q. Two Sum in BST		https://youtu.be/9luczLx9YYc
	Q. Kth Smallest Element in BST		https://youtu.be/RM8k2pr6V38
	Q. LCA in BST		https://youtu.be/TytL24jNZ6k
	Q. Burn a Tree		TBD
	Q. BT to DLL		TBD
	Q. Floor and Ceil in BST		TBD
	Q. Search in BST		TBD
	Q. Binary Search Tree Iterator		https://youtu.be/V9J9gGIVt_E
	Q. Maximum Sum BST in Binary Tree		https://youtu.be/zAz-WbqIaf8
	Flood fill algorithm in BT		TBD
	Segment tree		TBD
	Range query		TBD
	Red Black Tree		TBD
	AVL Tree		https://youtu.be/QEvpN09q3nw
		1. AVL Trees	
		2. Balanced Trees	
		3. Insert in AVL Tree	
		4. Delete in AVL Tree	
		5. Balance factor of AVL Tree	
		6. AVL Tree rotations	
		7. LL	
		8. RR	
		9. LR	
		10. RL	
	TreeMap Collections		https://youtu.be/W0JgjIgz3zQ
Heap & Priority Queue	Heap		https://youtu.be/NFiYQGyL8rg
		1. Heaps	
		2. Heapify	
		3. Heapsort	
		4. Min Heap	
		5. Max Heap	
		6. Increase Key	
		7. Decrease Key	
		8. Insert in Heap	
		9. Delete from Heap	
		10. build heap from array	
		11. Complete Tree	
	Priority Queue in one shot		https://youtu.be/XGfa9jnDJNY
		1. Priority Queue in Java collections	
		2. Priority Queue on custom classes.	
		3. Collections.ReverseOrder()	
		4. dsa playlist	
		5. Equate objects in pq	
	Q. Top K Frequent Elements		https://youtu.be/bXbiLwGSZHU
	Q. Sort Characters by frequency		https://youtu.be/zPB7j1TMTDM

	Q. IPO		https://youtu.be/sdCvHi2i03E
	Q. Design Twitter		https://youtu.be/tH051S6aM5M
	Q. Task Scheduler		https://youtu.be/it-tqUPacgM
	Q. Connect N ropes with Minimum cost		TBD
	Q. Medium of Running Streams of Integers		TBD
	Q. Maximum Sum Combination		TBD
	Q. Merge K sorted Elements		TBD
Tries	Trie	Introduction to Trie	
		Implement a Trie in java	
		Insert, Search and delete operations	
	Questions on TRIE	Q. Longest String with All prefixes	
		Q. Number of Distinct substrings in string	
		Q. Power Set	
		Q. Maximum XoR of two Numbers in an Array	
Graphs	Graph Introduction		https://youtu.be/f-buby0Aac8
		1. Introduction to graphs	
		2. Directed Graph	
		3. UnDirected Graph	
		4. Weighted Graph	
		5. UnWeighted Graph	
		6. Vertex and Edges	
		7. Degree of a node in graph	
		8. In-degree and Out-degree in graphs	
	Graph Representation & Application		https://youtu.be/2oXUetonhUg
		1. How to represent graph in memory	
		2. InDegree of directed graph	
		3. outDegree of directed graph	
		4. Adjacency List	
		5. Adjacency Matrix	
		6. Degree of a graph	
		7. Represent Directed graph with weight	
		8. Represent UnDirected graph with weight	
	Q. Find the center of star graph		https://youtu.be/bEzD_V6Uhss
	Q. Maximum Total Importance of Roads		https://youtu.be/C7BENkkO3oU
	Connected Components and Path		https://youtu.be/bmULgrjRcss
		1. How to traverse multiple components in a graph	
		2. TreeTraversal vs Graph Traversal	
		3. Path in a graph	
		4. Cycle in a graph	
		5. Directed Acyclic Graph (DAG)	
		7. Find if a path is valid or not	
	DFS Traversal in Graph		https://youtu.be/8ZP_Y3boL0M
	BFS Traversal in Graph		https://youtu.be/88WZluVGlFI
	Q. Flood fill using BFS		https://youtu.be/W6nOvvWzZYg
	Q. Number of Islands		https://youtu.be/mwsuv-S1biw
	Q. Word Ladder -1		https://youtu.be/zjR2WGbBA2k
	Q. Word Ladder -2		https://youtu.be/KsNOBLyImbY
	Q. Evaluate Division		https://youtu.be/i0lqeMRuI5k
	Q. Get Watched Videos by your friends		https://youtu.be/dCTAWkkO4h4
	Q. Rotting Oranges | Multisource BFS		https://youtu.be/PULSUj4gBBc
	Q. Minimum Time to Collect All Apples in a Tree		https://youtu.be/ROI1bS_uBSE
	Q. Most Stones Removed with Same Row or Column		https://youtu.be/SjdbuY-Ryuk
	Q. Accounts Merge		https://youtu.be/kmzlMoxmCs4
	cycle detection in undirected graph using BFS		https://youtu.be/qvNeSmWatIc
	cycle detection in undirected graph using DFS		https://youtu.be/erRL82Gl2Xg
	Cycle Detection In Directed Graphs using DFS		https://youtu.be/Y3eIsQj-DpI
	Kahn's Algorithm for Toposort		https://youtu.be/tZjVTTABXV0
	Toposort using DFS		https://youtu.be/syzUtO95I8g
	Cycle Detection in directed graph using toposort		https://youtu.be/3PMWe72jF_8
	When to apply BFS | Shortest Path using BFS		https://youtu.be/vNHDWm_aVgA
	Dijkstra Algorithm | Shortest Path		https://youtu.be/jhIo_YQPXR0
	Floyd Warshall Algorithm | Shortest Path		https://youtu.be/7y88NO1Aq1o
	Bellmanford Algorithm | Shortest Path		https://youtu.be/Kbfgo3E3n6c
	Q. Network Delay Time		https://youtu.be/n551TcPWSH8
	Q. Cheapest Flights Within K Stops		https://youtu.be/NIrYezLg_6Q
	Q. Minimum Cost to Convert String I		https://youtu.be/jmqnpjtVPNs
	Disjoint Sets in one shot		https://youtu.be/7wgUuv0U5zs
	Q. Redundant Connection		https://youtu.be/jrLOReWZSes
	Q. Satisfiability of Equality Equations		https://youtu.be/87bMglHvC8A
	Q. Number of Operations to Make Network Connected		https://youtu.be/Gn6ZlaLIDjY
	Q. Is Graph Bipartite?		https://youtu.be/7nETmZcQRko
	Strongly Connected Components | Kosaraju's Algorithm		TBD
	Minimum spanning tree		https://youtu.be/XozGcnGHJXM
	Prim's Algorithm for minimum spanning tree		https://youtu.be/4EuFmlbcSY8
	Kruskal's Algorithm for minimum spanning tree		https://youtu.be/dBGYpKLY2bQ
Greedy Algorithms	Greedy Algorithm Introduction		TBD
	Q. Activity Selection Problem		TBD
	Q. Eqyption Fraction		TBD
	Q. Job Sequencing Problem		TBD
	Q. Policemen Catches Thieves		TBD
	Q. Assign mice to Holes		TBD
	Q. Minimum swaps for bracket balancing		TBD
	Q. Minimum number of Platforms for Railway station		TBD
	Q. Minimum number of Coins - greedy		TBD
	Q. Fractional Knapsack - greedy		TBD
	Q. Text Justification		TBD
Dynamic Programming (DP)	Dynamic Programming Introduction		TBD
		Overlapping Subproblems	
		Optimal Substructures	
	Q. Coin Change Problem		TBD
	Q. 0-1 Knapsack Problem		TBD
	Q. Longest Increasing Subsequence		TBD

	Q. Pallindromic Partitioning		***TBD***								
	Kadanes Algorithm		***TBD***								
	Q. Maximum Sum Subarray		***TBD***								
	Q. Maximum Product Subarray		***TBD***								
	Q. Maximum Sum Rectangle		***TBD***								
	Q. Edit Distance		***TBD***								
	Q. Rod Cutting Problem		***TBD***								
	Q. Word Break Problem		***TBD***								
	Q. Longest Common Subsequence		***TBD***								
	Q. Variants of LCS		***TBD***								
Multi Threading	***Java Multithreading and Concurrancy - I***		***TBD***								
	Java Multithreading and Concurrancy - II		***TBD***								
Bonus	***Catalan Number***		***TBD***								
	Permutation and combinations										
	Trending leetcode contest questions.										
	All Important pattern printing										
	Observation and tricks										