

## **Sec A (Mustafina Ma'am)**

**Heap** <https://youtu.be/UlbiTFmnXN0?si=oWxc-SN0WV3UDyK8>

Max & Min <https://youtu.be/kiCBi34k-Kg?si=Wvi28a0Gfvexl1v5>

Heapify <https://youtu.be/9Qsgv--78L0?si=M4pxdSo8x7WFSEEC>

**PQ (Bari Baba)** <https://youtu.be/HqPJF2L5h9U?si=niDRbRSA4dKtKiie>

**TRIE** <https://youtube.com/playlist?list=PLEJXowNB4kPyi859E6qGUs7jlpQehJndI&si=sZfYzm7twUb17EbI>

### **AVL Tree**

Insert [https://youtu.be/jDM6\\_TnYlqE?si=U57YzB6xSpOfAa\\_Q](https://youtu.be/jDM6_TnYlqE?si=U57YzB6xSpOfAa_Q)

Insert Rotation (Jenny) <https://youtu.be/YWqla0UX-38?si=vXzNB2uqfDtQi4Eg>

Insert (Jenny) <https://youtu.be/YWqla0UX-38?si=eQN3QRXPSIoD2iRs>

Delete [https://youtu.be/LXdi\\_4kSd1o?si=PYdUjw7NLHCPu41V](https://youtu.be/LXdi_4kSd1o?si=PYdUjw7NLHCPu41V)

### **SSSP**

Optimal substruct property of shortest path [https://youtu.be/FsKnhJYVti4?si=g1qoc80jp6\\_26-BU](https://youtu.be/FsKnhJYVti4?si=g1qoc80jp6_26-BU)

Weight of Path <https://youtu.be/7kz67y2DkIY?si=j5RX6RCxsITTar8U>

Dijkstra for Undirected <https://youtu.be/bHolUy5sqq8?si=vjMij1uRyLI5Xf3>

Dijkstra for Directed [https://youtu.be/p0MUtpaw1ks?si=MP4\\_NaBQrfYHQTLf](https://youtu.be/p0MUtpaw1ks?si=MP4_NaBQrfYHQTLf)

Bellman-Ford <https://youtu.be/2fZw1BtkoTk?si=9-XlnJynOYliKZr>

Correctness of BF Algo [https://youtu.be/j2Cq\\_z-wae4?si=vkFs9Lz9aqxLeKv-](https://youtu.be/j2Cq_z-wae4?si=vkFs9Lz9aqxLeKv-)

### **LCS**

Recursive <https://youtu.be/sSno9rV8Rhg?si=13fYxDoNJa5QDcuw>

DP <https://youtu.be/VbcDFmHkuoA?si=-iWCBjpXAhUMij7G>

### **0-1 Knapsack**

DP <https://youtu.be/9fMYQoS1h7o?si=6YG-vUZ82OowZ2Lx>

## **Sec B (Ruby Ma'am)**

### **MCM**

Small [https://youtu.be/prx1psByp7U?si=EK0Ad8f4Pfy1\\_xXa](https://youtu.be/prx1psByp7U?si=EK0Ad8f4Pfy1_xXa)

Detailed [https://youtu.be/\\_WncuhSJZyA?si=Xfwz7PlsAIPjLQUB](https://youtu.be/_WncuhSJZyA?si=Xfwz7PlsAIPjLQUB)

## **B&B**

0-1 knapsack [https://youtu.be/yV1d-b\\_NeK8?si=agX-6H6j99dGbV-Q](https://youtu.be/yV1d-b_NeK8?si=agX-6H6j99dGbV-Q)

Travelling salesman <https://youtu.be/tWsYyeexyq8?si=17P1iww2VPaRUssC>

## **Max Flow**

BFS <https://youtu.be/bgLecRSOWNM?si=280ldAJIAcFjUe9i>

Ford Fulkerson <https://youtu.be/NwenwITjMys?si=hVZOigH0VWJbjy4V>

Edmonds carp [https://youtu.be/w3NI2XA0pxA?si=XAK9Q4rbU9CI\\_mJN](https://youtu.be/w3NI2XA0pxA?si=XAK9Q4rbU9CI_mJN)

Bipartite Matching <https://youtu.be/HdJQ0qpbIDs?si=546G9U7ANKacspqx>

## **Topo Sort** <https://youtu.be/KqgPn8nshgU?si=9DiK2TSiXDuwbYfD>

DFS <https://youtu.be/5Z7tnNZj7FY?si=QX7GrikVxVas4Qg1>

Strongly connected components <https://youtu.be/5wFyZJ8yH9Q?si=cFuRgga2lOJMzVfB>

Proof of Lemma for SCC

SCC from DIU <https://youtu.be/ko2STYDN-vM?si=gqdkw9vFWAZ6OEQA>

## **Activity Selection** [https://youtu.be/ftwTYNrbGeo?si=2sikAFCmaTE\\_yHsj](https://youtu.be/ftwTYNrbGeo?si=2sikAFCmaTE_yHsj)

## **Solving Recurrences**

Bari baba <https://youtube.com/playlist?list=PLPGw-ZD97tXcoR1F6ZrjArSsv076IAo-L&si=xDXc45QsOQQMSGXS>

Iterative Expansion <https://youtu.be/ZUE8Qi4sRBo?si=6tgVS4mrZ9-Fh2N2>

Recursion Tree

1. <https://youtu.be/dnYPCth8paU?si=GLzUVhBntqOyHuPe>
2. <https://youtu.be/dnYPCth8paU?si=ikqcIPZHWlOb037V>
3. <https://youtu.be/CqQ81h5n4Lc?si=tDpAI-UHh8F0xJ7X>
4. <https://youtu.be/Eqn1cjl09e4?si=60yi5ITCh6HT5k46>
5. [https://youtu.be/tl87EJby2cs?si=gTs\\_FuB2PDmKa7R1](https://youtu.be/tl87EJby2cs?si=gTs_FuB2PDmKa7R1)

Master Theorem: Solving Recurrences <https://youtu.be/OynWkEj0S-s?si=V5i-ue6vjEcLnEGC>

## **NP Completeness**

P, NP, NP-Hard, NP-Complete [https://youtu.be/c3IV7lvHFdQ?si=2w0pz-grbP\\_bGRbe](https://youtu.be/c3IV7lvHFdQ?si=2w0pz-grbP_bGRbe)

Bari Baba <https://youtu.be/e2cF8a5aAhE?si=Vgy-Zx1FW5yfhrIB>