Datastructures & Algorithms

Big O notation:
https://www.youtube.com/watch?v=__vX2sjlpXU
https://dzone.com/articles/what-is-big-o-notation
https://www.bigocheatsheet.com/
https://www.youtube.com/watch?v=5Uqawfl0VHQ
https://www.youtube.com/watch?v=zUUkiEllHG0&list=RDCMUCD8yeTczadqdARzQUp29PJw&start_radio=1&t=6

Datastructures

Linked List:
https://www.youtube.com/watch?v=_jQhALI4ujg
Doubly linked list:
https://www.youtube.com/watch?v=e9NG_a6Z0mg
https://www.youtube.com/watch?v=k0pjD12bzP0
https://www.youtube.com/watch?v=njTh_OwMljA
Graphs:
https://www.youtube.com/watch?v=gXgEDyodOJU
https://www.youtube.com/watch?v=oDqjPvD54Ss
https://www.youtube.com/watch?v=1n5XPFcvxds

Sorting Algorithms

Bubble Sort:
https://www.youtube.com/watch?v=xli_FI7CuzA
Selection sort:
https://www.youtube.com/watch?v=g-PGLbMth_g
Insertion sort:
https://www.youtube.com/watch?v=JU767SDMDvA
https://www.youtube.com/watch?v=i-SKeOcBwko
Shell sort:
https://www.youtube.com/watch?v=ddeLSDsYVp8
Heap sort:
https://www.youtube.com/watch?v=2DmK_H7IdTo
Merge sort:
https://www.youtube.com/watch?v=4VqmGXwpLqc
Quick sort:
https://www.youtube.com/watch?v=Hoixgm4-P4M
Queue:
https://www.youtube.com/watch?v=A3ZUpyrnCbM
https://www.youtube.com/watch?v=XuCbpw6Bj1U
https://www.youtube.com/watch?v=H1lXGoR4QtI

Here is a list of all the inbuilt sorting algorithms of different programming languages and the algorithm they use internally:

1. C's qsort() – Quicksort
   Best Case Time Complexity- O(NlogN)
   Average Case Time Complexity- O(NlogN)
   Worse Case Time Complexity- O(N2)
   Auxiliary Space- O(log N)

Stable- Depends on the implementation of the comparator function
Adaptive- No

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1. C++'s sort() – Introsort (Hybrid of Quicksort, Heap Sort and Insertion Sort)
   Best Case Time Complexity- O(NlogN)
   Average Case Time Complexity- O(NlogN)
   Worse Case Time Complexity- O(NlogN)
   Auxiliary Space- O(logN)
   Stable- No
   Adaptive- No

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1. C++'s stable_sort() – Mergesort
   Best Case Time Complexity- O(NlogN)
   Average Case Time Complexity- O(NlogN)
   Worse Case Time Complexity- O(NlogN)
   Auxiliary Space- O(N)
   Stable- Yes
   Adaptive- Yes

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1. Java 6's Arrays.sort() – Quicksort
   Best Case Time Complexity- O(NlogN)
   Average Case Time Complexity- O(NlogN)
   Worse Case Time Complexity- O(N2)
   Auxiliary Space- O(logN)
   Stable- Depends
   Adaptive- No

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1. Java 7's Arrays.sort() – Timsort (Hybrid of Mergesort and Insertion Sort)
   Best Case Time Complexity- O(N)
   Average Case Time Complexity- O(NlogN)
   Worse Case Time Complexity- O(NlogN)
   Auxiliary Space- O(N)
   Stable- Yes
   Adaptive- Yes

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1. Java's Collections.sort() – Mergesort
   Best Case Time Complexity- O(NlogN)
   Average Case Time Complexity- O(NlogN)
   Worse Case Time Complexity- O(NlogN)
   Auxiliary Space- O(N)

Stable- Yes
Adaptive- Yes

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1. Python's sorted() – Timsort (Hybrid of Mergesort and Insertion Sort)
   Best Case Time Complexity- O(N)
   Average Case Time Complexity- O(NlogN)
   Worse Case Time Complexity- O(NlogN)
   Auxiliary Space- O(N)
   Stable- Yes
   Adaptive- Yes

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1. Python's sort() – Timsort (Hybrid of Mergesort and Insertion Sort)
   Best Case Time Complexity- O(N)
   Average Case Time Complexity- O(NlogN)
   Worse Case Time Complexity- O(NlogN)
   Auxiliary Space- O(N)
   Stable- Yes
   Adaptive- Yes

Datastructures - Trees etc

Binary search tree:

https://www.youtube.com/watch?v=VVXOE-hnFts

https://www.youtube.com/watch?v=edfGASf_QxE

Red-black tree:
https://www.youtube.com/watch?v=qvZGUFHWChY

AVL trees:
https://www.youtube.com/watch?v=5C8bLQBjcDI

Hashing/ Hash table:
https://www.youtube.com/watch?v=KyUTuwz_b7Q
https://www.youtube.com/watch?v=mFY0J5W8Udk
https://www.youtube.com/watch?v=MfhjkfocRR0

Algorithms:

Divide and Conquer
https://www.youtube.com/watch?v=yePqwt8wSi8

Greedy Algorithm:
https://www.youtube.com/watch?v=3XaqEng_K5s

Dijkstras Algorithm:
https://www.youtube.com/watch?v=pVfj6mxhdMw
https://www.youtube.com/watch?v=_lHSawdgXpI
Lee Algorithm:
https://www.youtube.com/watch?v=W9F8fDQj7Ok
https://www.youtube.com/watch?v=apMPtQUF2dA

Dynamic Programming:
https://www.youtube.com/watch?v=oBt53YbR9Kk

Algorithm design techniques:
https://www.youtube.com/watch?v=oBt53YbR9Kk

This should be enough for you guys... As an IoT developer