

# Apple Software Engineer Interview Questions

May 20, 2016

- Implement a peek using a existing iterator next and has-next function.
- What is the difference between weak and strong pointers
- Reverse a linked list recursively
- Why can't you use primitives in a hash-map.
- Traverse a binary tree recursively.
- Write a basic Fibonacci sequence implementation.
- How does delegation work?
- How does ARC work in Objective C, and how is it different from garbage collection?
- How would you design a data structure that is an array, but with so many elements such that the array almost fills up the entire RAM?
- How would you reverse a singly-linked list?
- What is the run time of a binary search tree.
- Find the most frequent element in an integer array.
- Is Java pass by value or pass by reference?
- What data structure would you use to auto complete a dialer when the phone may have thousands or hundreds of thousands of entries.
- Find the K<sup>th</sup> largest number in an array.
- What is deadlock and how is it prevented? Intersection of two arrays with optimal Big O.
- What is the instruction used in Matlab to compute the standard deviation?
- Write a simple C++ algorithm involving standard input and output. Provide test cases.

- How do you design a system for detecting people around a door, predict whether this man will go into the door.
- Skyline problem.
- Given a set of interval tuples, find the longest overlapping interval.
- Given a huge log file of a web server, find the IP addresses that had exactly 1 request.
- A network is connected in a line, so that servers can talk only to the servers to their left or right. Servers know if they are the leftmost or rightmost servers. What's a protocol for every server to learn the full topology? How long does it take?
- Implement a queue using array or linked-list.
- What is polymorphism?
- How could you approximate a non-linear function with only multiplication and additions.
- What are the techniques for allocating static and dynamic memory.
- Find the first non-repeated element in C.
- Given a binary search tree, print the nodes at each level on a separate line. With  $O(n)$  time complexity and  $O(1)$  space complexity.
- Describe the process of an interaction on a web page button from the click to the response.
- What is NTP and explain how TCP works?
- Given an iTunes type of an application that pulls down lots of images that get stale over time, what strategy would you use to flush disused images over time?
- Is there a difference between `performSelector` and `performSelectorWithDelay` of 0?
- Write a function to reverse a string.