Question interviews

Start with [Why S&T]+ Projects[leader or member and why in technical way]?End with [What is your experience in projects]

Theory questions no coding

[1] **IQ** Target audience **freshman**

Easy	Medium	Hard
[0,2,6,12,20,30,42, _]. Ans 56 diff even	[1,2,6,15,31,56, _]. Ans 92 diff i*i	48 [726]29 ,73[249]28 so 53[**129**]44
[1,2,6,24,120, _] Ans 720 factorial	[52,56,48,64,32, _]. Ans 96 + or – i^2 [i>=2]	2D prefix sum table
(1/4 * 1/3 * 1/2 * 80) Ans 10/3	[-10,15, -5, 7,] Ans is any - Ans	[3,4,16/3 , 64 / 9 , 256/27 , **1024/81**.]Mult 4/3
[4,6,9,14,21,] Ans 32 add prime	[75, 15, 25, 5, 15, --] Ans is 3 div 5 add 10	[4,9,25,49,121, **169**]. Power of prime number
134521 is 521268 then… is 968464 Ans 232968	[4,7,12,11, ---] Ans any even number	If ahmed is medcj, then [**Karim**] is rimmc

[2]SP+intro Target audience **Sophomore**

Easy	Medium	Hard
What is array and diff for datatype limits	struct +what default value main and global	Diff from Arr and map and types of map
How many types of loops	What last char of string	Diff from stack and heap
Errors type and what is diff	Types of array and what is prefix sum	Binary search comp and code
what are scopes	Pass with ref and value	Buble,selection O(n^2) Quick, merge diff(n log n)
Insertion and find element in array O	What is the diff between & and *	Big O cases and ask on merge sort especially

[3] (1) OOP Target audience junior

Easy	Medium	Hard
4 principles and give brief why need OOP	Types of constructor and super	What is virtual used for and which part of it[**poly**]
Diff between overload and override	Encapsulation example what protected	Access modifier example + if static access md
Diff between class and object	What used of this and static	What is inner class and what usage
Clean code example	How can we do multiple inheritance	Diff from base class and superclass
Override[runtime] and overload[compile]	Diff from class and struct	Tight and lose coupling

[3] (2) DS Target audience junior

Easy	Medium	Hard
What diff from list ,vector,stack,set	Dif Map(logn), unordered map(n) O searching?	How built map and unordered and list diff
what linkedlist + types+what is struct+enum	DFS,BFS what is Ds used for	What is peek in stack+what is postfix
What is map and what is in array	Linked list linear or nonlinear DS	What is graph and applications of it
Give real world exp of DS+ how to count Frq	When to use LinkedList and Arr compare	Types of trees and ask on it
What is diff from linear and nonlinear	What is types else of queues and mention	Diff from void and null

[3] (3) DB Taregt audience junior

Easy	Medium	Hard
Why db and DBMS ex	Relational and non DB ex	What are DDL,DML,DCL
What is types of DB	Diff from normalization and de normalization	Types of index,what is composite key
What are relation in RDB	Sql stament define[DDL,DML,DCL]	What is views and stored procedures
Why join +What is types of joins	What are joins in details	What is casecade delete + drop and truncate
Types of keys and example	What diff record ,field ,table	Types of function(scaler,table,system)

[4]Algorithms Target audience senior

Easy	Medium	Hard
What is complexity types(O, Ω, θ)	How to find maxsub array	What dijk work with what if negative use belman
Time+sapce complexty binary search rec+non	What are fundmentals of recusion fun	What is bfs used for what is dfs used for ex
What is DP+types of approches in DP	What are tree travese types [in,post,pre]	What is flyod used for ,what types of knapsack
What is algo on graph traverse	What is dijk and what is DS used on it+complex	What SCC,DAG and diff from normal connected
Binary search tree insertion how	What is the usage of prim and kruscal wt type	

Coding part

easy	Medium	hard
find whether the brackets are balanced or not. The input is a string of ‘{‘ and ‘}’ only.	You will be given n numbers and then you will be given a number representing the number of elements you want to reverse, store in the queue the elements after reversing	mplement a function that traverses BST in-order (ascending)
You are creating an registrations system. You will be given a number of strings . If the string is not similar to any string entered before display the string otherwise display the string followed by the number of occurrences	You will be given n characters, then k strings each starting with a character from the n characters. Display the smallest string lexicographically for each character	make a recursive function displaying the possible permutations of the digits ‘1’ and ‘3’ that are less than 10000
Given a number, check palindrome	)Given a string of english letters and ‘?’ only. Replace the ‘?’ with smallest letter possible knowing that you can`t have the same letter consecutively	given a sorted vector of numbers and an integer k. find if two numbers in the array sum to k.
Given a positive number, display the product of all the digits	Given an array A of integers, for each integer A[i] we may choose any x with -K <= x <= K, and add x to A[i]. After this process, we have some array B. Return the smallest possible difference between the maximum value of B and the minimum value of B.	Given a binary tree, find its maximum depth. The maximum depth is the number of nodes along the longest path from the root node down to the farthest leaf node.
Given a balanced string s split it in the maximum amount of balanced strings. Return the maximum amount of splitted balanced strings.	Merge two sorted linked lists and return it as a new list. The new list should be made by splicing together the nodes of the first two lists.	
Given an array containing n distinct numbers taken from 0, 1, 2, ..., n, find the one that is missing from the array.		

Technology

Android

Describe Activities.

Activities are what you refer to as the window to a user interface. Just as you create windows in order to display output or to ask for an input in the form of dialog boxes, activities play the same role, though it may not always be in the form of a user interface.

What is An android manifest file?

Every application must have an AndroidManifest.xml file (with precisely that name) in its root directory. The manifest file presents essential information about your app to the Android system, information the system must have before it can run any of the app's code.

What is container in android?

The container holds objects,widgets,labels,fields,icons,buttons.etc.

How to launch an activity in android?

Using with intent, we can launch an activity.

```
Intent intent = new Intent(this, MyTestActivity.class);

    startActivity(intent);
```

How do you find any view element into your program?

Using with findViewById we can find view element.

What is drawable folder in android?

A compiled visual resource that can used as a backgrounds,banners, icons,splash screen etc

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Where layouts are placed in android?

In The Layout folder, layouts are placed as XML files

What is an Adapter?

Here, you're checking that the Android eveloper understands that you need an additional component to connect an AdapterView (such as ListView or GridView), to an external data source. An Adapter acts as this bridge, and is also responsible for converting each data entry into a View that can then be added to the AdapterView..

What are the major difference between ListView and RecyclerView?

There are many differences between **ListView** and **RecyclerView**, but the Android developer should be aware of the following in particular:

- The ViewHolder pattern is entirely optional in ListView, but it's baked into RecyclerView.

ListView only supports vertical scrolling, but RecyclerView isn't limited to vertically scrolling lists

What is the Android Architecture?

Android Architecture is made up of 4 key components:

- activities
- broadcast receiver
- content provider
- services

What is the importance of XML-based layouts?

- The use of XML-based layouts provides a consistent and somewhat standard means of setting GUI definition format. In common practice, layout details are placed in XML files while other items are placed in

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What's the difference between onCreate() and onStart()?

- *The onCreate() method is called once during the Activity lifecycle, either when the application starts, or when the Activity has been destroyed and then recreated, for example during a configuration change.*

- *The onStart() method is called whenever the Activity becomes visible to the user, typically after onCreate() or onRestart().*

What is Context?

*A **Context** is a handle to the system; it provides services like resolving resources, obtaining access to databases and preferences, and so on. An Android app has activities. Context is like a handle to the environment your application is currently running in.*
***Application Context:** This context is tied to the lifecycle of an application. The application context can be used where you need a context whose lifecycle is separate from the current context or when you are passing a context beyond the scope of an activity.*
***Activity Context:** This context is available in an activity. This context is tied to the lifecycle of an activity. The activity context should be used when you are passing the context in the scope of an activity or you need the context whose lifecycle is attached to the current context.*

Difference between Activity & Service?

Activities are basically containers or windows to the user interface. Services is a component that is used to perform operations on the background. It does not have an UI.

What is a Fragment?

- A fragment is a part or portion of an activity. It is modular in a sense that you can move around or combine with other fragments in a single activity. Fragments are also reusable.

Can Android applications only be programmed in Java?

No, not necessarily. We can program Android apps using the Native Development Kit (NDK) in C/C++. The NDK is a toolset that allows us to implement parts of our app using native code languages such as C and C++. Typically, good use cases for NDK are CPU-intensive applications such as game engines, signal processing, and physics simulation.

Where can you define the icon for your activity?

The icon for an activity is defined in the manifest file.

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Web

What is the frontend and back end? What is HTML and CSS? What is Java script? What is Babel?

Deference between ===,==? ===: check type and value ,==: value

Deference between For in loop, for of loop?

In loop : Loop by index

Of loop: loop by value

What is hoisting?

Arrange function at top of the program.

What is an API?

- API stands for Application Programming Interface. is a way for two or more computer programs to communicate with each other.

What is RESTful API?

- REST (Representational state transfer) is a set of architectural constraints, not a protocol or a standard: (2 points are enough)

- A **client-server architecture** made up of clients, servers, and resources, with **requests managed through HTTP**.
- Stateless client-server communication, meaning **no client information is stored between get requests and each request is separate and unconnected.**
- **Cacheable data** that streamlines client-server interactions.
- A **uniform interface between components** so that information is transferred in a standard form. This requires that:
  - **resources requested are identifiable** and separate from the representations sent to the client.
  - **self-descriptive messages** returned to the client have enough information to describe how the client should process it.

What are CSS pseudo classes?

- A CSS pseudo-class is a keyword added to a selector that specifies a special state of the selected element(s). For example, the pseudo-class :hover can be used to select a button when a user's pointer hovers over the button and this selected button can then be styled

What is CSS before?

- In CSS, ::before creates a pseudo-element that is the first child of the selected element. It is often used to add cosmetic content to an element with the content property. It is inline by default

Flutter

Difference between stateful and stateless widgets?

Difference between AOT and JIT compilers?

What is hot reload?

What is pub dev?