

[INTERVIEW QUESTIONS FOR MOST OF COMPANIES IN PALESTINE]



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[Personal]	
Main Questions	
1.	Interduce yourself.
2.	What is your cumulative GPA?
3.	What is your Tawjihi GPA?
4.	How many hours have you completed at university, and how many remain until graduation?
5.	What courses did you take in general?
6.	How much did you get score in (C/ Java/Data Structure)?
7.	Tell me about your graduate project.
8.	Why did u choose [Back-end/ Front-end/ etc...] another career path?
9.	Why did u choose our company?
10.	What the languages that are you familiar with?
11.	Tell me a problem you faced in a project and how did you fix it?
12.	It will ask you about your CV, so be sure to know everything in your CV.

[General]	
Main Questions	
1.	What is Web
2.	What is Web Development
3.	What are Application Programming Interfaces (APIs) [1] [2]
4.	What is REST APIs?
5.	What is CRUD?
6.	Clean Code
7.	Unit Testing
8.	SOLID Principles
9.	Virtual Environments
10.	Docker
11.	What do you know about microservices?
12.	What is MVC?
13.	What is framework?

[OOP]	
Main References	
1.	OOP - By Atul Kumar
2.	Top 50 OOPs Interview Questions
3.	OOP – Interview Bit
4.	OOP - Notes
5.	OOP code - Interview Questions
Main Questions	
1.	What is object-oriented programming, why we need it?
2.	What is OOP main features?
3.	What is polymorphism, give me an example on it?
4.	What is encapsulation concept?
5.	What is Data Abstraction and why is it important?
6.	What are access modifiers in java (private, public, protect)?
7.	What is the difference between abstract class and interface?
8.	What is the difference in use between implement and extend?
9.	The difference between override and overload and who are in runtime and compile?
10.	Is java depending multiple inheritance and why?
11.	What these signs mean in UML ("-", ",", "+", and "#")?
12.	What is a try/ catch block?
13.	What is compareTo method how to use it?
14.	What is clone method how to use it?
15.	Can the static method call non static attribute?
16.	How do we use a method without creating an instance? (Declare it static)
17.	For what did we use instanceof?
18.	How can I make override the equals method?
19.	What is the different between == and equals()?
20.	Why do we use Setters and not adjust the attributes directly, give me two reasons?
21.	What is the difference between interface and class?
22.	What is the difference between class and structure?
23.	What is the difference between abstract class and final class?
24.	What is the difference between final and static?
25.	Why do we use the Interface?
26.	How can we call a constructor inside a constructor?
27.	What is final, finally, finalize?
28.	When do we declare static class?
29.	How do we override the method toString.
30.	What is the different between final class, final method, and final variable?
31.	Constant vs static.
32.	Static variable, Static method, and static attribute.
33.	When you compare 2 objects using == it will give that they are not the same object, Why?
34.	Can we make abstract classes without abstract method?
35.	What is the difference between object mutable and object immutable?
36.	If I have a private value, how do I transfer it from another class?
37.	When the interface doesn't make inheritance
38.	What is mean (this) in java OOP?
39.	What makes u describe a program as object oriented?

Exception Questions	
1.	What happens when I use more than one catch?
2.	What does finally mean, and can I use it without try and catch?
3.	What is the difference between throw and throws in the exception?
4.	What errors appear during the compile process and during the run process?
5.	Can I create multiple catches? Yes.
6.	What are the layers of catch? Try - catch - ... - Big catch that catches any error - Finally
7.	When finally, is executed? Every time doesn't matter if I have an error or not.
8.	How can I build an exception? Ans: try-catch
9.	What is the difference between Exception and Error?
Design Patterns Questions	
1.	Do you know what design patterns is?
2.	What are design patterns that you know?
3.	What is Singleton design patterns, Implement a Singleton class.
4.	What is Factory design patterns.
5.	What is Prototype design patterns.

[Data Structures]	
Main References	
1.	Data Structure Interview Questions
2.	Time Complexity
3.	Recursion + Time Complexity + Intro to Data Structures
4.	Searching Algorithms + Graphs
5.	Sorting Algorithms
6.	Main Trees
7.	Data Structures Full Course In Arabic
Main Questions	
1.	What are the Data structures that you know?
2.	There is linear and non-linear data structure give me example.
3.	Tell me about garbage collector?
4.	What is the difference between Array and LinkedList?
5.	Do you know HashTable? How is it structured in the memory? How do we get the data?
6.	What is the search complexity of binary search Tree?
7.	Tell me how the command is executed in order in for(int i = 0; i < 0; i++).
8.	Interpreted language vs compiled language with example.
9.	What big O notation mean?
10.	If I have a thousand words, how do I know how many words are repeated? (Use Hash map)
11.	What is the search complexity of Array?
12.	How to remove an element from a linked list when it sends to you a specific element number
13.	List the types of linked list.
14.	What is framework? Illustrate your answer with an example?
15.	What is a library? Illustrate your answer with an example?
16.	What's the output of this Unix command "more *.json wc -"
17.	How do we get the value from an Array of integers? by Index
18.	What is Agile methodology? How is it being used?
19.	I want to use data structure for the population of Egypt which is the best way to represent it
20.	Give me 3 sorting algorithm and explain how it work?
21.	What is the best way to rearrange an array?
22.	What are the main differences between a scripting language (like javascript) and a compiled language (like Java)?
23.	In the web browser we can go back to the previous page, or we can go to next page using browser arrows, what data structure do you think is used to do this.
24.	Explain to me about the Pointers
25.	How to define a pointer, its space in memory, and how to print the address and value?
26.	What is the difference between * and & (pointer and reference) pointer " can point to null, but reference '&' must point to a created object in memory or to a place in memory. you can say int a; and end, but you can't say int &a;, you must say it as int &a = 5;

[Problem Solving]	
Main References	
1.	Problem Solving Questions Solution in java
2.	Linked-List in Java
3.	NeetCode
4.	LeetCode
Main Questions	
1.	Swap 2 integers without temp. (Note that without temp has an issue that is: if we added 2 integers, they might be above int limit and might cause overflow).
2.	Find the sum between two numbers.
3.	Make a mirror to all words in the string (I Love Java), the result must be (I evoL aVaJ).
4.	Can you solve the bridge riddle ? - Alex Gendler
5.	Original String, and rotated string, how to know if the rotated string is the same as the original with rotated.
6.	Given a sting for example(yyiiillhnb) write a function to encode the string (2y3i2l1h1n1b) then write a mother function to decode it (yyiiillhnb)
7.	Remove-all-adjacent-duplicates-in-string
8.	Climbing-stairs
9.	Integer from more than one digit, find how many odd digits are in it (Don't use strings or array). Ex: 123456, the function should return you 3"
10.	If I have the number 123.158877, how do I leave the comma after two places without using math and string?
11.	Write a code that finds the largest product resulting from multiplying 3 elements in an array.
12.	Finding the remainder of a division without using modules %
13.	Write a function by taking a number and it returns true if the number is root sqr (using the sqrt method is not allowed)
14.	Find the ceiling without using a ceiling function.
15.	2 strings, they are different from each other (one of them has an extra char than the other) print the extra char.
16.	2 strings are numbers. I want a code that returns true if the number in the first string is greater than the number in the second string (considering the zero on the left).
17.	Write a code that prints the longest similarity between the beginning of the string and the end of it. Ex: "abcfhgabc", Output: "abc"
Recursion Questions	
1.	Write Factorial code in recursion.
2.	Write Fibonacci code in recursion.
3.	Write Power code in recursion.
4.	Write Sum between two numbers in recursion.
5.	Write code for greatest common divisor and smallest common divisor in two ways recursion and loops.
6.	Reverse linked list using recursion
7.	String ABCD Calculate how many permutations you can do for this String (do it as recursion).
Arrays Questions	
1.	How to find the duplicates in an array?
2.	Give max and second max from array in single loop.
3.	How do I mirror an Array without a second Array user?
4.	There is array and value and I want to search on array and return if this value exists or not.
5.	Given an array of arbitrary numbers, we need O(n) algorithm that return two numbers, their

	sum equal to a given number
6.	Given number and array of unordered numbers return a subarray its sum equal to given number
7.	We have an array of size 9 and it contains integers from 1-10, find the missing integer.
8.	You have this array: [1,2,5,4,22,4,3,1,2,5,0,23,1,2,5,3], show how many times each number is repeated
9.	Fill a 2-Dimensional (4x4) Array Diagonally (such as below (even though it is 3x3)): <pre> * * * * </pre>
10.	Use bubble sort for rearrange an array.
11.	We have array of string "lal", "all", "dsr", "rsd", "sss", "drs", count the frequency of each word
12.	Remove duplicated numbers Ex: [1,2,1,3,4,3] => [1,2,3,4]
13.	If you have a binary array (0,1) how to calculate the max subarray of ones. [1,1,0,0,1,1,1,1,0,1] Output: 4
14.	Move zeros to the end of the array, without changing the order of the other numbers. Ex: 123040056 ==> 123456000 without using another data structure.
15.	An array of integers, check if balanced. This means that at a certain index, the sum of the values below this index = the sum of the values above this index.
16.	Array of char, return the largest consecutive sequence. Ex: "aabbcccd", Output: "ccc"
Linked-List Questions	
1.	Write code to confirm linked list cycled or not.
2.	Write code to reverse the linked list.
3.	How to find the middle of the linked list?
4.	How to find the length of linked list?
5.	Create queue from linked list.
6.	We have sorted linked list, but it is sorted without regard to the sign (-) of the number. I want you to sort it considering the sign (-).
7.	How we can specific element delete from linked list?
8.	(After Creating a Linked List) you have a linked list, it is all connected in one direction, we want to connect it in the other direction to create a doubly linked list do it, (beware that it is doubly linked list not cyclic).
9.	Two Linked lists are connected, find the connection point between them.
10.	Find If Two Linked List Have Intersection Point
Stack & Queue Questions	
1.	Can we make a Queue using stack? (How many and explain the enqueue and dequeue operations are performed using the stacks).
2.	Can we make a Stack using queue? (How many and explain the pop and push operations are performed using the queue).
3.	You have this string ("{{{}}}{}) how to know if all open brackets are correctly locked.
4.	How can I implement the stack? Using Linked list
Trees & Graphs Questions	
1.	What is the search complexity of binary search Tree?
2.	Binary search tree explain how we decide what value is stored in left or right node?
3.	What is depth first search and breadth first search?
4.	How can I do traverse on tree, what is the best why?
5.	What the different between Pre-order, In-order, and post-order?
6.	Print all elements of the tree.
7.	Write code to find the number of nodes in binary search tree?
8.	Write code to return min and max value in tree.

9.	Write code return height from binary tree = Find the max depth of a binary tree.
10.	Print the longest path for tree.
11.	How to find the parent of node in binary tree?
12.	How to search about node?
13.	How can check if the tree is Balance?
Other Questions	
1.	Check if the string is palindrome string
2.	While (0) what do?
3.	Which is better to store the password in string or char of array? Why?
4.	Find the prime factors of the value of the variable x.

[Database]	
Main References	
1.	Database - Main
2.	Database - Notes
3.	Keys Types
4.	Relational SQL
5.	Relational Algebra
6.	SQL
Main Questions	
1.	What is the Database, and for what we use it?
2.	Have student and teacher what is type of relation between.
3.	How do we represent (M- N, 1-1, M-1 and self-relation) relationships in a relational database?
4.	How do we represent Weak entity in a relational database?
5.	How do we represent Multi value attribute in a relational database?
6.	What is the Association vs. Aggregation vs. Composition relationship?
7.	Primary key vs foreign key?
8.	What are the types of databases? how do they differ from each other?
9.	Why don't I put all my data in one table?
10.	What is the difference in data base between Delete, Drop, and Truncate?
11.	What is NoSQL?
12.	What is Constrains in SQL?
13.	What is an Index?
14.	What are the types of joins in SQL?
15.	What is Normalization?
16.	Give me the number of all students taught by the given teacher.
17.	Write query that count number of persons on each country.
18.	Return all employees whose names start with 'a'
19.	How can I get the name of the old student?
20.	How can I get the name of the second old student? Ans: [Order by ASC, offset(1)]
21.	SQL Having vs Where
22.	Questions on join, aggregation, having.
23.	Select, delete, insert, outer join, inner join, left join, right join, group by, having, order by, count, max, min, average.
24.	How the linking between database and program is done?
25.	Why do we need back end if we can link the database with front end?
26.	Have you heard about ORM before?

[Web - Network]

Main Questions

1.	What is HTTP and what is HTTP Methods?
2.	Explain GET and POST methods.
3.	What is the difference between HTTP and HTTPS? HTTP → It does not encrypt the data HTTPS → It encrypt the data
4.	What is the server and client?
5.	What is the server and is it a device or application?
6.	What is http request, socket?
7.	Difference between cookies, session, and tokens?
8.	What is Token?
9.	Is the session saved on the server side? Ans: Yes
10.	Is the JWT Token saved on the server side? Ans: No
11.	How does the server place a cookie file on the user's device? Answer: By using request http, I mean, I send the server to the device via http.
12.	When I log in and then open a second page in the browser, am I not asked to log in again?
13.	I logged in successfully and started session and then delete the Cookie What's will happen? Answer: I log out and you ask me to log in again.
14.	How is the session sent in the request?. Answer: By HTTP request, in the request headers.
15.	How is the process of authorizing users and their passwords done?
16.	If I want to upload important data to a server, how can I increase security? Answer: Using HTTPS
17.	How does http hacking happen?
18.	What is https and what is SSL?
19.	On the login page, I entered a valid email address and an incorrect password, and then I clicked Submit. What will happen to the server? Answer: The first thing to do is check if the email is present in the Database. If it exists, check the password and to compare the password that the user entered with the one in the Database, I must encrypt what the user wrote and then compare it with what is in the Database.
20.	What if I had an email type input and entered a random number and did Submit? Should I go to the server? Answer: No, because there is validation before make POST request to the server.
21.	What Is a URL?
22.	When a user types a website address in the browser, what exactly happens?
23.	How does the browser recognize that you want Facebook and bring it to you and not bring you another website?
24.	The user requests a specific page, and a blank page comes up. Where is the error?
25.	The user requests a website and says the server is not there, but another user is normal. What could be the problem?
26.	What are the layers of the network in OSI? In which layer did the penetration occur?
26.	I'm on Facebook, how can it send notifications without updating the page?

[Git-GitHub]	
Main Questions	
1.	Have you worked with a team on a project? what did u use to keep track of changes?
2.	What is the difference between git and GitHub?
3.	Have you used the command line?
4.	What are the commands that you know or used in git bash?
5.	What is the staging area?
6.	What happens when we use git add? (Explain what happens when we add files after changing)

[Thinking]	
Main Questions	
1.	We had a cake. I want to divide it into 8 equal pieces, but you can use the knife 3 times only.
2.	What is the angle between the minute hand and the hour hand when the time is 9:45 or 6:30?
3.	A company in which every employee greets all employees. The last thing that came out was 66 greetings. How many employees do the company have?
4.	We have 10 pairs of white socks and 10 black. What is the minimum number of withdrawals I need to make to get a wearable pair?
5.	You have 9 balls and one of them is heavy. What is the minimum number of pull attempts to know who is heavy?
6.	You have a garden. On the first day, a rose will appear, the second day it will multiply and become two roses, the third will become 4, the fourth will become 8, and so on... Let us say that after 30 days the garden will become tired. On what day will the number of roses in the garden be half?