Dear Interviewer,

I hope you are doing well. As part of our Final Year Project, we are developing an AI-powered interviewing system that evaluates candidates' responses based on completeness, correctness, and relevance. To assess the system’s performance, we are conducting a comparative analysis between AI-generated evaluations and human expert evaluations.

We want you to assist in evaluating candidate responses for our AI-powered interviewing system. This study aims to compare human expert evaluations with AI-generated assessments to measure our system’s accuracy in response evaluation.

**Instructions for Evaluation**

You are provided with a set of computer science interview questions along with sample answers. Your task is to evaluate each response on a scale of **0 to 10** based on the following three criteria:

1. **Completeness**: Does the response fully answer the question?
2. **Correctness**: Is the information factually accurate?
3. **Relevance**: Does the response stay on topic?

Each response should be rated separately for **completeness, correctness, and relevance** by assigning a score from **0 (poor) to 10 (excellent)** in the provided table.

**Guidelines**

* Consider yourself as a hiring interviewer.
* Be as objective as possible in your scoring.
* If a response is completely incorrect or irrelevant, a score of **0** is appropriate.
* If a response is fully correct, relevant, and complete, a score of **10** can be given.
* Partial answers should be rated accordingly.
* Once you complete the evaluation, please send it back to me.

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| Question | Answer | Rate (0 to 10) |
| What is a data structure? Why are they important? | A data structure is a way to organize, manage, and store data in a way that enables efficient access and modification. They are important because they optimize operations like searching, sorting, and manipulating data, directly impacting algorithm performance. | 8 |
| Explain the difference between an array and a linked list. | Arrays are continuous memory blocks, and linked lists are like pointers. Arrays are fast, and linked lists are not. | 6 |
| Tell me What is a stack? Give a real-world example. | A stack is a linear data structure that follows the Last In, First Out (LIFO) principle. A real-world example is a stack of plates where the last plate added is the first to be removed. | 9 |
| How does a queue differ from a stack? | A queue follows the First In, First Out (FIFO) principle, while a stack follows LIFO. In a queue, the first element added is the first to be removed, like a line at a ticket counter. | 8 |
| Explain the difference between an array and a linked list. | Alright. Next question please. | 0 |
| What is the time complexity of searching an element in a balanced binary search tree (BST)? | The time complexity is O(logn) for a balanced BST because the tree's height determines the number of comparisons needed for searching. | 10 |
| What is a data structure? Why are they important? | Data structures are used to store data. They are good for programming. | 2 |
| What is a stack? Give a real-world example. | A stack is a data structure used in programming. An example is a pile of files. | 3 |
| Tell the time complexity of searching an element in a balanced binary search tree (BST)? | It is O(n) because you might have to search through all the elements. | 7 |
| Describe the difference between a graph and a tree. | A tree is a type of graph with no cycles and a single root, where every node has exactly one parent. A graph is a general structure that can have cycles, multiple roots, and disconnected components. | 8 |
| What is the purpose of a trie (prefix tree)? | A trie is used to store strings in a tree structure, where each node represents a character of the string. It is efficient for prefix-based searches, such as autocomplete systems. | 8 |
| Describe the difference between a graph and a tree. | A tree is a graph with a root. Graphs have more connections than trees. | 2 |
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| What is inheritance, and why is it used? | Inheritance allows a class to acquire the properties and methods of another class. It promotes code reuse and establishes a parent-child relationship between classes. | 8 |
| Explain the concept of polymorphism with an example. | Polymorphism is when the same thing works differently. For example, shapes can behave differently. | 5 |
| What is the difference between method overloading and method overriding? | Overloading is when a method does many things. Overriding is when a method in a child class replaces one in a parent class. | 3 |
| What is inheritance, and why is it used? | Inheritance is when one class copies another. It makes coding easier. | 2 |
| Explain the concept of polymorphism with an example. | Polymorphism allows objects of different classes to be treated as objects of a common superclass. For example, a method draw() in a superclass Shape can be overridden in subclasses like Circle and Rectangle to perform specific behaviors. | 8 |
| What is inheritance, and why is it used? | Nice Question!! Thanks for asking | 0 |
| What is inheritance, and why is it used? | Inheritance is about getting properties from parents. | 4 |
| What is the difference between composition and inheritance? | Composition is better than inheritance because it is more flexible. | 0 |
| What is an abstract class, and how is it different from an interface? | An abstract class can have both abstract (unimplemented) and concrete (implemented) methods. An interface only defines abstract methods (in some languages) and does not contain implementation. | 7 |
| What do you know about overfitting, and how can it be prevented? | Overfitting occurs when a model learns the training data too well, including noise, and performs poorly on new data. It can be prevented by using regularization, cross-validation, or collecting more data. | 9 |
| What is the bias-variance tradeoff? | It is about balancing bias and variance to get the best accuracy. | 7 |
| What do you know about parametric and a non-parametric model? | Parametric models assume a specific form for the function and have a fixed number of parameters (e.g., linear regression). Non-parametric models do not assume a specific form and can grow in complexity with more data (e.g., decision trees). | 8 |
| What is the bias-variance tradeoff? | The bias-variance tradeoff is the balance between underfitting (high bias) and overfitting (high variance) in a model. A good model achieves the right balance for optimal performance. | 7 |
| What are some common methods to handle missing data? | Common methods include:   * Removing rows with missing values. * Imputing missing values with the mean, median, or mode. * Using advanced methods like k-nearest neighbors (KNN) imputation or predictive models. | 10 |
| What are some common methods to handle missing data? | Just delete the missing data or fill it with zeros. | 2 |
| What is the purpose of cross-validation? | Cross-validation is used to evaluate a model's performance by splitting the data into training and validation sets multiple times, ensuring the model generalizes well to unseen data. | 10 |
| What is gradient descent, and why is it used? | Gradient descent is an optimization algorithm used to minimize a function by iteratively adjusting parameters in the direction of the steepest descent, as defined by the negative gradient. | 9 |
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| What are the ACID properties in databases? | ACID properties ensure reliable transactions:   * **Atomicity**: Transactions are all-or-nothing. * **Consistency**: Transactions maintain database validity. * **Isolation**: Transactions run independently. * **Durability**: Changes persist even after a failure. | 10 |
| What are indexes, and how do they work? | Indexes are used to organize tables. | 0 |
| What is the difference between DELETE and TRUNCATE? | DELETE removes specific rows from a table and can be rolled back. TRUNCATE removes all rows from a table and cannot be rolled back. | 7 |
| What is gradient descent, and why is it used? | Give me 5 grace marks for it. | 0 |
| What are indexes, and how do they work? | Indexes are data structures that improve the speed of data retrieval by creating pointers to the data in a table. | 8 |
| What is the difference between DELETE and TRUNCATE? | DELETE is used to remove data, while TRUNCATE is used to clean a table. | 3 |
| Do you know about transaction in databases? Explain it. | A transaction is a sequence of operations performed as a single unit, ensuring ACID compliance for consistency and reliability. | 7 |
| What are stored procedures, and why are they used? | Stored procedures are precompiled SQL statements stored in the database to execute frequently used operations, improving performance and reusability. | 6 |
| Do you know about transaction in databases? Explain it. | A transaction is any operation in a database. | 2 |
| Why is foreign key used? | A foreign key is a column in one table that refers to the primary key in another table, creating a relationship between the two tables. | 7 |
| What are indexes, and how do they work? | Indexes are used to organize tables. | 1 |
| Why is foreign key used? | A foreign key is used to link two tables. | 3 |
| What is the difference between pass-by-value and pass-by-reference? | In pass-by-value, a copy of the variable is passed, and changes don’t affect the original. In pass-by-reference, the actual variable is passed, so changes affect the original. | 8 |

Do you think these questions are suitable enough to be asked in a technical interview for a fresher? Rate it as

1. Yes, Perfect Question set
2. Yes, Vey much relevant
3. Yes, to some extent
4. To a very little extent
5. No, not at all

Select: B