

IBM Interview Questions for Freshers



IBM Technical Interview Questions for Freshers

IBM Technical Interview Questions On C/ C++/ OOPS Concepts

1. What is the advantage of inheritance in OOPS?

The most frequent use of inheritance is for deriving classes using existing classes, which provides reusability. The existing classes remain unaltered. By reusability, the development time of software is reduced. The derived classes extend the properties of base classes to generate more dominant objects.

2. What is an Array? What is the Importance of an Array?

An array is a data structure that contains a group of elements. Regularly, these elements are of the same data type such as integer or string. Arrays are commonly used in computer programs to organize data so that a related set of values can be easily sorted or searched.

Importance:

- It is a better and convenient way of storing data of the same data type with the same size.
- It allows users to store a number of elements in it.

3. Differentiate between variable/ function declaration and definition in the context of any OOPs programming language.

The purpose of a variable declaration is to tell the compiler of the following information: the variable's name, the kind of value it stores, and the initial value if any. Declaration, in other words, provides information about a variable's attributes. The definition of a variable allocates memory space for the variable and specifies where the variable will be stored.

4. Explain function overloading and function overriding in the context of the C++ programming language

- **Function Overloading** - It allows for multiple definitions of the function by modifying the signature, i.e. the number of parameters, the data type of the parameters, and the return type.
- **Function Overriding** - It is the redefining of a base class function in a derived class with the same signature, that is, the return type and parameters. It's only possible in derived classes.

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5. What is Variable Scope?

A scope is a region of the program and broadly speaking there are three places, where variables can be declared inside a function or a block which is called local variables. In the definition of function parameters which are called formal parameters. Outside of all functions which are called global variables.

6. Differentiate between struct and union in the context of C programming language.

Struct: In C, a structure is a user-defined data type that allows you to combine data objects of various types. A record is represented by a structure.

Example -

```
struct structureName
{
member definition;
member definition;
...
member definition;
};
```

Union: In C, a union is a unique data type that allows you to store many data types in the same memory region. A union can have numerous members, but only one of them can have value at any given time. Unions are a useful approach to reuse the same memory space for numerous purposes.

Example -

```
union unionName
{
member definition;
member definition;
};
```

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...

member definition;

};

7. What is Procedural Programming?

Procedural programming is a programming paradigm that uses a linear or top-down approach. It relies on procedures or subroutines to perform computations. Procedural programming is also known as imperative programming.

IBM Technical Interview Questions On DBMS

1. What is an inner join? Explain with Business use?

Inner join is nothing but fetching common records from two or more tables. When 2 tables are connected such that it should retrieve only the matching records in both tables. Inner join select only the matching records between 2 tables. You can use the Equal to(=) operator or Inner join keyword to apply the inner join. This join is the most widely used joins in real-life applications, reporting, webapps, android apps. Copyright To <https://www.freshersnow.com/>

2. What are the main differences between the Primary key and the Unique Key?

- The main difference between the Primary key and the Unique key is that the Primary key can never have a null value while the Unique key may consist of a null value.
- In each table, there can be only one primary key while there can be more than one unique key in a table.

3. What is Correlated Subquery in DBMS?

A Subquery is also known as a nested query i.e. a query written inside some query. When a Subquery is executed for each of the rows of the outer query then it is termed as a Correlated Subquery.

An example of Non-Correlated Subquery is:

```
SELECT * from EMP WHERE 'JOHN' IN (SELECT Name from DEPT WHERE EMP.EMPID=DEPT.EMPID);
```

Here, the inner query is not executed for each of the rows of the outer query.

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4. Explain Steps in Correlated subquery execution

- Executes the outer Query
- For Each row of outer query inner subquery is executed once
- The result of the correlated subquery determines whether the fetched row should be the part of our output results
- The Process is Repeated for all Rows

5. What is the query to find record no 17 from the database?

Select * from (Select Employee.*, rownum Rn from Employee) Where Rn=17;

IBM Technical Interview Questions On Computer Organization & Architecture (COA)

1. What Is Virtual Memory In Computer?

Virtual memory is that when the available RAM memory is not sufficient for the system to run the current applications it will take some memory from the hard disk. This memory is termed Virtual memory.

2. Instead Of Just 5-8 Pipe Stages Why Not Have, Say, A Pipeline With 50 Pipe Stages?

The latency of the architecture increases with the pipeline stages. Penalty due to the flushing of the pipeline for instance will also increase Cycles Per Instruction of the CPU architecture.

3. What are the various Interrupts in a Microprocessor system?

There are three types of interrupts:

- **External interrupts** that come from external input/ output devices.
- **Internal interrupts** are the result of any exception caused by the program itself.
- **Software interrupts** occur only during the execution of an instruction. The main aim of such interrupts is to switch modes from the user to the supervisor.

4. Explain The Difference Between Interrupt Service Routine And Subroutine?

Subroutines are part of executing processes (like any process can call a subroutine to achieve a task), while the interrupt subroutine never is the part. Interrupt subroutine is subroutine that is external to a process.

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5. How do you find a Block in a Cache?

Block's tag is recorded by each place in the cache along with its data. The place in the cache might be unoccupied, so it usually maintains a valid bit.

Thus, to find the block in cache:

- Determine the place or set of places used in the index of block address.
- Check if a valid bit is set for each place and compare the tag with that address block parallelly for all places in a set.

IBM Technical Interview Questions On Computer Networks

1. What is Network Cabling?

Network cables can connect two computers or computer systems directly. A cable is a cord that is made up of different conductors, which are insulated from each other. This cord is usually protected by a wrap for better strength and flexibility.

2. What is 'beaconing'?

Beaconing is the process that allows a network to self-repair network problems. This is among the important networking interview questions and you must prepare for the related terminologies as well.

3. What are the different factors that affect the reliability of a network?

- Frequency of failure
- Recovery time of a network after a failure

4. Mention the different network protocols that are supported by Windows RRAS services?

The three main network protocols supported by Windows RRAS services:

- NetBEUI
- TCP/ IP
- IPX

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5. What is the SMTP protocol?

SMTP is the Simple Mail Transfer Protocol. SMTP sets the rule for communication between servers. This set of rules helps the software to transmit emails over the internet. It supports both End-to-End and Store-and-Forward methods. It is in always-listening mode on port 25

IBM Technical Interview Questions On JAVA

1. Can you write the final method in the interface?

No, because interface methods do not have a body. It needs to be implemented in implemented class.

2. Difference between the synchronized block and synchronized method?

The synchronized Method defines a self-contained block and it's easy to handle in a multi-threaded environment. Both act as similar; there is no major advantage over each other. The difference is that a synchronized block can choose which object it synchronizes on. A synchronized method can only use 'this' (or the corresponding Class instance for a synchronized class method). Copyright To <https://www.freshersnow.com/>

3. Difference between equals() and hashCode()?

Both methods are from the Object class. Equals() method is used to compare the contents of an object or reference. But, the hashCode() method is used to get the unique hash code for any object. Hashcode is used for Hash implementations like HashMap, HashTable, HashSet, etc.

4. What is autowiring in spring?

- Autowiring is a mechanism for injecting objects in Spring. By using the annotation @Autowired, you can achieve that.
- Its available inside org.springframework.beans.factory.annotation package.

5. What is the difference between get() and load() in hibernate?

These two methods are the most useful methods in Hibernate. Both methods are used to get/ fetch the records from the database. The get() method will return null if the data is not found. The load() method always returns a proxy.

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IBM Technical Interview Questions On Operating Systems

1. What is Process Scheduling?

- The procedure planning is the action of the procedure director that handles the expulsion of the running procedure from the CPU and the determination of another procedure based on a specific methodology.
- Process planning is a fundamental piece of Multiprogramming working frameworks. Such working frameworks enable in excess of one procedure to be stacked into the executable memory at once and the stacked procedure shares the CPU utilizing time multiplexing. Copyright To <https://www.freshersnow.com/>

2. What is the difference between the micro kernel and macro kernel?

- **Micro kernel:** micro kernel is the kernel that runs minimal performance affecting services for the operating system. In the micro kernel operating system, all other operations are performed by the processor.
- **Macro Kernel:** Macro Kernel is a combination of micro and monolithic kernels.

3. What is the concept of demand paging?

Demand paging specifies that if an area of memory is not currently being used, it is swapped to disk to make room for an application's need.

4. How many types of fragmentation occur in Operating System?

- **Internal fragmentation:** It is occurred when we deal with systems that have fixed-size allocation units.
- **External fragmentation:** It is occurred when we deal with systems that have variable-size allocation units.

5. What are the differences between process and thread?

A thread has its own program counter (PC), a register set, and a stack space. Threads are not independent of one another, like processes. As a result, threads share with other threads their code section, data section, and OS resources like open files and signals.

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IBM HR Interview Questions & Answers

1. Tell me Something about yourself

The first thing in an interview the interviewer will ask the aspirants is to tell something about them. The answer seems to be easy but it is very tricky. Aspirants should be able to answer it in such a way that they should be able to grasp the attention of the Interviewer. Explain your family background, where you came from, your educational qualifications, the projects you have done in your academic year, the Internship you have worked, Cover everything that you want to convey. Moreover, do focus more on the projects/ or your previous internship experience to give insight into your work.

2. What are your goals?

The recruiting team general poses this question to know about your plans for your future. That means, whether you see yourself willing to work for IBM or not in the long run. Therefore, do speak about the short-term goal you will have when you join IBM and also where do you want to see yourself in the long run while working in the IBM. Speaking about future goals will help the interviewer to analyze & consider you as a long-sighted person & also a passionate career-oriented individual.

3. Why do you want to work for our company?

Explain this question in such a way that shows why you are passionate and looking forward to joining IBM. Focus on individual points like their Work Culture/ Work Environment/ Focus on Employee Growth, tell them exactly that this is the reason you are looking forward to joining their elite organization so that you can be part of their success team.

4. What are your strengths?

Strengths are nothing but which help you to achieve the desired results you are aiming for. No individual is similar to others, so explain to them where you differ from others like Your Positive Attitude towards things that come across you, Your Patience, Attention to Detail while working, Working Under Pressure, etc. Make sure that while explaining your strengths do point out some of the examples like how you faced a certain problem and how you overcame it by using your strengths.

5. Do you have any hobbies and interests?

Usually, the interviewer will want to know about what you do in your free time and how you spend it productively. This is just a way of knowing that you are not just an academic person but

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you do something outside of it. What you are interested in or love to do will project you as an active person and also show if in case you are feeling stressed due to work you can simply overcome it by doing something you are interested in for a short while. Candidates generally say about Reading Books, Playing Cricket, Dancing, Painting, etc., So, while saying these do prepare yourself to answer whatever the subsequent question the interviewer may ask like what genre you prefer to read, what you like painting most, etc.,

6. What is the difference between smart work and hard work?

Interviewers usually want to hire people who are smart at work and who don't need to be told multiple times regarding their work. People, usually say that Hard Work is key to having a successful life in the long run but however, if you are doing hard work for long hours and not being fruitful then what's the use of it. Things can get done in multiple ways, so learn how you can achieve something easily by giving your full potential that's what Smart workers do, they try to simplify things rather than complicate them. So, along with being a hard worker you also need to be a smart worker in order to achieve things.

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