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| 1. What is Java?  * Java is a high-level programming language and is platform-independent. |
| 1. What is a class?  * Class is a blueprint to create an object. * The class consists of more numbers of objects. |
| 1. What is an object?  * An object is a real-time entity that consists of its stats and behavior. * An object is an instance of a class. |
| 1. What are variables and types of variables?  * Variables are the container that is stored data value. * Variables are 3 types.  1. **Local variables** - It’s declared inside the methods.   - It’s accessed directly.  - It’s not initiated any default value.  **2.** **Instance variables** - It’s declared inside a class and outside the methods.  - It’s accessed through an object.  - It’s initiated default value. **Global**  **3.** **Static variables** - It’s declared inside a class and outside the methods. **Variables**  - Used a “static” keyword.  - It’s direct access. |
| 1. What is a final variable?  * Any variable is declared with a “Final” keyword it’s called a final variable. |
| 1. What is a method?  * A method is a block of statements that is gets executed whenever it’s called. |
| 1. What is the syntax of methods?  * Access specifier, modifier, return type, method name (arguments)   Access specifier – 4 types (Public, Private, Protected, Default)  Modifier – 2 (Static, Non-static)  Return type – void or int, String, double, long, short, etc.  Arguments – Optional |
| 1. What is method overloading?  * Develop multiple methods with the same name but different parameters. This is known as methods overloading. |
| 1. What are datatypes?  * It is defined that what kind of data my variables can be stored. |
| 1. What are types of datatypes?  * 2 types  1. **Primitive Datatypes:** Byte (1 byte), Char (2 bytes), Short (2 bytes), Int (4 bytes), Long (8 bytes), Float (4 bytes), Double (8 bytes), Boolean (1 bit) 2. **Non–Primitive Datatypes:** String, Array, Class, etc.   (1 byte = 8 bits) |
| 1. What are naming conventions?  * The name should not match with keywords. (Class, int, String) * Class – Name should begin with a capital letter. (single word)   - The first letter of every word should begin with a capital letter (multiple words)     * Method – The first letter should begin with a lowercase letter.   - And the first letter of every word should be capitalized.   * Variables – Begin with an alphabet or underscore.   - Should not begin with a digit.  - Should contain alphanumeric but not symbols or spaces expect to underscore.   * Object – Should begin with alphanumeric or underscore. |
| 1. What is Java Buzzword? (Features of Java)  * It’s 9 features of Java.  1. **Platform Independent:** Run in any environment. 2. **Object-oriented:** In Java, everything is based object which has some data and behavior. Java can easily extend as it is based on an object model. 3. **Simple:** It’s is designed to be easy to learn. 4. **Secure:** Secure for internal application. 5. Robust: Early checking of errors, Garbage collector, exception handling (memory management) 6. **Portable:** Java program written in one environment can be executed in another environment. 7. **Multithreading:** Concurrent execution of several parts of the same program at the same time. Improve CPU utilization 8. **Distributed applications:** It’s software that runs on multiple computers to a network at the same time. 9. **Architectural Natural:** Irrespective of architecture the memory allocated to the variables will not vary. |
| 1. What are constructors?  * It is a block of codes similar to the method. But constructors do not have a return type. * The constructor’s name must be the same as its class name. * It’s used to initialize the object. * Java constructors cannot be abstract, static, and final. * We can use access modifiers while declaring a constructor. |
| 1. What are the types of constructors?  * 2 types  1. Default Constructor 2. Parameterized constructor (arguments) [passing parameters] |
| 1. What is constructor overloading?  * Develop the multiple constructors with the same class name but different parameters. This is known as constructor overloading. |
| 1. What is a string?  * In Java, a string is an object that represents a sequence of characters. The java.lang.String class is used to create a string object. |
| 1. What are Java OOPs (Object-oriented programming system) concepts?  * Object-oriented programming is a methodology to design a program using classes and objects. * Software development and maintenance by providing some concepts:  1. Object 2. Class 3. Abstraction 4. Encapsulation 5. Inheritance 6. Polymorphism 6. What is encapsulation?  * Binding variables and methods under a single unit. * Encapsulation is used to hide the important information of an object using access modifiers. |
| 1. What are the benefits of encapsulation?  * 1. Help protect our data. * 2. Encapsulated class reduces complexity. * 3. Encapsulated classes are easier to change. |
| 1. What is inheritance?  * Inherit properties of one class into another class. It’s called inheritance. |
| 1. What are types of inheritance?  * 1. Single Inheritance * 2. Multilevel Inheritance * 3. Hierarchical Inheritance * 4. Multiple Inheritance It’s not supported in java * 5. Hybrid Inheritance (Diamond Inheritance) |
| 1. Why multiple inheritance is not supported in Java?  * To reduce the complexity and simplify the language, multiple inheritances are not supported in java. * Consider a scenario where A, B, and C are three classes. The C class inherits the A and B classes. If A and B classes have the same methods and you call it from the child class object, there will be ambiguity to call the method of A or B class. * Since the compile-time error is better than runtime error, **Java renders compile-time error if you inherit 2 classes. So, whether you have the same method or different, there will be a compile-time error.** |
| 1. What is method overriding?  * The method of the subclass overrides the method of the superclass. This is called method overriding. * When a subclass and the superclass have methods with the same name, parameters, and return type, the method of the subclass overrides the method of the superclass. * Methods declared as the final keyword cannot be overridden. * Static methods cannot be overridden. |
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| 1. What is an abstraction in java?  * Abstraction is a process of hiding the implementation details and showing only functionality to the user. |
| 1. What is an abstract class in java?  * A class that is declared as an abstract keyword is known as an abstract class. * **Points to remember:** * An abstract class must be declared with an abstract keyword. * It can have abstract and non-abstract methods.      * It can have constructors and static methods also. * It can have final methods which will force the subclass not to change the body of the method. * If there is an abstract method in a class, that class must be abstract. |
| 1. What is an abstract method in java?  * A method that is declared as abstract and does not have implementation is known as an abstract method. (no method body and abstract) |
| 1. What is an interface in java?  * The interface looks like a class but it is not a class. * An interface can have methods and variables just like the class but the methods declared in the interface are by default abstract. * Also, the variables declared in an interface are public, static, and final by default. |
| 1. Why use the Java interface?  * There are mainly three reasons to use the interface. * It is used to achieve abstraction. * By interface, we can support the functionality of multiple inheritances. * It can be used to achieve loose coupling. |
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