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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 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. |
| 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. |
| 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. |
| 1. What is a Java static keyword?  * The static keyword in java is used for memory management mainly. * We can apply static keyword with – Variables (also known as a class variable)   - Methods (also known as a class method)  - Blocks  - Classes |
| 1. What is a Java static variable?  * If you declare a static keyword with any variable, it is known as a static variable. * The static variable can be used to refer to the common property of all objects, for example, the company name of employees, college name of students, etc. * The static variable gets memory only once in the class area at the time of class loading. * The static variable can be accessed directly by using the class name without creating any object of the class. * The static variables can be accessed from both static and non-static methods. |
| 1. What are the advantages of static variables?  * It makes your program memory efficient (it saves memory). |
| 1. What is the Java static method?  * If you apply a static keyword with any method, it is known as the static method. * A static method belongs to the class and not the objects of the class. * Static methods are mainly used to access or modify static variables (class variables). * A static method can be accessed directly by using the class name without creating any object of the class. (The main advantage of method) * Static methods can access static variables but not non-static variables. * This and super keyword cannot be used in a static context. * Static methods can be accessed from static as well as non-static methods. * Static methods can’t be overridden. * Abstract methods can’t be static. |
| 1. Why is the Java main method static?  * It is because the object is not required to call a static method. If it were a non-static method, JVM creates an object first then calls main() method that will lead to the problem of extra memory allocation. |
| 1. What is a Java static block?  * A block or block statement is a sequence of zero or more statements enclosed within braces in a program. * A block gets called before the constructor of the class in which it is defined. |
| 1. What is a Java static block?  * It is used to initialize the static data member. * It is executed before the main method at the time of class loading. (The main advantage of the static block) |
| 1. What is the Java this keyword?  * This keyword refers to an object of the current class. * When we call one constructor inside another, it should be the first statement of the constructor in which we are calling. |
| 1. What are the uses of this keyword?  * 1. To access the current class attributes. * 2. To access the current class methods. * 3. To access the current class constructors. * 4. To refer to the object of the current class. * 5. This can be passed as an argument in the method call. * 6. This can be passed as an argument in the constructor call. |
| 1. What is a final keyword in java?  * The final keyword in java is used to restrict the user. * The java final keyword can be used in any context. * The Final can be 1. Variable 2. Method 3. Class * Java final keyword stop value change * Java final keyword stop method overriding * Java final keyword stop inheritance |
| 1. What is a java final variable?  * If you declared the final keyword with any variable, it is known as the final variable. * You cannot change the value of a final variable (It will be constant). * All variable in an interface is by default final. |
| 1. What is a java final method?  * If you applied the final keyword with any method, it is known as the final method. * You cannot method override. |
| 1. What is a java final class?  * If you declared the final keyword with any class, it is known as the final class. * You cannot extend the class. |
| 1. Is the final method inherited?  * Yes, the final method is inherited but you cannot override it. |
| 1. What is a black or uninitialized final variable?  * A final variable that is not initialized at the time of declaration is known as the black final variable.  1. Can we initialize the blank final variable?  * Yes, but only in the constructor. |
| 1. What is a static blank final variable?  * A static final variable that is not initialized at the time of declaration is known as a static blank final variable. * It can be initialized only in a static block. |
| 1. What is the final parameter?  * If you declare any parameter as final, you cannot change the value of it. |
| 1. Can we declare a constructor final?  * No, because the constructor is never inherited. |
| 1. What is an error in java?  * An error occurs when there is an irrecoverable problem like the system getting crashed, unavailability of memory, etc. * Errors are thrown when the program gets executed i.e. at runtime. (The time when the program gets executed is called runtime) |
| 1. What is an exception in java?  * In java, an exception is an event that disrupts the normal flow of the program. * Some exceptions are thrown when the program gets compiled and some exceptions are thrown when the program gets executed. |
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