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| **Non-Access Modifiers - (static, final, abstract….)** |
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| What do you mean by Modifier? |
| Modifiers are keywords that you add to class, method, constructor, variables to change their meanings or way of working.  Java language has a wide variety of modifiers, including the following:   * Access Modifiers * Non Access Modifiers |
| What do you mean by Non-Access Modifier? |
| Non-Access Modifiers are keywords that you add to class, method, and constructor, variables to change their meanings or way of working but does not change access level directly.  Below are some popular Non-access modifiers:   1. static 2. final 3. abstract 4. synchronized 5. volatile |
| What is the use of static keyword? |
| static keyword use to create methods and variables that directly belongs to Class. |
| Can I have static class? |
| Yes , but the class should be nested class |
| What is a Class Variable?  What is a Static Variable? |
| These are variables declared with in a class, outside any method, constructor with the static keyword. There would only be one copy of each class variable per class, regardless of how many objects are created from it.   * Static variables are stored in the static memory. * Static variables are created when the program starts and destroyed when the program stops. * Default values are same as instance variables.   For numbers, the default value is 0  For Booleans, it is false  For object references, it is null.  Values can be assigned during the declaration or within the constructor.  Additionally, values can be assigned in special static initializer blocks.   * Static variables can be accessed by calling with the class name ClassName.VariableName outside the class. |
| What is a Class Method?  What is a Static Method? |
| If we have static keyword associated with any method declaration, it is known as static method. A static method belongs to the class rather than object of a class.   * Static method can be invoked by calling with the class name outside the class. No need to create instance/object of the class.   ClassName. StaticMethodName();   * Static method can be invoked outside the class by object as well.   ClassName obj = new ClassName();  obj.StaticMethodName();   * Static method can access static data member and can change the value of it. * Important: Static methods cannot use any instance variables of the class they are defined in. * Static methods can call instance method indirectly only.   new ClassName().instanceMethodName;   * One rule-of-thumb: ask yourself "does it make sense to call this method, even if no Obj has been constructed yet?" If so, it should definitely be static. Example: for utility classes. |
| What is the use of Final Modifier? |
| The final modifier restricts future changes on classes, methods and variables.  A constructor cannot be final. |
| What is Final Variable does? |
| A final variable can be explicitly initialized only once.   * A reference variable declared final can never be reassigned to refer to a different object. However, the data within the object can be changed. So, the state of the object can be changed but not the reference. * final modifier often is used with static to make the constant class variable. |
| What is Final Method does? |
| A final method cannot be overridden by any subclasses.  A constructor cannot be final. |
| What is Final class does? |
| The main purpose of using a class being declared as final is to prevent the class from being subclassed. |
| What is the use of abstract keyword? |
| The abstract modifier for creating abstract (existing in idea) classes and methods. |
| What Abstract class does? |
| If a class is declared as abstract then the sole purpose is for the class to be extended.   * An abstract class may contain zero or more abstract methods as well normal methods. * An abstract class does not need to contain abstract methods. * Abstract class can contain normal methods as well as undefined method (with abstract methods), this make it different from interface. * An abstract class can never be instantiated. * A class cannot be both abstract and final, both are opposite of each other. |
| What Abstract method does? |
| An abstract method declares without any implementation. The methods body (implementation) is provided by the subclass.   * Abstract methods can never be final or strict. * Any class that extends an abstract class must implement all the abstract methods of the super class, unless the subclass is also an abstract class. |
| What is Synchronized Modifier? |
| The synchronized keyword used to indicate that a method can be accessed by only one thread at a time.  With synchronized method :    With synchronized method : |
| What Transient keyword does? |
| Serialization in java is a mechanism of writing the state of an object into a byte stream.  If you define any data member as transient, it will not be serialized.   * transient and static : Since static fields are not part of state of the object, there is no use/impact of using transient keyword with static variables. However there is no compilation error. * transient and final : final variables are directly serialized by their values, so there is no use/impact of declaring final variable as transient. There is no compile-time error though. |
| What volatile modifier does ? |
| volatile modifier guarantees that any thread that reads a field will see the most recently written value.  the value of a volatile field becomes visible to all readers (other threads in particular) after a write operation completes on it. Without volatile, readers could see some non-updated value. |