Abstract Classes and Interfaces

Subject: Abstract Classes & Methods Date

→ An abstract class is a class that is declared abstract. An abstract method is that which is declared without an implementation

→ If class includes abstract methods, then the class must be declared abstract. But an abstract class may or not include abstract methods.

(e) it can also have concrete methods

→ when an abstract class is subclassed, the subclass should provide implementations for all abstract methods or the subclass should be declared abstract.

→ Purpose of an abstract class is to specify the default functionality of an object.

Interfaces

→ An interface is a collection of abstract methods. It contains only behaviors of an object that a class implements.

→ The variables that appear must be declared both static and final

→ represents IS-A relationship.

Poly Inheritance in Interface

→ The extends keyword is used to extend one interface to another and the child interface inherits the methods of parent Interface.

→ More than one interface can be extended.

Scanned by CamScanner

Scanned by CamScanner

Subject : _____ Date

* abstract methods and abstract classes can never be final or static. Making them will stop abstract class from being extended, which is the only way to use abstract class.

* Abstract classes implementing interfaces need not provide implementation for its interface methods.

CAN ABSTRACT CLASS CONTAIN MAIN METHOD IN JAVA?

* An abstract class cannot be instantiated, but can be invoked if it contains a main method.

* Constructor chainning

We cannot call the constructor of an abstract class directly.

→ When creating an instance of a class that extends an abstract class, compiler will initialize both the classes. Hence compiler will implicitly call the abstract class constructor.

*What is the purpose of constructor if it cannot be instantiated in an abstract class?

→ Can be used to initialize common variables declared inside abstract class.

→ even if not constructor is present, compiler will add default constructor.

* When to choose abstract class and when interface.

→ Abt classes are useful in a situation when some general methods should be implemented and

canned by CamScanner

Scanned by CamScanner

subject : Date

specialization behavior should be implemented by subclasses.

⇒ Interfaces are useful in a situation when all its properties need to be implemented by subclasses. (ie) useful when only behavior of a method is specified but not concerned about who implements its behavior.

* Difference between Abstract classes and interfaces.

Abstract Class	Interface
→ may contain both abstract and non-abstract methods.	All methods are implicitly abstract
→ cannot contain final variable by default	variables declared are by default final.
→ methods can either be private, protected or public	methods declared are by default public.
→ tightly coupled	loosely coupled.

* Disadvantage of interface:

⇒ when a new feature (method) is added to an interface contract, then all of the classes which implement that interface must implement those new method.

Scanned by CamScanner