# FAQ’s on Abstract Classes

## 1. What is an Abstract Class and what is its purpose?

A class that doesn't provide complete implementation is defined as an abstract class. Abstract Classes enforce abstraction.

Any class with an abstract method is automatically abstract itself, and must be declared as such. A class may be declared abstract even if it has no abstract methods. This prevents it from being instantiated.

Abstract class must be extended/subclassed (to be useful). It serves as a template. A class that is abstract may not be instantiated (ie. you may not call its constructor), abstract class may contain static data.

## 2. Can an abstract class be declared final?

No. An abstract class is of no use unless it is inherited. Otherwise, it just results in compile time error.

## 3. What is the use of an abstract variable?

There is nothing called Abstract Variables as variables can't be declared as abstract. Only classes and methods can be declared as abstract.

## 4. Can you create an object of an abstract class?

No. Abstract classes can't be instantiated.

## 5. Can an abstract class be defined without any abstract methods?

Yes, it is possible. This is performed, to avoid instance creation of the class.

## 6. What is an abstract method?

An abstract method is a method whose implementation is deferred to a subclass.

## 7. Can an abstract class be final?

An abstract class may not be declared as final.

### 8. What is final class?

A final class can't be extended, i.e. the final class may not be subclassed. A final method can't be overridden when its class is inherited. You can't change value of a final variable (is a constant).

### 9. What if the main() method is declared as private?

The program compiles properly but at runtime it will give "main() method not public." message.

### 10. What if the static modifier is removed from the signature of the main() method?

Program compiles. But at runtime throws an error "NoSuchMethodError".

### 11. What if I write static public void instead of public static void?

Program compiles and runs properly.

### 12. What is the difference between abstract class and interface?

- All the methods declared inside an interface are abstract whereas abstract class must have at least one abstract method and others may be concrete or abstract.

- In abstract class, key word abstract must be used for the methods whereas interface we need not use that keyword for the methods.

- Abstract class must have subclasses whereas interface can’t have subclasses.