

- If present, the type reference specified in the `extends` clause must denote a class type. Furthermore, the *TypeName* part of the type reference is required to be a reference to the class constructor function when evaluated as an expression.
- A class declaration may not, directly or indirectly, specify a base class that originates in the same declaration. In other words a class cannot, directly or indirectly, be a base class of itself, regardless of type arguments.
- The instance type (section 3.5.1) of the declared class must be a subtype (section 3.8.3) of the base type reference and each of the type references listed in the `implements` clause.
- The constructor function type created by the class declaration must be a subtype of the base class constructor function type, ignoring construct signatures.

The following example illustrates a situation in which the first rule above would be violated:

```
class A { a: number; }

module Foo {
  var A = 1;
  class B extends A { b: string; }
}
```

When evaluated as an expression, the type reference 'A' in the `extends` clause doesn't reference the class constructor function of 'A' (instead it references the local variable 'A').

The only situation in which the last two constraints above are violated is when a class overrides one or more base class members with incompatible new members.

Note that because TypeScript has a structural type system, a class doesn't need to explicitly state that it implements an interface—it suffices for the class to simply contain the appropriate set of instance members. The `implements` clause of a class provides a mechanism to assert and validate that the class contains the appropriate sets of instance members, but otherwise it has no effect on the class type.

8.1.2 Class Body

The class body consists of zero or more constructor or member declarations. Statements are not allowed in the body of a class—they must be placed in the constructor or in members.

ClassBody:

*ClassElements*_{opt}

ClassElements:

ClassElement

ClassElements *ClassElement*

ClassElement:

ConstructorDeclaration

PropertyMemberDeclaration

IndexMemberDeclaration