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- The Java programming language is designed to be platform - independent. Java code is compiled into bytecode which is executed by a Java Virtual Machine (JVM).
- In an object - oriented programming language, such as Java, a program constructs objects that carry out tasks required to solve the problem and then sends messages to these objects to perform these tasks.
- Objects are created from classes and are often referred to as instances of those classes. The class is the blueprint for creating objects.
- In Java, multi - line comments are enclosed between `/*` and `*/` . Single - line comments are preceded by `//` and continue to the end of the line.
- Import statements allow a programmer to use simple names for classes, `className`, in a package instead of their fully - qualified names `packageName.className`.

- The standard form for a Java application is:

```
class ClassName extends Object
{
    Declarations of class members
}
```

The standard form of a Java applets is:

```
public class ClassName extends JApplet
{
    Declarations of class members
}
```

- Applications extend the `Object` class; applets extend the `JApplet` (or `Applet`) class.
- Members of a class may be variables that store values that determine an object's attributes or methods that operate on these values and determine an object's behavior.
- If `class A` extends `class B`, then `class A` inherits the members of `B` and can add new members.
- Every Java application must have a `main()` method, whose heading has the form

```
public static void main(String [] args)
```

The execution of the application begins with the `main()` method.
- The statements of a method are enclosed between curly braces `{` and `}`.
- Applications are standalone programs that can be executed with a Java interpreter.

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Applets can be placed in a Web page and will be executed by the Web browser when that Web page is opened. They can also be executed by the applet viewer utility provided as part of Java's Software Development Kit (SDK).

- Java's AWT and its collection of `swing` components can both be used to build GUIs but the `swing` collection should be used because of its more powerful and flexible capabilities.
- `swing` components are distinguishable from their AWT counterparts by the fact that they begin with `J`.
- The `javax.swing` package contains most of the `swing` classes needed by novice or beginning programmers.
- For `swing` components, GUI objects are not added directly to the top - level container (unlike AWT containers). Instead, they are added to its content pane which is accessed using the container's `getContentPane()` method.
- Applications that contain `swing` components must extend `JApplet`.
- Applications begin execution with their `main()` method; applets begin execution with their `init()` method. They should override the empty `init()` method they inherit from `JApplet` with their own `init()` method.
- Applets are added to web pages by using the `<APPLET>` and `</APPLET>` tags:

```
<APPLET CODE = "Name.class", WIDTH = xxx, HEIGHT = yyy>
</APPLET>
```
- Software development involves several phases: design; coding; testing, execution and debugging; and maintenance.
- The object - center design (OCD) methodology used in this text consists of 4 steps:
 - (1) Describe the behavior of the program.
 - (2) Identify the real - world objects in your problem description, and categorize them according to their types.
 - (3) Identify the operations needed to solve the problem.
 - (4) Arrange the problem's objects and operations in an algorithm that solves the problem.
- When fixing the syntax errors in a program, fix the mistakes in the order listed by the compiler.
- Programs should be tested several times using a variety of inputs.