

OOP Using JAVA

02 – Introduction To JAVA

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AGENDA

- » Introduction
- » JAVA merits
- » Object-oriented
- » JAVA Code
- » Objects – Classes – Methods – main –
- » Running Java

Java

- » Java is a programming language similar to C and C++.
- » Its most characteristic feature is that Java is a platform-independent language. “write once, run anywhere”
- » Java was conceived by James Gosling, in the early 1990s, as a simple and small language to be used in programming consumer electronic devices, such as cellular phones and TV controllers.
- » It was originally named Oak. After a few years of vainly attempting to find a costumer for Oak (also called Green),
- » the design team renamed the language Java

Java

- » The language used to create WebPages and other Internet documents is called HyperText Markup Language (HTML).
- » Java code can be embedded in HTML documents in a capsule called a Java applet
- » Java is described as an interpreted, object-oriented, strongly typed language that relies heavily on support libraries

Object-oriented

- » An **object** is a program element that contains both data and code.
- » The rationale for objects is that data is useful if there are operations that can be used to transform it
- » Java supports **inheritance**, **encapsulation**, and **polymorphism**, the cornerstones of object-oriented systems.

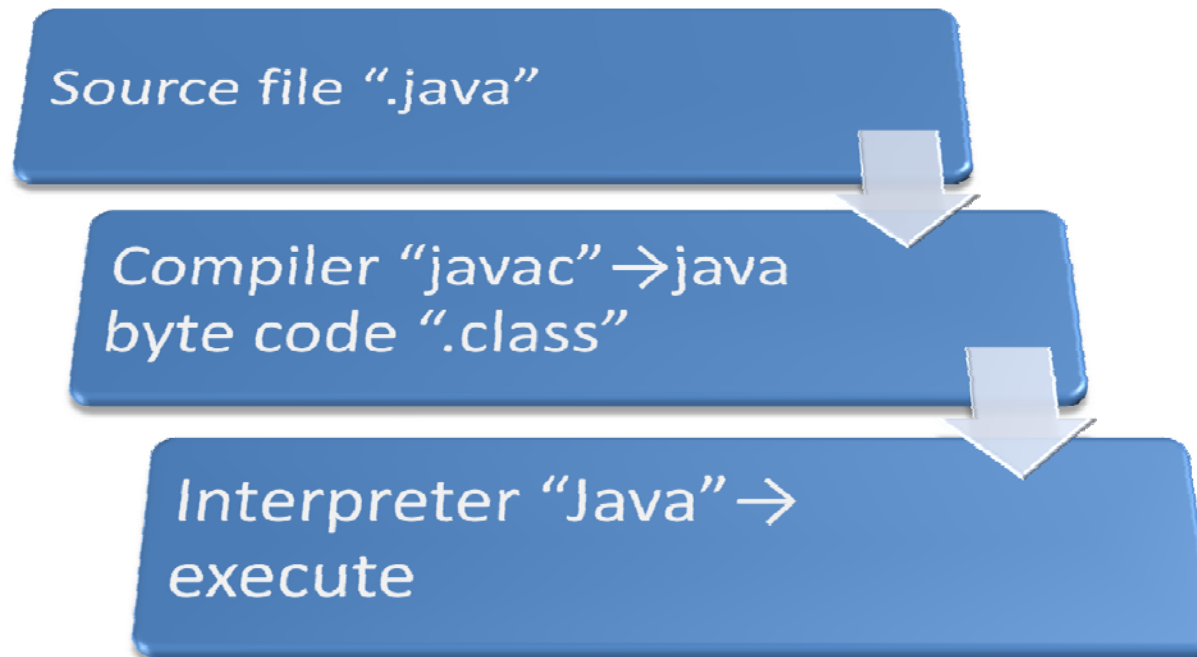
Merits of JAVA

- » **Java is strongly-typed** → all data must belong to a specific type and that the data type cannot be changed while the program is executing
- » **Java is similar to C++** → The most visible difference is that Java is a pure object-oriented language
- » **In contrast with C and C++** → Java performs automatic garbage collection at run time. It is the language, not the programmer, who takes care of reclaiming storage that is no longer in use.

Merits of JAVA

- » Java supports **multithreading** →
 - » A thread can be loosely defined as an individual program task.
 - » **Multithreading** allows an application to perform several tasks simultaneously
- » Java allows the programmer to deal with error conditions by means of **exceptions** → simplify the code and reduces clutter by offloading the error processing operations
- » **Java is free**. All of the Java compilers, runtime, and standard libraries are provided by Sun Microsystems at no charge.

Java is an interpreted language



JAVA Code

- A **program** is a sequential set of instructions designed to perform a specific task.
- A **computer program** is a set of logical instructions that makes the computer perform a specific function

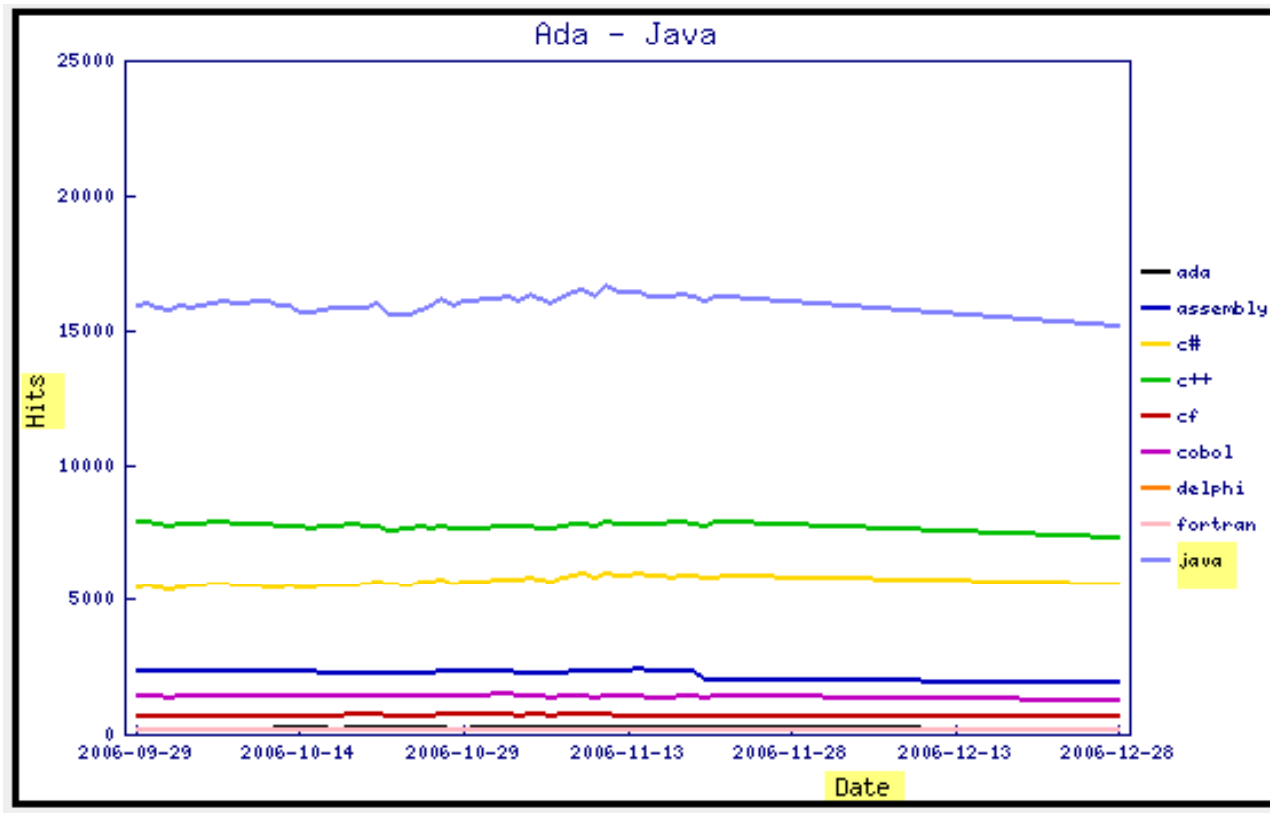
Skill Market

www.mshiltonj.com/sm

- » The demand for Java programmers tops the demand for C++ programmers by 42 percent.
- » And there's more! The demand for Java programmers beats the combined demand for C++ and C# programmers by 10 percent.
- » Java programmers are more employable than VB (Visual Basic) programmers by a whopping 111 percent

Skill Market

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- Over 90 percent of the Fortune 500 depends on Java technology for some aspect of their business transactions “2005”

Objects and their classes

- Imagine that you're writing a computer program to keep track of the houses.
- The houses differ only slightly from one another. Each house has a distinctive siding color, an indoor paint color, a kitchen cabinet style, and so on.
- In your **object oriented** computer program, each house is an **object**.

Objects and their classes

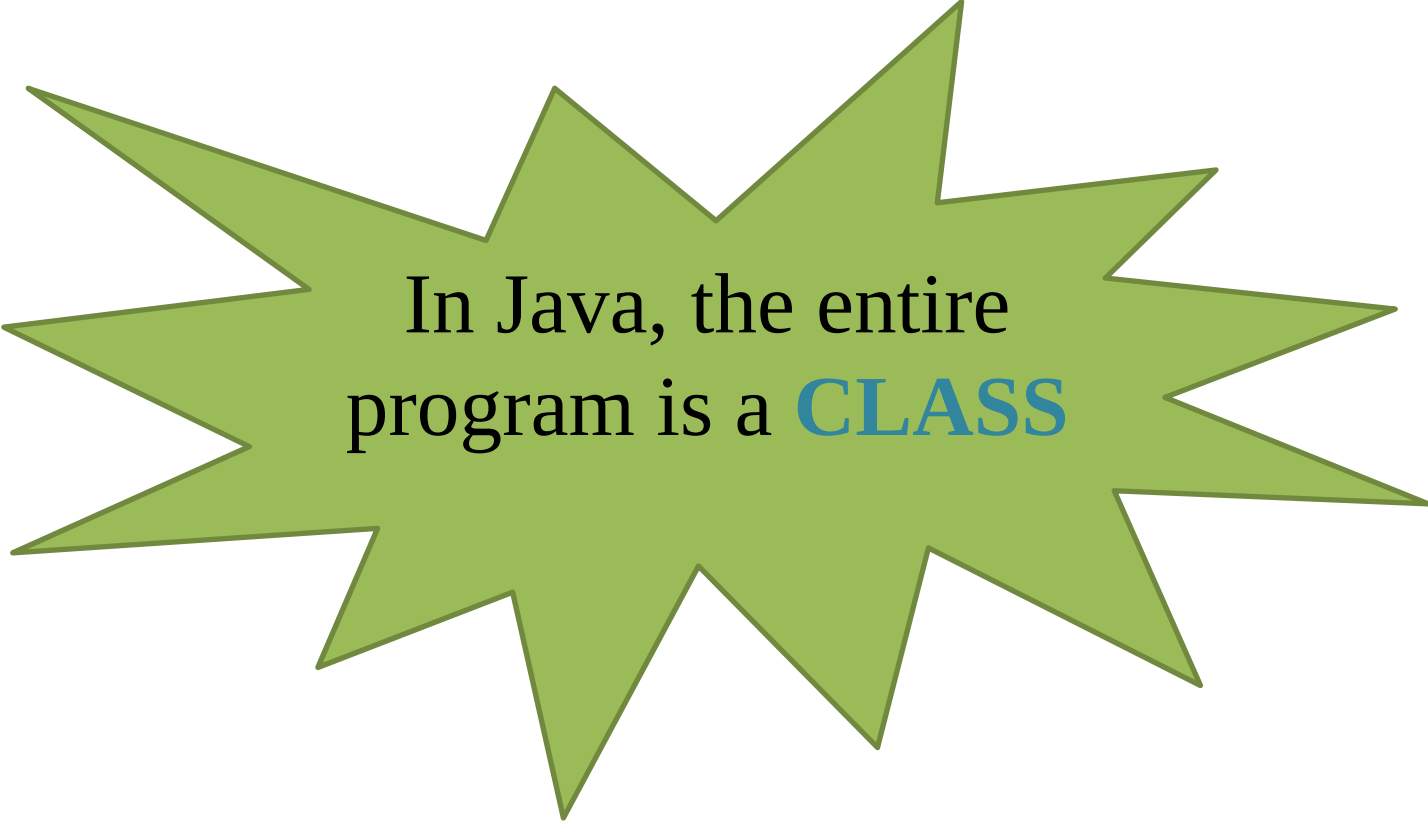
- » Although the houses differ slightly from one another, **all the houses share the same list of characteristics**. For instance, each house has a characteristic known as **siding color**. Each house has another characteristic known as **kitchen cabinet style**.
- » In your object-oriented program, you need a **master list containing all the characteristics** that a house object can possess.
- » This master list of characteristics is called a **class**.

Checking Out **Java Code**-First Time

The Simplest Java Program

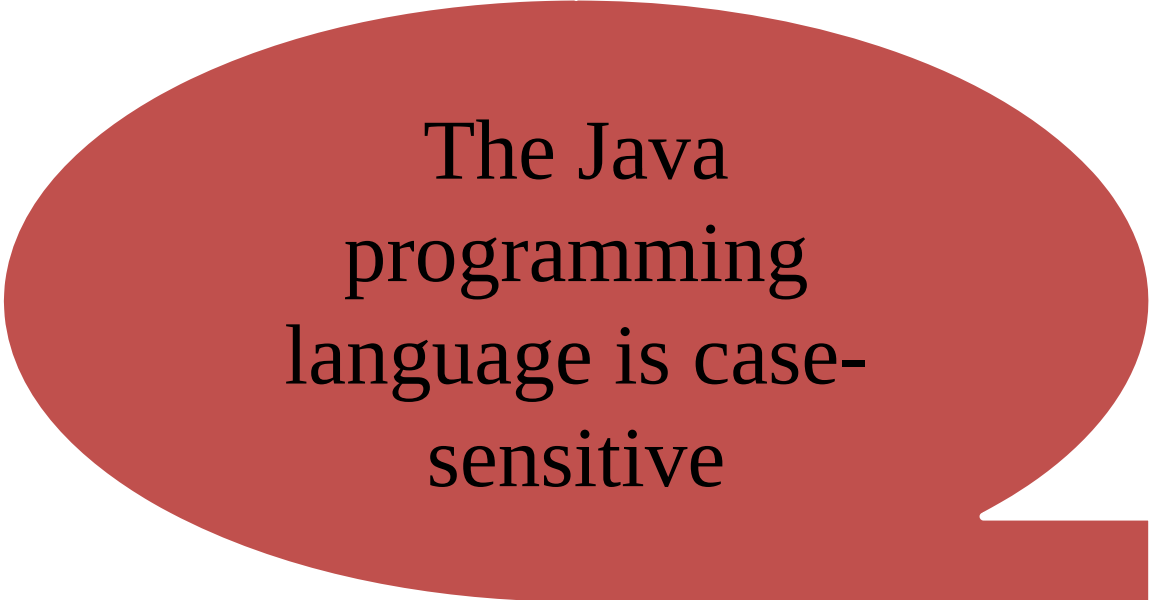
```
class Displayer {  
  
    public static void main(String args[]) {  
        System.out.println("You'll love Java!");  
    }  
}
```

Understanding Simple **JAVA** Program

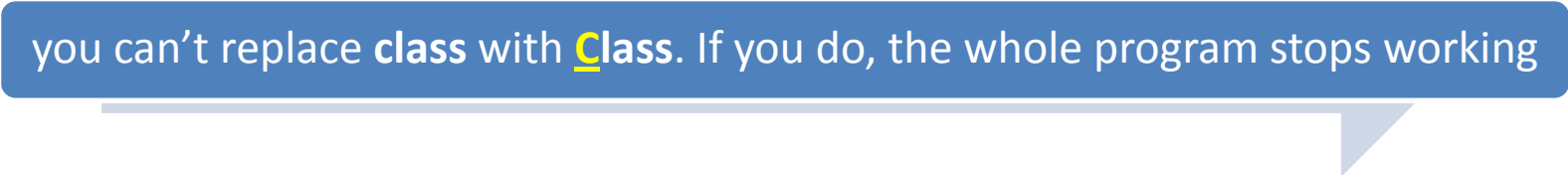


In Java, the entire
program is a **CLASS**

Understanding Simple **JAVA** Program

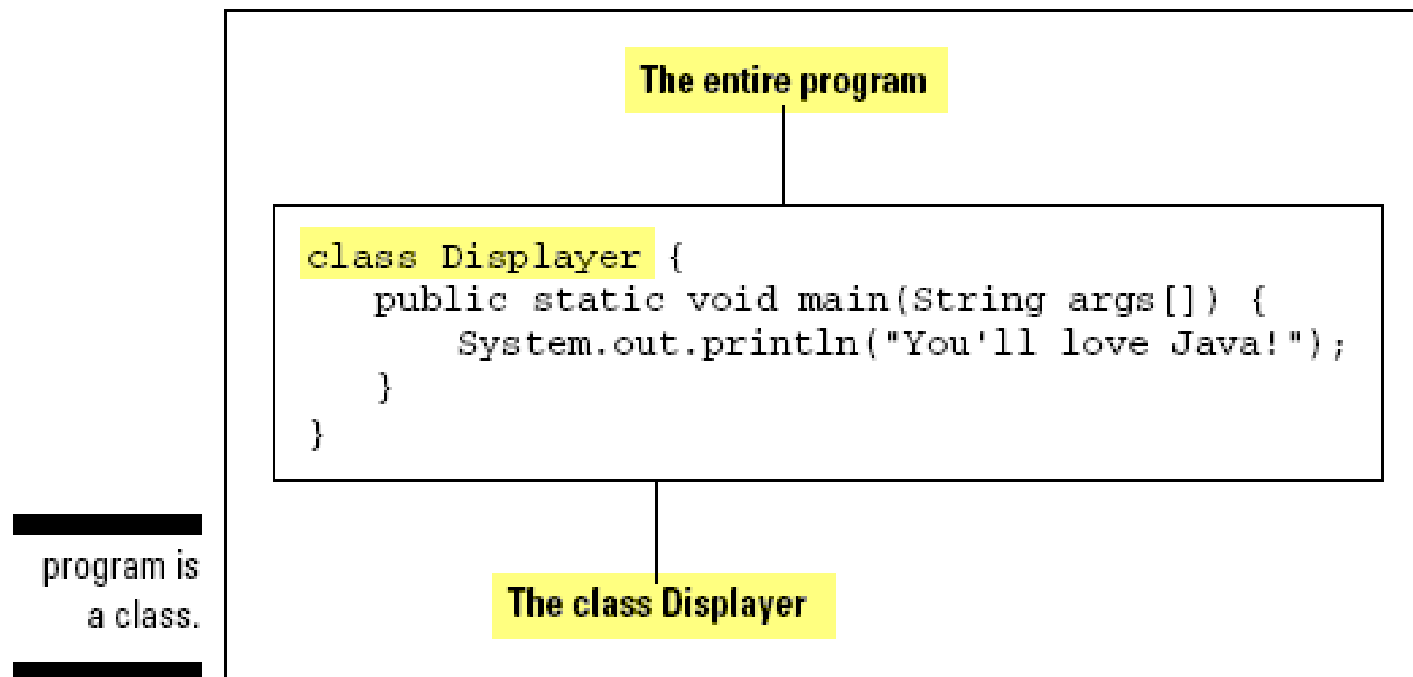


The Java
programming
language is case-
sensitive



you can't replace **class** with **cclass**. If you do, the whole program stops working

Understanding Simple **JAVA** Program



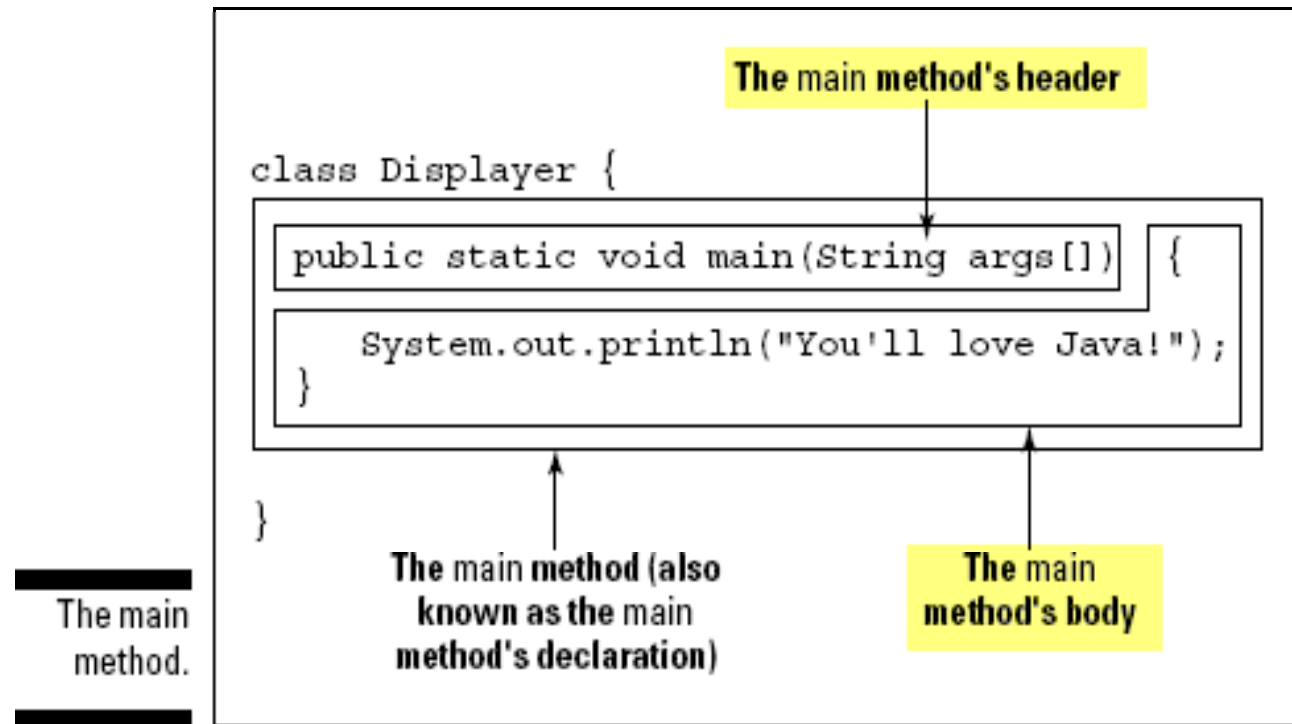
Understanding Simple **JAVA** Program

In Java, a **method** is a list of things to do. Every **method** has a name, and you tell the computer to do the things in the list by using the method's name in your program

Understanding Simple **JAVA** Program

- » A **method's declaration** tells the computer what happens if you call the method into action.
- » A **method call** (a separate piece of code) tells the computer to actually call the method into action.
- » A method's declaration and the method's call tend to be in different parts of the Java program

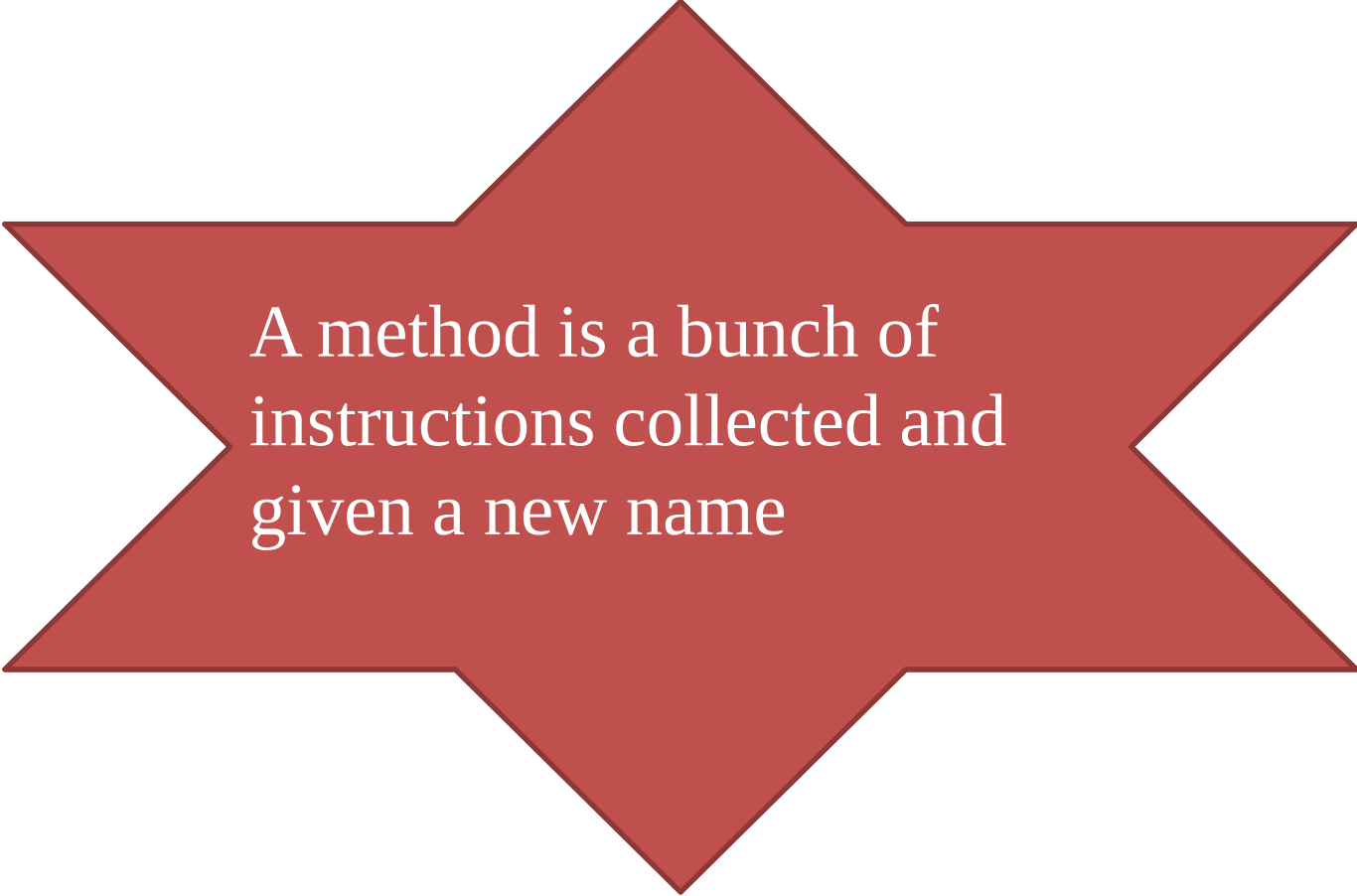
Understanding Simple **JAVA** Program



Understanding Simple **JAVA** Program

- » The word **main** is the name of the **method** that is called into action automatically when the program begins running.
- » None of the instructions in a method is executed until the method is called into action.
- » But, if you give a method the name **main**, that method is **called into action automatically**.

Understanding Simple **JAVA** Program



A method is a bunch of
instructions collected and
given a new name

Understanding Simple **JAVA** Program

```
class Displayer {  
    public static void main(String args[]) {  
        System.out.println("You'll love Java!");  
    }  
}
```

A Java
statement.

A statement (a call to the
System.out.println method)