What does this mean?

age = 25

Comp Sci 302

Jim Williams, PhD

CS 302 Objectives

Instruction and experience in the use of an object-oriented programming language. Program design; development of good programming style; preparation for other Computer Science courses.

Course Learning Objectives

Students successfully completing this course will:

- be able to write computer programs in a high-level programming language.
- analyze problems and formulate algorithms
- create robust, user-friendly, well-structured and well-documented Java programs
- read basic Java programs to determine their purpose
- have a basic understanding of how computers work

In short, **read** and **write** Java programs.

Course Website

http://pages.cs.wisc.edu/~cs302/

A Computer

http://missbobbie.com/wp-content/uploads/2015/03/computer-insides.jpg

What does this mean?

age = 25

What does this mean?

```
int age;
age = 25;
```

What does this mean?

```
int age;
age = 25;
age = age + 1;
```

What does this mean?

```
int i;
int j;
i = 1;
j = 2;
i = j;
```

Does this mean the same thing?

```
int i;
int j;
i = 1;
i = j;
j = 2;
```

Questions

(Degrees Fahrenheit – 32) x 5 / 9 = Degrees Celsius

What symbols have different meanings in Java?

What changes must be made to implement this equation in Java?

Demonstration

What does this do?

```
k = i;
i = j;
j = k;
```

Online Course Pages

Information Sheet

Work at Home

Piazza (where to offer and get answers)

Coding Style

Labs (CodeLab & Team Labs)

Labs 15% of grade (75 lab points)

Team Lab

- meets in 1350cs or 1370cs on Tuesday or Wednesday each week.
- 14 team labs, each Team Lab is worth 5 lab points.

CodeLab

- Online tool for individually solving hundreds of small problems.
- 500+ exercises, each 10 exercises is worth 1 lab point.

Review

(Degrees Fahrenheit – 32) x 5 / 9 = Degrees Celsius

What symbols have different meanings in Java?

What changes must be made to implement this equation in Java?

My List

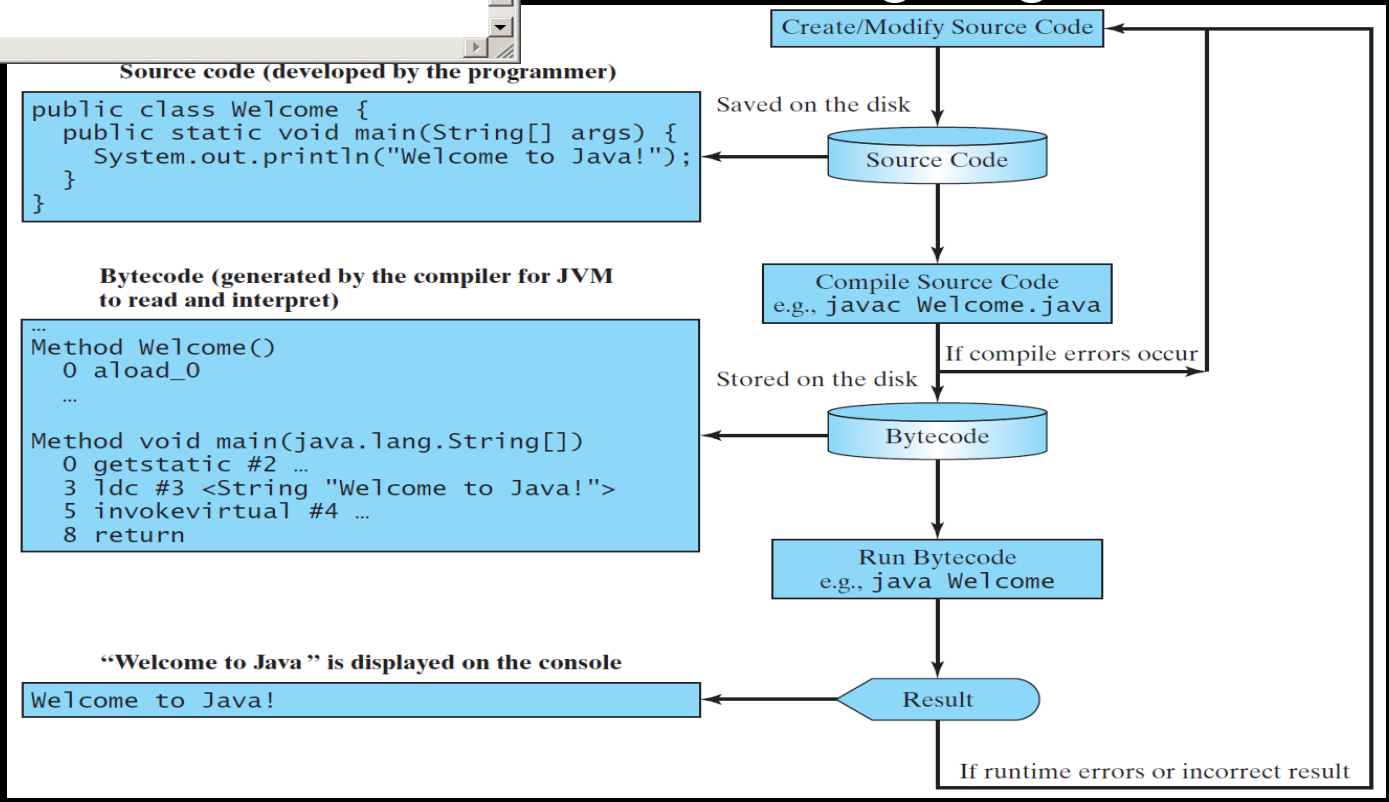
- X vs *
- = vs assignment
- value is stored on the left hand side of assignment (=) operator
- Variables: name areas of computer memory, declare before use, declare
- type of data, initialize
- Variable names: start with letter, include letters numbers and _, but no
- spaces
- Conventions: camelCasing, spell out names
- Semicolon at the end of statements

Creating, Compiling, and Running Programs

Welcome - Notepad

File Edit Format View Help

```
// This application program prints Welcome to Java!
public class Welcome {
  public static void main(String[] args) {
    System.out.println("Welcome to Java!");
  }
}
```

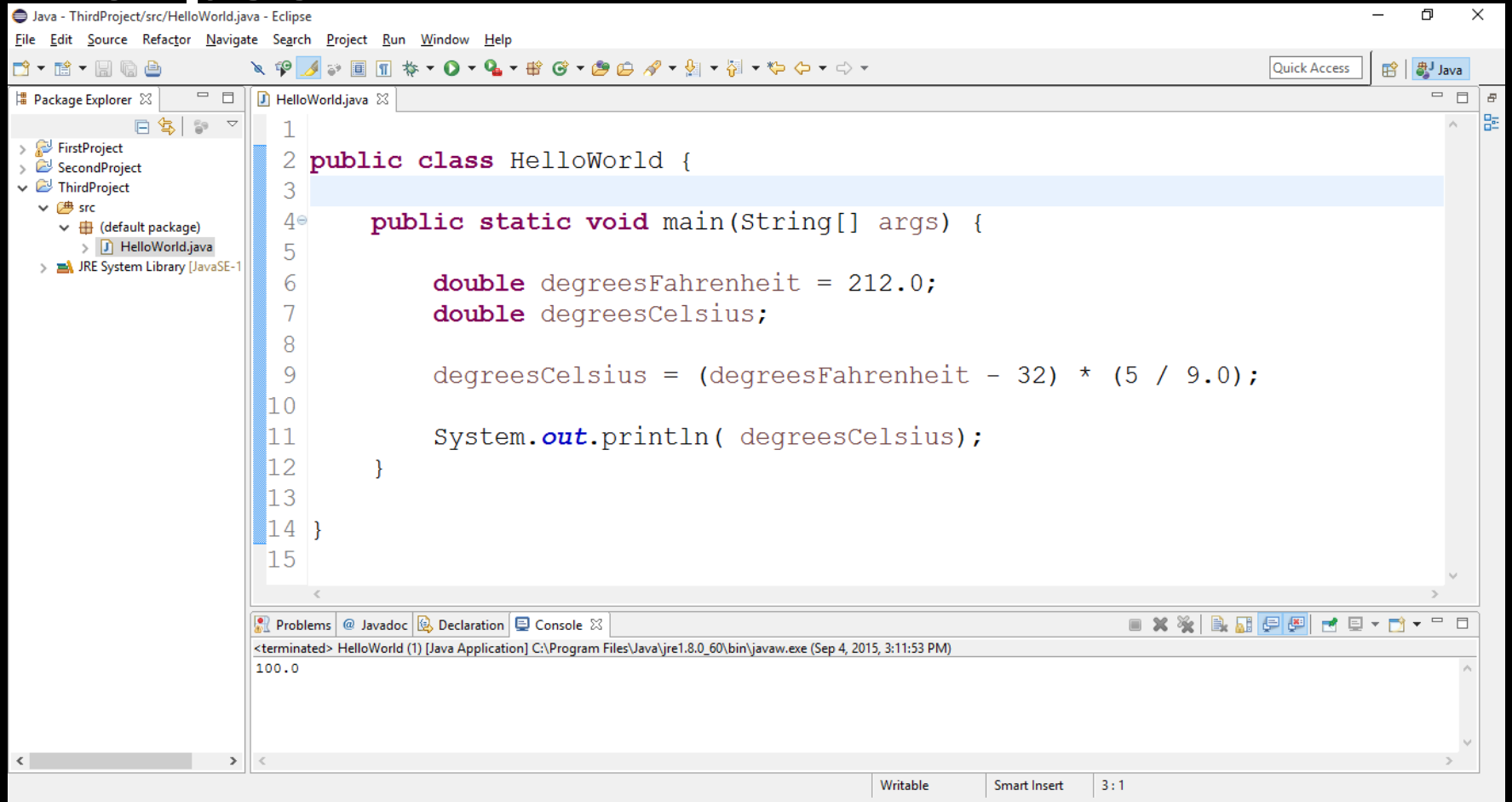


Block

```
{   //beginning of a block of code

}   //end of a block of code
```

Eclipse


Java - ThirdProject/src/HelloWorld.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Java
Package Explorer
FirstProject
SecondProject
ThirdProject
src
(default package)
HelloWorld.java
JRE System Library [JavaSE-1
HelloWorld.java
1
2 public class HelloWorld {
3
4 public static void main(String[] args) {
5
6 double degreesFahrenheit = 212.0;
7 double degreesCelsius;
8
9 degreesCelsius = (degreesFahrenheit - 32) * (5 / 9.0);
10
11 System.out.println(degreesCelsius);
12 }
13
14 }
15
Problems
Javadoc
Declaration
Console
<terminated> HelloWorld (1) [Java Application] C:\Program Files\Java\jre1.8.0_60\bin\javaw.exe (Sep 4, 2015, 3:11:53 PM)
100.0
Writable
Smart Insert
3 : 1

Primitive Data Types

Commonly used:

int	whole numbers
double	floating point numbers

Other integer data types: **byte**, **short**, **long**

Other floating point types: **float**

Programming Errors

Syntax

- compiler error

Logic

- program runs but provides wrong values

Runtime

- program crashes or throws exception

Output

From **java.lang** package

- automatically included in every Java program.

System.out.print(“hello”);
System.out.println(“hello”);