Java Programming

Syntax & Variables

What is Java?

- Java is a programming language and computing platform first released by Sun Microsystems in 1995.

- There are lots of applications and websites that will not work unless you have Java installed, and more are created every day.

- Java is fast, secure, and reliable.

- From laptops to data centers, game consoles to scientific supercomputers, cell phones to the Internet, Java is everywhere!

Basic Syntax

- Case Sensitive
  - Unlike Visual Basic, firstName and FirstName are different

- Class Names
  - Capitalize first letter and every word after that
  - (Bumpy Caps or Camel Case)

- Method Names
  - Start with a lower case letter and every word after that

- Program File Name
  - File name of the program must match the name of the Java class name

Variables

- Must begin with a letter, dollar sign, or underscore
- After the first character, the other characters can contain letters, numbers, dollar signs, or underscores
- Reserved words (or key words) cannot be used as variable names
- Case sensitive
- Legal variable names:
  - address, $address, _address, address1, address_1, Address
- Illegal variable names:
  - &address, 1_address

Reserved Words

abstract	assert	boolean	break
byte	case	catch	char
class	const	continue	default
do	double	else	enum
extends	final	finally	float
for	goto	if	implements
import	instanceof	int	interface
long	native	new	package
private	protected	public	return
short	static	strictfp	super
switch	synchronized	this	throw
throws	transient	try	void
volatile	while		

Primitive Variable Types

Boolean and Character

boolean ❓ JVM specific
Size: JVM specific
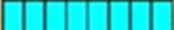Value Range:
   true or false

char Unicode characters
Size: 16 bits
Value Range:
   0 to 65535

Integer

byte
Size: 8 bits
Value Range:
   -128 to 127

short
Size: 16 bits
Value Range:
   -32768 to 32767

int
Size: 32 bits
Value Range:
   -2,147,483,648 to 2,147,483,647

long
Size: 64 bits
Value Range:
   -9,223,372,036,854,775,808 to 9,223,372,036,854,775,807
   (that's about 10^{-9} to 10^{9})

Floating Point

float
Size: 32 bits
$\pm(10^{-38}..10^{38})$ with 7 digits of precision

double
Size: 64 bits
$\pm(10^{-307}..10^{308})$ with 15 digits of precision

Reference Variables

d.Bark()

Dog

Wag Bark Eat

d

Woof! Woof!

Think of a reference variable as a remote control for the object it refers to.