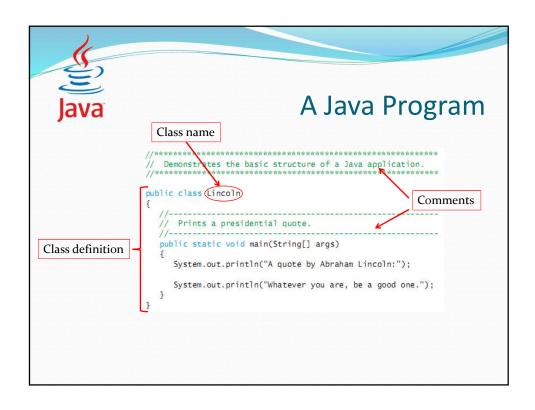
# Object Oriented Programming

Quick intro to Java



### What is Java?

- Java is a programming language and computing platform first released by Sun Microsystems in 1995 (now owned by to Oracle).
- From laptops to data-centers, game consoles to scientific supercomputers, cell phones to the Internet, **Java is everywhere!**



#### **Java Basics**

- What are the primitive types used in Java?
- There are 8: boolean, byte, char, short, int, long, float and double.
- How can we code control structures in Java?
  - Conditionals:
     If if/else if/else/if
     Switch
- Loops: While Do-while For

#### **Primitive Data Types**

• **Numeric primitives**: short, int, float long and double hold only numeric data.

Operations: simple arithmetic (addition, subtraction, etc.) or of comparisons (is greater than, is equal to, etc.)

• **Textual primitives:** byte and char hold characters (that can be Unicode alphabets or even numbers).

Operations: textual manipulation (comparing two words, joining characters to make words, etc.). However, can also support arithmetic operations.

Boolean and null primitives: boolean and null.

## Java Primitive Type Conversions

Convert	Convert To:							
From:	boolean	byte	short	char	int	long	float	double
boolean	-	N	N	N	N	N	N	N
byte	N	_	Y	С	Y	Y	Y	Y
short	N	C	-	С	Y	Y	Y	Y
char	N	С	C	-	Y	Y	Y	Y
int	N	C	C	С	-	Y	Y*	Y
long	N	С	С	С	С	_	Y*	Y*
float	N	С	С	С	С	С	-	Y
double	N	С	С	С	C	С	С	-3

N = No, Y = Yes, C = explicit cast

## Some Java Type Conversions

```
int i = 13;

byte b = i; (ERROR!!)

short s = (short) oxffff;

char c = '\setminus uffff';

int i = 13;

//byte to int

byte b = (byte) i;

//double to int

i = (int) 13.456;
```

#### **Conditional Blocks**

```
if (boolean expression<sub>1</sub>) {
    statement<sub>1</sub>
    statement<sub>2</sub>
    statement<sub>n</sub>

    statement<sub>n</sub>

    statement<sub>n</sub>

    statement<sub>n</sub>

} else {
    statement<sub>1</sub>bis statement<sub>2</sub>bis
    statement<sub>n</sub>

}

statement<sub>n</sub>

}
```

```
Loop Blocks
while (boolean expression₁) {
                                               do {
          statement,
                                                         statement,
          statement<sub>2</sub>
                                                         statement<sub>2</sub>
          statement,
                                                         statement,
}
                                               } while (boolean expression<sub>1</sub>);
       for (variable declarations; condition; iteration statement) {
                  statement<sub>1</sub>
                  statement<sub>2</sub>
                  statement<sub>n</sub>
       }
```

## Keywords

- Words with a **special meaning** in the language:
  - public
  - class
  - private
  - int
- Also known as reserved words.

## **Packages**

- A Java package is a mechanism for organizing Java classes into namespaces.
- Java packages can be stored in compressed files called JAR files.

```
/* File name : Animal.java
package animals;
class Animal {
    public void eat();
    public void travel();
}
```

#### **Useful Links**

- Java
  - https://java.com/en/download/help/index\_installing.xml
- jEdit
  - http://www.jedit.org/

## How Check the Compiler

 To make sure that the Java compiler (JDK) is correctly installed on the machine:

```
C:\> javac -version
```

• If the JDK / Java compiler is correctly installed, you should see a version number like so:

```
C:\>javac -version
javac 1.7.0_04
```

• If the JDK isn't installed, then you'll see an error like so:

```
C:\>javac -version
javac' is not recognized as an internal or
external command, operable program or batch file.
```

#### How Check the Compiler

- If you get a message like:
  - 'javac' is not recognized as an internal or external command, operable program or batch file.
- Check that javac is under c:\program files\java\jdk\*\bin
- If so, add the path to the PATH variable of the system:
  - Control Panel ⇒ System ⇒ Advanced system settings
  - Switch to "Advanced" tab ⇒ Environment Variables
  - In "System Variables", scroll down to select "PATH" ⇒ Edit

#### How to Run Java Code

- Write program and save the file as xxx.java in D:/ Helloworld.java
- To compile the file, open your terminal, go the location where the file is stored and type: javac filename.java javac HelloWorld.java
- To run the generated class file, use java filename java **HelloWorld**