

CNPS 12 A
INTRODUCTION TO PROGRAMMING
SPRING 2007

11

IT IS A REQUIREMENT OF THIS COURSE THAT ALL STUDENTS HAVE AN ACTIVE UCSC COMPUTER ACCOUNT. GO TO

<http://my.ucsc.edu>

USE YOUR USER ID & PASSWORD (FROM REGISTRATION). CLICK ON "ACTIVATE UCSC ACCOUNT".

ONCE YOU HAVE AN ACTIVE ACCOUNT, GO TO ONE OF THE LAB SESSIONS TO LEARN HOW TO LOG IN.

ONCE YOU HAVE LOGGED IN YOU ARE TALKING TO THE UNIX COMMAND INTERPRETER. WE REPRESENT THE OPERATING SYSTEM PROMPT HERE AS %, THOUGH IT MAY LOOK DIFFERENT IN YOUR SESSIONS.

Commands

% ls	man	pwd	pio
ls -l	man ls	cd	vi
ls -a	man man	cd..	emacs
ls -F	man -k ----	mkdir	

OPEN AN EDITOR (PICO, VI, EMACS) AND
CREATE A TEXT FILE CONTAINING THE
LINES:

```
* HelloWorld.java
* comments
*/
```

```
class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello, World!");
    }
}
```

THIS IS A VERY SIMPLE JAVA PROGRAM.
IT SIMPLY PRINTS THE TEXT

Hello, World!

TO THE SCREEN. HOW DOES IT WORK?

- EVERYTHING BETWEEN /* AND */ IS A COMMENT, AND IS IGNORED WHEN THE PROGRAM IS EXECUTED. ALL PROGRAMS YOU WRITE MUST BEGIN WITH A COMMENT BLOCK GIVING IDENTIFYING

INFORMATION :

- * filename.java
- * name
- * userid
- * ends 12A or ends 12L
- * PROGRAM OR LAB NAME
- * SHORT DESCRIPTION
- */

- THE TERM 'class' is A KEYWORD in THE JAVA LANGUAGE, i.e. IT HAS A SPECIAL MEANING. A CLASS in JAVA IS A NAMED COLLECTION OF DATA AND INSTRUCTIONS.

```
class HelloWorld {
;
}
```

DEFINED THE HelloWorld class. A JAVA PROGRAM MAY CONSIST OF ONE OR MORE FILES, BUT TYPICALLY EACH FILE DEFINED A SINGLE CLASS.

THE NAME OF THE FILE MUST BE name_of_class.java .

NOTE JAVA IS A FREE-FORMAT LANGUAGE, I.E. SPACING AND INDENTATION HAVE NO MEANING IN THE LANGUAGE. ANOTHER POSSIBLE STYLE WOULD BE

```
class HelloWorld
{
  :
}
```

you should pick a style and stick to it.

```
• public static void main(String[] args) {
  :
}
```

DECLARE 'main' TO BE A METHOD (OR FUNCTION) BELONGING TO THE CLASS HelloWorld. A METHOD IS A NAMED GROUP OF INSTRUCTIONS WITHIN A CLASS.

A CLASS MAY CONTAIN OTHER METHODS, BUT main() IS ALWAYS THE POINT IN THE PROGRAM WHERE EXECUTION BEGINS.

```
• THE BODY OF main() CONTAINS JUST ONE
```

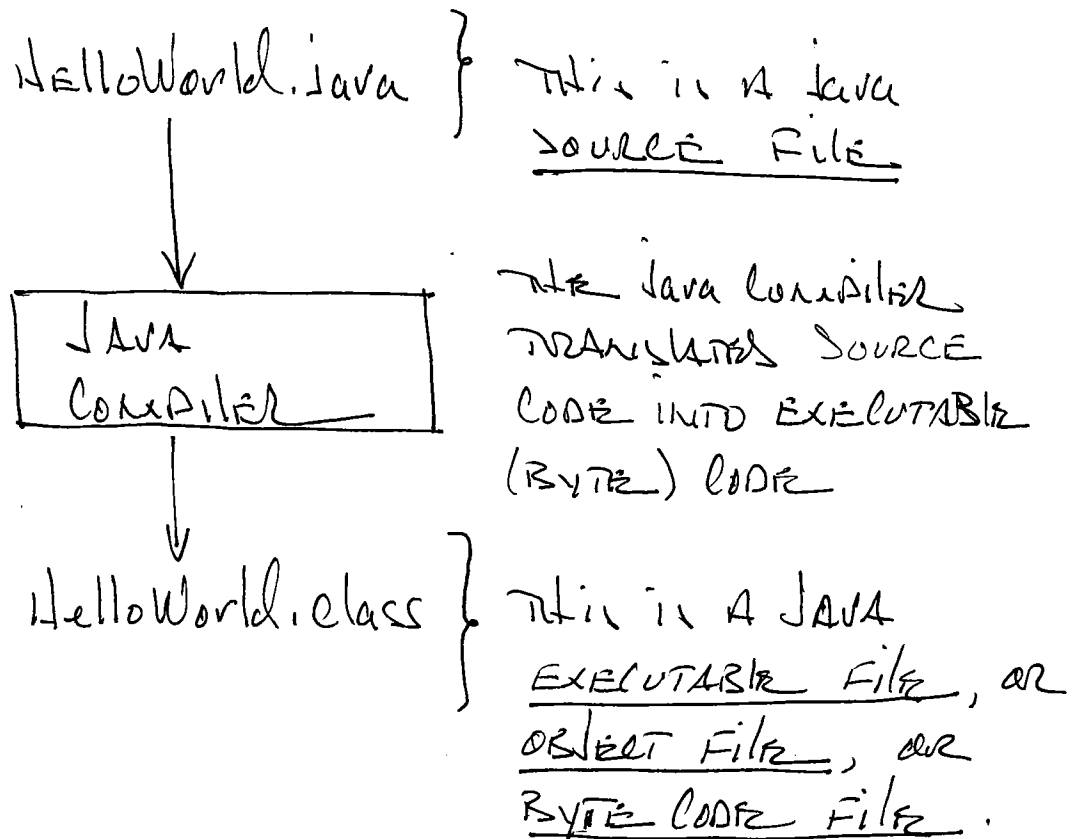
INSTRUCTIONS

```
System.out.println("Hello, World!");
```

which simply causes the text between quotes to be printed.

EXERCISE: EDIT this program to make some other message print out.

How can we run this program? We must first compile it.



To compile HelloWorld.java DO AT THE COMMAND PROMPT :

```
% javac HelloWorld.java
```

THE RESULT WILL BE A NEW FILE CALLED HelloWorld.class IN YOUR CURRENT WORKING DIRECTORY. TO RUN THE EXECUTABLE DO

```
% java HelloWorld
```

THE JAVA PROGRAMMING LANGUAGE

WHITE SPACE IS DEFINED TO BE THE FOLLOWING CHARACTERS

SPACE

TAB

NEWLINE (WHAT YOU GET WHEN YOU PRESS RETURN)

WHITE SPACE IS IGNORED BY THE JAVA COMPILER. THUS

```
class HelloWorld {
;
}
```

AND

```

class
    HelloWorld
    { ...
    }

```

ARE THE SAME TO THE COMPUTER. THEY ARE NOT THE SAME TO ANYONE WHO IS TRYING TO READ YOUR PROGRAM.

ACCESSIBLE STYLES ARE

```

HelloWorld {
}

```

```

HelloWorld
{
:
}

```

```

HelloWorld
{
:
}

```

INDENT 3 TO 5 SPACES IN A CLASS OR METHOD BODY, NO MORE. DO NOT USE TABS FOR INDENTATION; IN FACT, DON'T USE

THE TAB CHARACTER AT ALL .

There are actually three types of comments in Java.

// single line comments

/* multiple
line
comments */

/** multiple line
comments to
be used with
Javadoc */

Javadoc is a program that extracts comments from a source file and creates a documentation file to be viewed by a web browser. More on this later.

Java has 47 keywords (also called reserved words.) They are listed on p. 17 of the text. So far we have seen only 4:

class, public, static, void

We will learn about many more

IN PARTICULAR WE SEE THAT

```
main
HelloWorld
args
System.out.println
```

ARE NOT RESERVED WORDS. THERE ARE IDENTIFIERS: NAMES USED TO IDENTIFY ELEMENTS OF A JAVA PROGRAM SUCH AS A

```
CLASS NAME
METHOD NAME
VARIABLE NAME
```

IDENTIFIERS ARE DEFINED BY THE PROGRAMMER, I.E. THEY ARE NOT PROPERLY PART OF THE JAVA LANGUAGE ITSELF.

A VALID JAVA IDENTIFIER MUST OBEY CERTAIN RULES

- MUST CONSIST ONLY OF
 - LETTERS: a, ..., z, A, ..., Z
 - UNDERSCORES: _
 - DOLLAR SIGNS: \$
 - DIGITS: 0, ..., 9
- MAY NOT BEGIN WITH A DIGIT
- MAY NOT BE A KEYWORD OR ONE OF THE LITERAL VALUES: true, false, null.