

Compiling a Java Program or Class

- A Java program consists of one or more classes, which must be compiled before running the program.
- Each class should be in a separate file.
- The name of the file should be the same as the name of the class.

Compiling and Running

- Use an IDE(integrated development environment) which combines a text editor with commands for compiling and running Java programs.
- When a Java program is compiled, the byte-code version of the program has the same name, but the ending is changed from **.java** to **.class**.

Compiling and Running

- A Java program can involve any number of classes.
- The class to run will contain the words

public static void main(String[] args)

somewhere in the file

Escape Characters

- How would you print
"Java" refers to a language. ?
- The compiler needs to be told that the quotation marks (") do not signal the start or end of a string, but instead are to be printed.

```
System.out.println(  
    "\"Java\" refers to a language.");
```

Escape Characters

```
\ " Double quote.  
\ ' Single quote.  
\\ Backslash.  
\n New line. Go to the beginning of the next line.  
\r Carriage return. Go to the beginning of the current line.  
\t Tab. Add whitespace up to the next tab stop.
```

- Each escape sequence is a single character even though it is written with two symbols.

Comments

- A comment can begin with //
- Everything after these symbols and to the end of the line is treated as a comment and is ignored by the compiler

Comments

- A comment can begin with `/*` and end with `*/`
- Everything between these symbols is treated as a comment and is ignored by the compiler.

`/**`

This program should only
be used on alternate Thursdays,
except during leap years, when it should
only be used on alternate Tuesdays.

`*/`



Basic Computation

Chapter 2

Variables

- Variables store data such as numbers and letters.
 - Think of them as places to store data.
 - They are implemented as memory locations.
- The data stored by a variable is called its value.
 - The value is stored in the memory location.
- Its value can be changed.

Where to Declare Variables

- Declare a variable
 - Just before it is used or
 - At the beginning of the section of your program that is enclosed in `{}`.

```
public static void main(String[] args)
{ /* declare variables here */
    . . .
}
```

Assignment Statements

- An assignment statement is used to assign a value to a variable.

`answer = 42;`

- The "equal sign" is called the assignment operator.

Assignment Statements

- Syntax

variable = expression

where **expression** can be another variable, a literal constant (such as a number), or something more complicated which combines variables and literals using operators (such as + and -)

Assignment Evaluation

- The expression on the right-hand side of the assignment operator (=) is evaluated first.
- The result is used to set the value of the variable on the left-hand side of the assignment operator.

eggsPerBasket = eggsPerBasket - 2;

Simple Input

- Sometimes the data needed for a computation are obtained from the user at run time.
- Keyboard input requires
`import java.util.Scanner`
at the beginning of the file.

Simple Screen Output

```
System.out.println("The count is " + count);
```

- Outputs the string literal "the count is "
- Followed by the current value of the variable **count**.