

Lesson 2: Data Types (String, int, double)

Three variable types:

(A good way to learn the following points is to modify the code of the “Hello World” program according to the suggestions below.)

1. **String:** used to store things in quotes....like “Hello world”

Sample code:

```
public static void main(String args[]){  
    String s = “Hello cruel world”;  
    System.out.println(s);  
}
```

2. **int:** used to store integers (positive or negative)

Sample code:

```
public static void main(String args[]){  
    int age = 59;  
    System.out.println(age);  
}
```

With the advent of Java 7.0, numbers that were previously very awkward and difficult to read can now be entered with underscore separators.

For example,

int bigNum = 1389488882; can now be entered as

int bigNum = 1_389_488_882;

Unfortunately, commas still cannot be used as separators.

3. **double:** used to store “floating point” numbers (decimal fractions). *double* means “double precision”.

Sample code:

```
public static void main(String args[]){  
    double d = -137.8036;  
    System.out.println(d);  
    d = 1.45667E23; //Scientific notation....means 1.45667 X 1023  
}
```

Declaring and initializing:

When we say something like

double x = 1.6;

we are really doing **two** things at once. We are **declaring** *x* to be of type *double* **and** we are **initializing** *x* to the value of 1.6. All this can also be done in **two** lines of code (as shown below) instead of one if desired:

```
double x;    //this declares x to be of type double
x = 1.6;     //this initializes x to a value of 1.6
```

What's legal and what's not:

```
int arws = 47.4; //illegal, won't compile since a decimal number cannot "fit" into an
                //integer variable.
double d = 103; //legal...same as saying the decimal number 103.0
```

Rules for variable names:

Variable names must begin with a letter (or an underscore character) and cannot contain spaces. The only "punctuation" character permissible inside the name is the underscore ("_"). Variable names cannot be one of the reserved words (key words)

Legal names	Illegal names
Agro	139
D	139Abc
d31	fast One
hoppergee	class
hopper_gee	slow.Sally
largeArea	double
goldNugget	gold;Nugget
	hopper-gee

Variable naming conventions:

It is traditional (although not a hard and fast rule) for variable names to start with a lower case letter. If a variable name consists of multiple words, combine them in one of two ways:

bigValue: jam everything together. First word begins with a small letter and subsequent words begin with a capital.

big_value: separate words with an underscore.