Java for Beginners

Level 1

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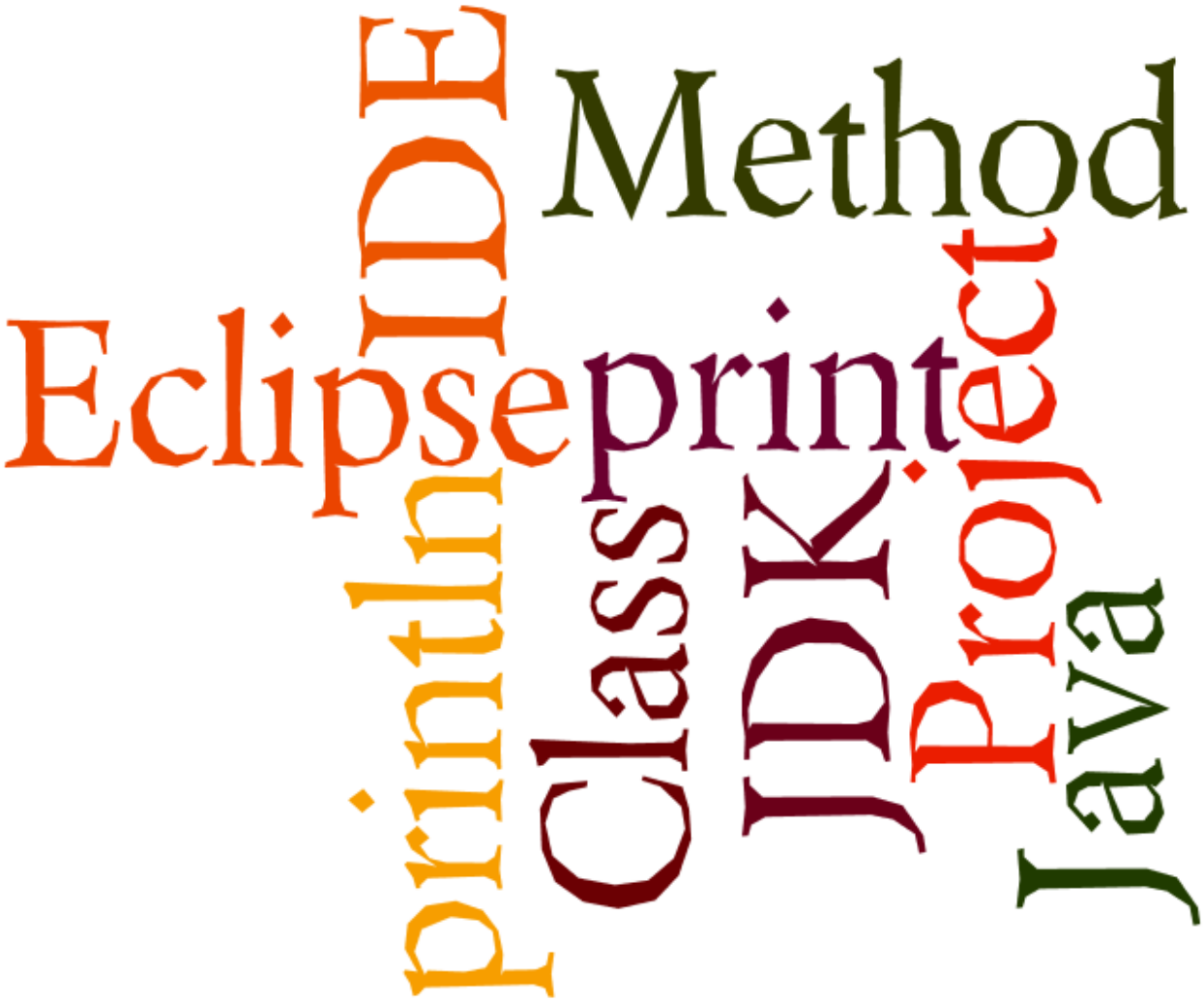
What do you learn last time?



3 Laws of Java

1. Every line ends with a ; unless the next symbol is a {
2. Every { has a }
3. Classes start with capital letters, methods and variables start with lower case letters

Java's structure

Java programs are called '**classes**'

They exist inside a container called a **project**

All classes have at least one method called **main()**

Java class example

```
public class MyFirstTime
{
    public static void main (Stri ])
    {
        System.out.println("x");
        System.out.println("xxx");
        System.out.println("xxxxx");
    }
}
```

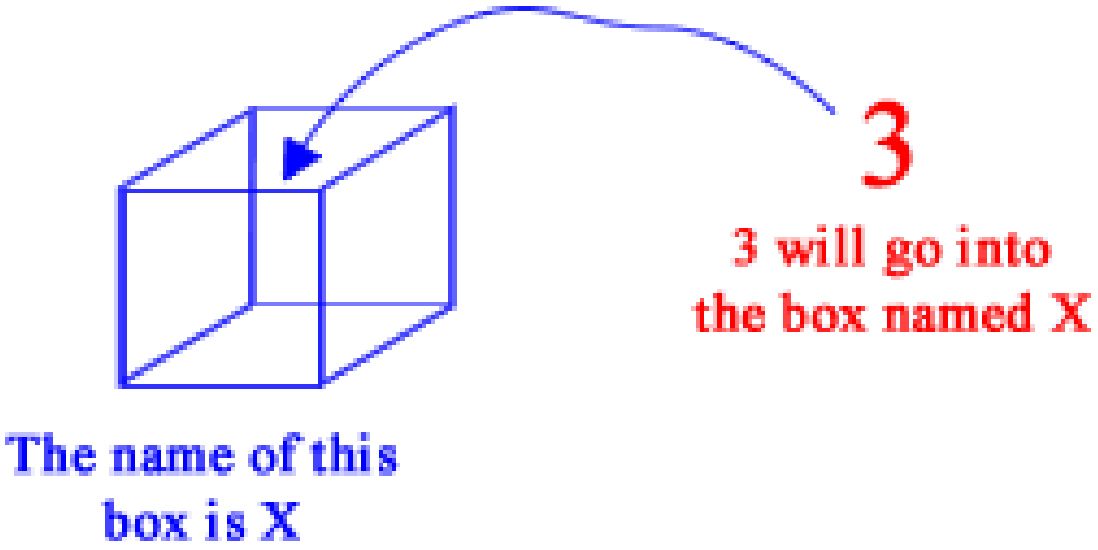
Class name

Main method

Levels of Java coding

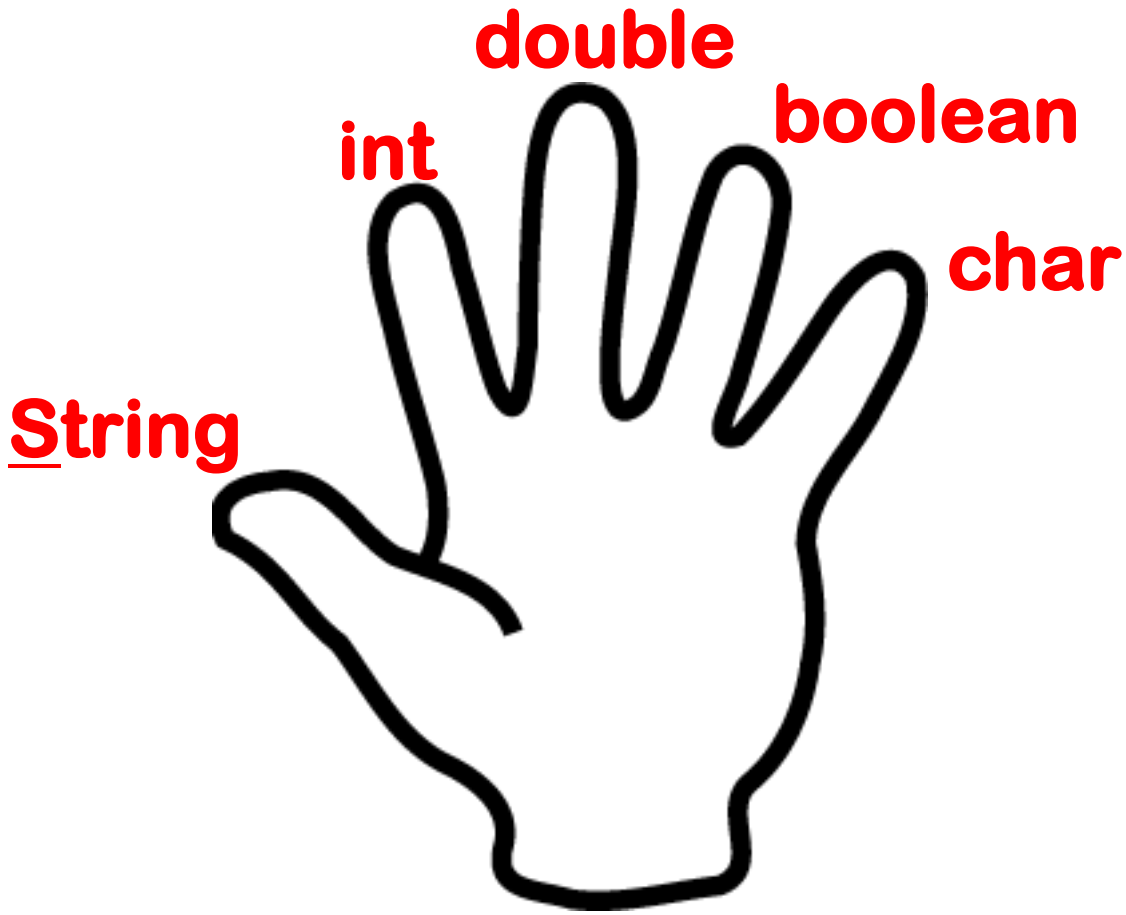
- 1: Syntax, laws, variables, output
- 2: Input, calculations, String manipulation
- 3: Selection (IF-ELSE)
- 4: Iteration/Loops (FOR/WHILE)
- 5: Complex algorithms
- 6: Arrays
- 7: File management
- 8: Methods
- 9: Objects and classes
- 10: Graphical user interface elements

Variables *vs.* Value



- A **variable** is like a **box**
- What is inside the box can **change** or ‘vary’
- The ‘thing’ inside the box is the **value**

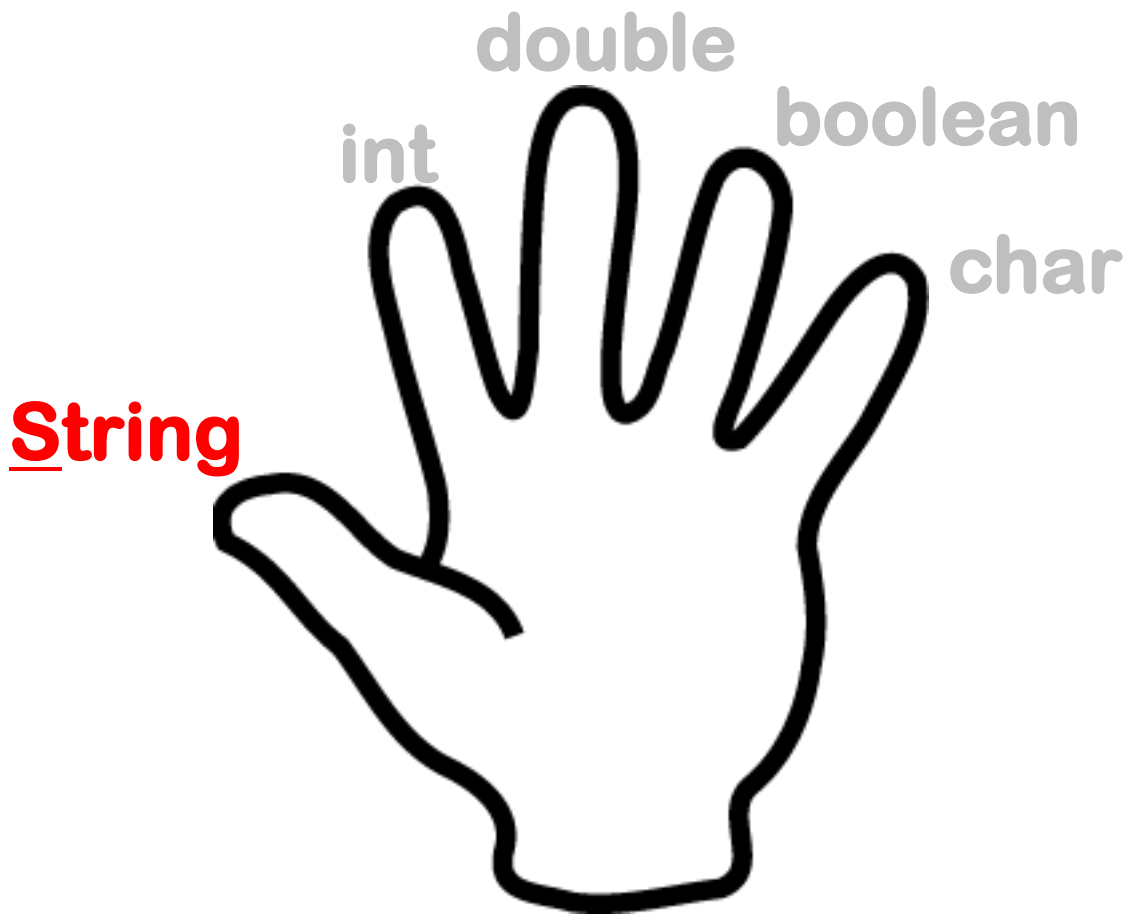
5 types of variables



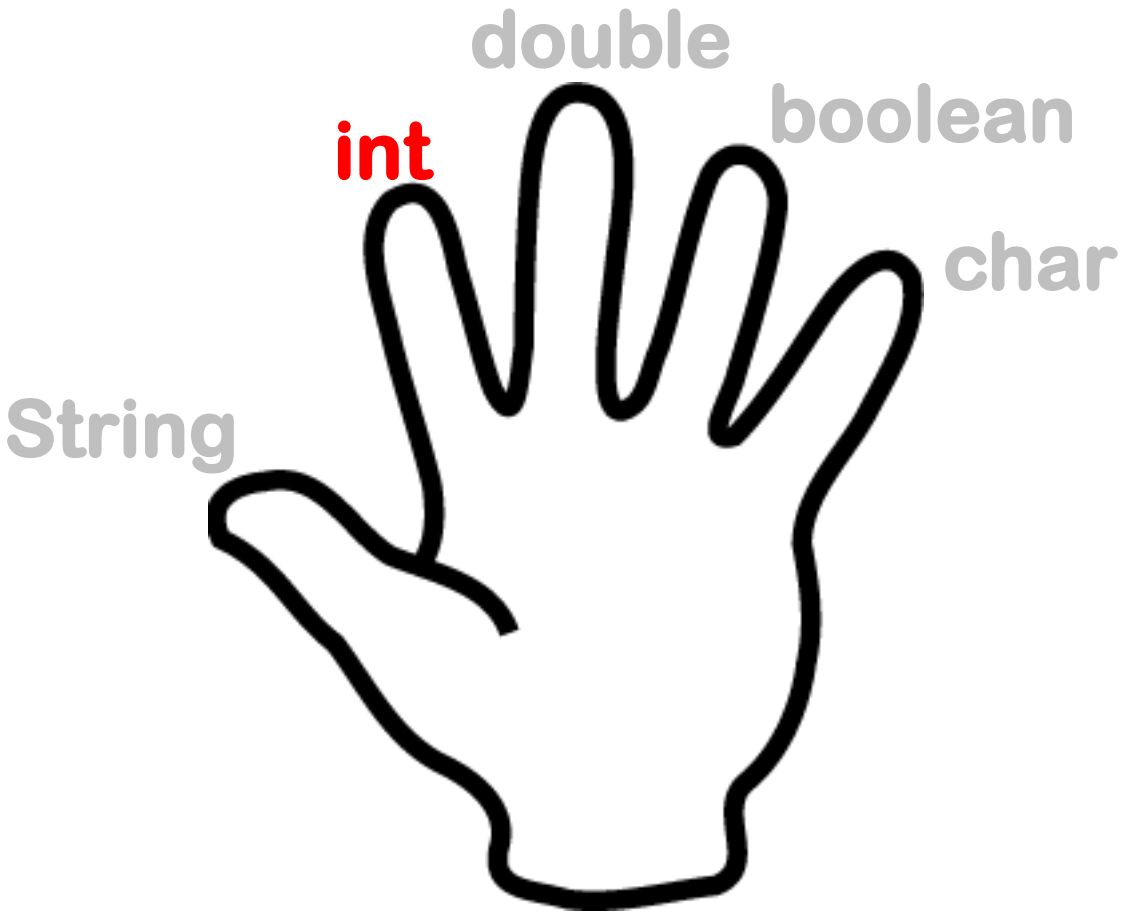
Why not have just 1 type?

- Only type big enough to cope with sentences is **Strings**
- Strings are **BIG** compared with booleans/ints
- **To save space**, we only use the box type that is "*just big enough*" to contain the value we want.
- **Less waste** = **faster programs**!

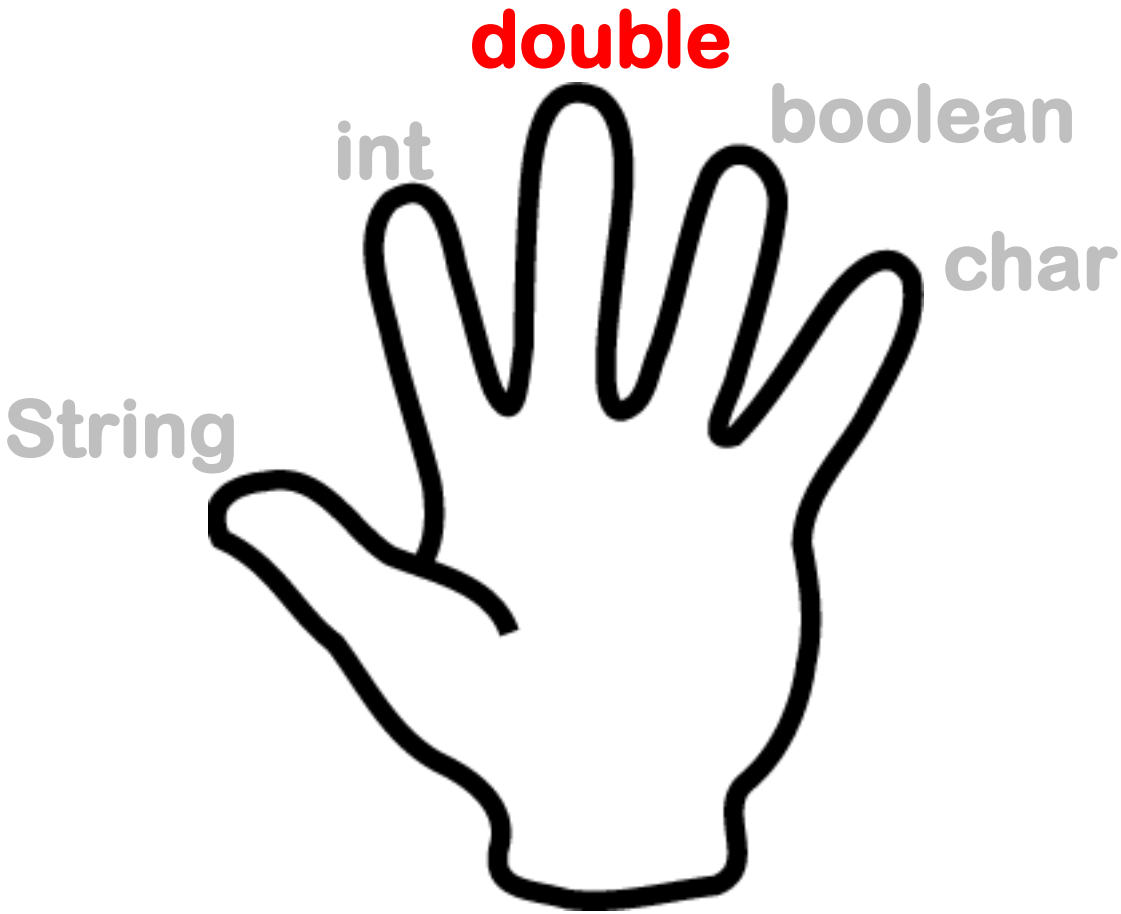
Strings: “cat” “DA1 2HW”



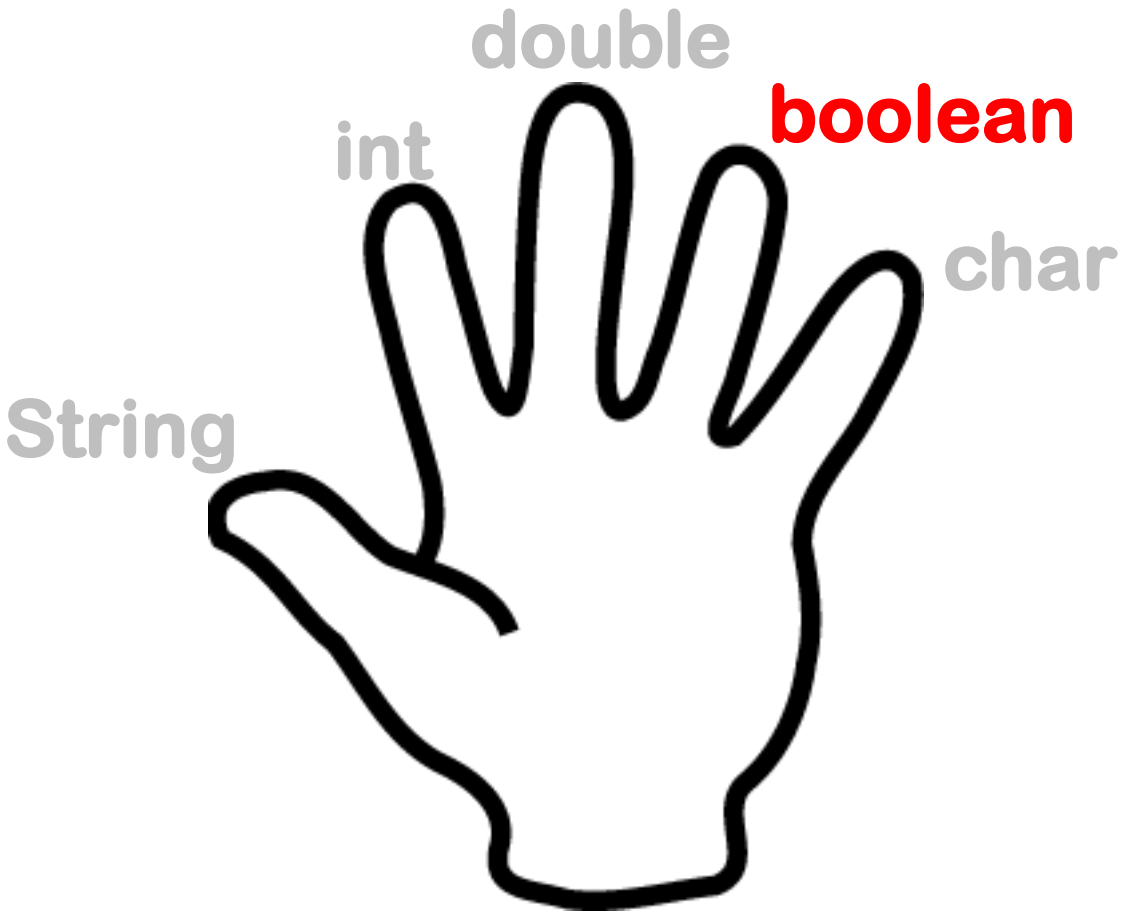
int: 23 0 -98 39290 -321



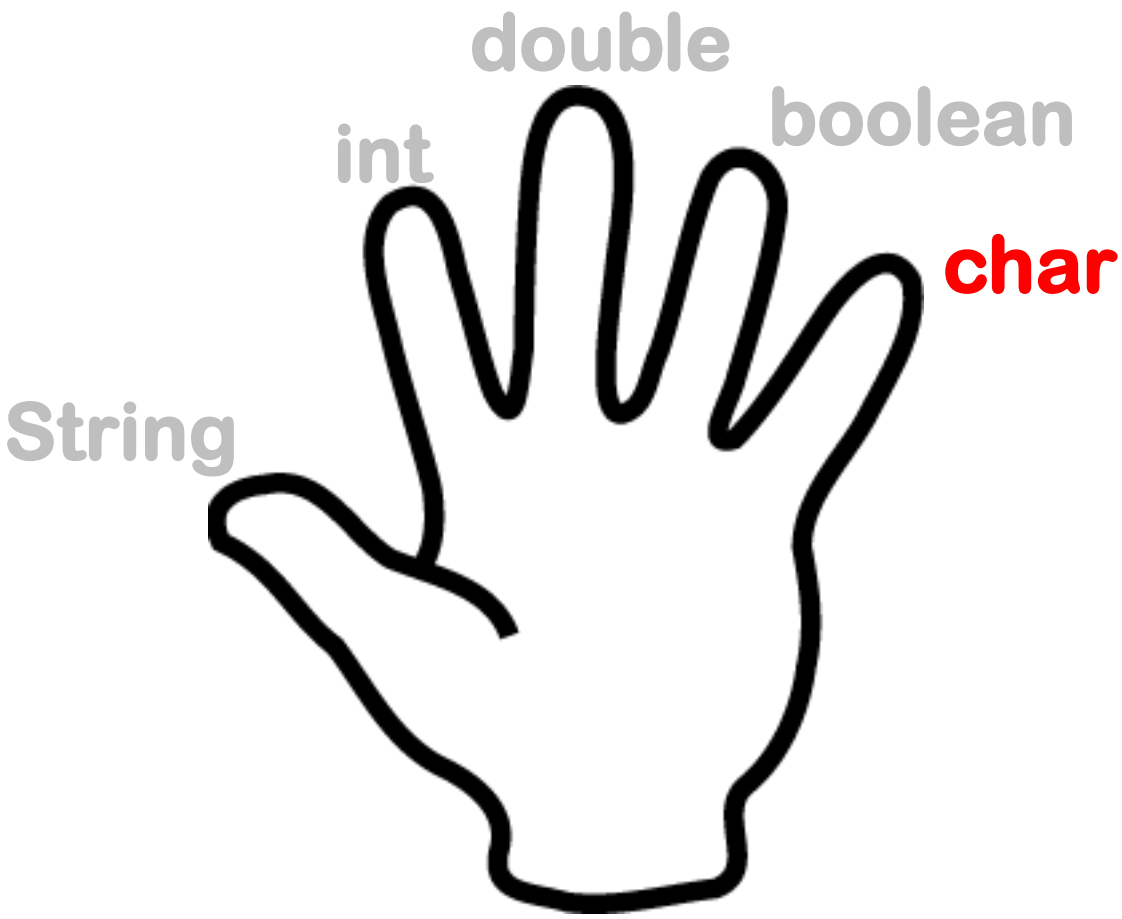
double: 1.2 -5.93 3.3333



boolean: true / false



char: ‘a’ ‘3’ ‘@’ ‘A’ ‘ ’



What data type is each of the following?

-9

4.5

chicken

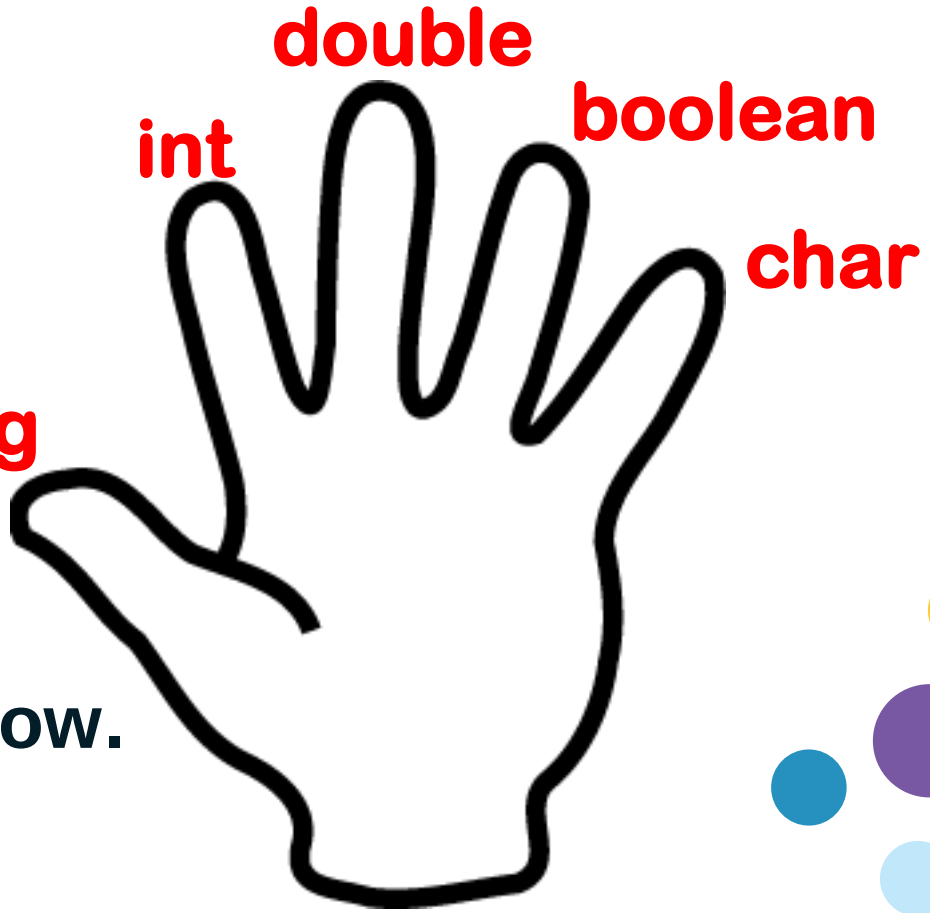
false

%

£ 2.90

The cat is hungry now.

192.168.1.190



Declare *vs.* Instantiate

```
int number;
```


```
number = 3;
```


```
int number = 3;
```

Strings

```
String name;
```

Declare

```
name = “Joe”;
```

Instantiate

```
String name = “Joe”;
```

All in one!

char

```
char letter;
```

Declare

```
letter = ‘a’;
```

Instantiate

```
char letter = ‘a’;
```

All in one!

double

```
double price;
```

Declare

```
price = 2.99;
```

Instantiate

```
double price = 2.99;
```

All in one!

boolean

```
boolean fit;
```

Declare

```
fit = true;
```

Instantiate

```
boolean fit = true;
```

All in one!

Be careful!

true vs “true”

“a” vs ‘a’

“4” vs 4

“2.99” vs 2.99

+ vs ‘+’ vs “+”

Note! *Strings cannot do calculations*

What does this do?

```
int num;
num = 23;
System.out.println(23);
System.out.println(num);
System.out.println(“23”);
```

Output

```
23
23
23
```

Combining values and variables

```
int num1 = 5;
int num2 = 10;
System.out.println(num1+num2);
System.out.println(num1+" + "+num2);
```

Output

```
15
5 + 10
```

What went wrong?!

```
String number = “2”;
int zombie = 4;
System.out.println(number+number);
System.out.println(zombie+zombie);
```

Output

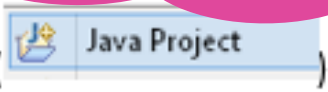
```
22
8
```

1B – James Bond

Jav

Submit your code into onenote along with the output

Preliminary Setup:

1. Using Eclipse, create a new Java Project called 1B-James Bond. (

)
2. Create a new class () called JamesBond within this project. You will be editing the main method inside of this class to create your program.

Task: Create a simple program that has two variables; one called ***destination*** and one called ***days***. You can populate these variables with suitable values. Your program should then output these variables in the following sentence (the red text indicates where the variables should be used).

James Bond is on a top secret mission to DESTINATION.

All we know is that Bond only has DAYS days to save the world!!!

Example Output #1:

```
James Bond is on a top secret mission to California.
All we know is that Bond only has 15 days to save the world!!!
```

Example Output #2:

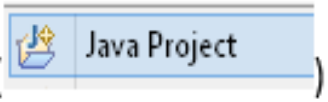
```
James Bond is on a top secret mission to Argentina.
All we know is that Bond only has 3 days to save the world!!!
```

1C – Postman Pat

Java

Submit your code into onenote along with the output

Preliminary Setup:

1. Using Eclipse, create a new Java Project called 1C-PostManPat. (

)
2. Create a new class () called PostManPat within this project. You will be editing the main method inside of this class to create your program.

Task: Create a simple program that has two variables; one called ***postcode*** and one called ***towncode***. Enter a postcode as a value into the postcode variable. The value for towncode should be the first letter of your home town. The variables should then be output in the sentence below (the red text should be replaced with the appropriate variable).

My postcode is POSTCODE and my town code is TOWNCODE.

Example Output #1:

```
My postcode is Da1 25F and my town code is D.
```

Example Output #2:

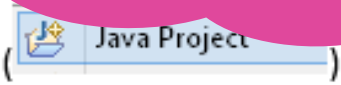
```
My postcode is MER2 6YH and my town code is M.
```

1D – All About Me

Java P

Submit your code into onenote along with the output

Preliminary Setup:

1. Using Eclipse, create a new Java Project called 1D - AboutMe. (

)
2. Create a new class () called AboutMe within this project. You will be editing the main method inside of this class to create your program.

Task: Create a simple program that will output the following details about you (or someone else) on the screen:

1. Name (Both forename and surname)
2. Gender (either M or F)
3. Age
4. Height (In meters)
5. Married (true or false)

For each, you will need to create an appropriately named variable with a suitable data type. These variables should then have values added to them so they can be outputted as in the sentences shown in the example below.

Example Output:

```
My name is: Bilbo Baggins
My gender is: M
My age is: 88
My height is: 1.2
Am I married? false
```