CMPSC 100

Computational Expression

Data Type	Size	Min value	Max Value
byte	1 byte	-128	127
short	2 bytes	-32,768	32,767
int	4 bytes	-2,147,483,648	2,147,483,647
long	8 bytes	- a lot	+ a lot
float	4 bytes	7 decimals	7 decimals
double	8 bytes	15 decimals	15 decimals
char	2 bytes	0	65,536
boolean	(not important)	0 (true)	1 (false)

“primitive” data types

Data Type	Size	Min value	Max Value
String	Various	?	?
Scanner	Various	?	?

“reference” data type

These values aren’t important anymore.

Data Type	Size	Min value	Max Value
String	Various	?	?
Scanner	Various	?	?
Random	Various	?	?

“reference” data type

Reference types: Scanner

Scanner exists outside of the Java API, so we have to import it:

Contained in a class called Scanner

```
import java.util.Scanner;
```

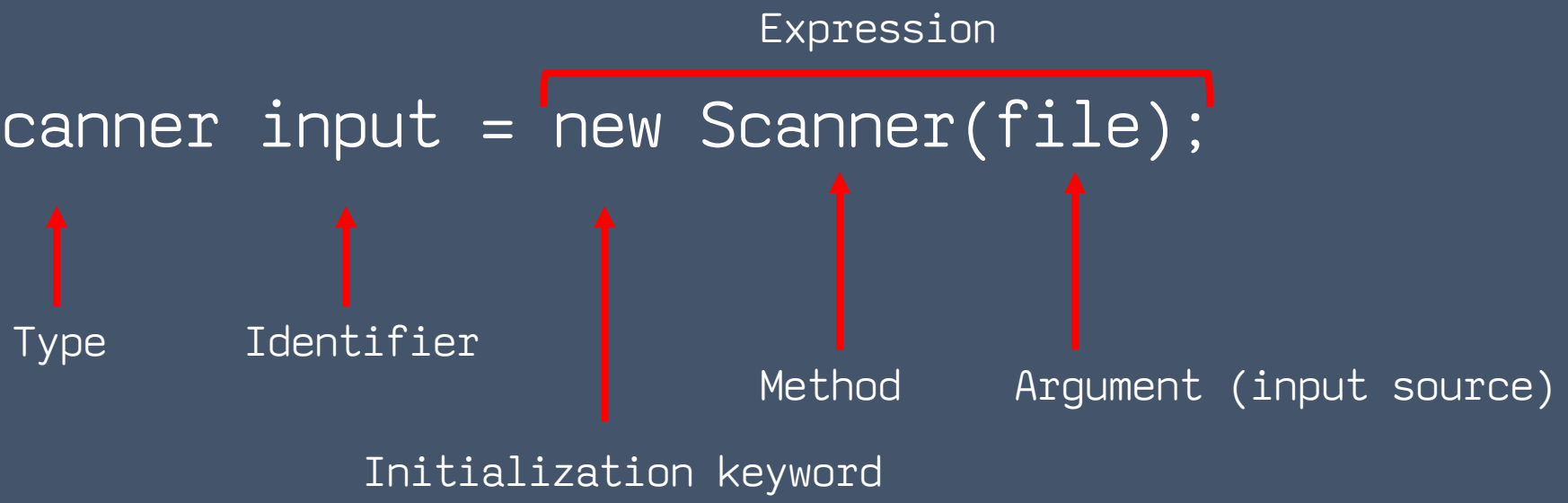
Part of the java.util “package”

Reference types: Scanner

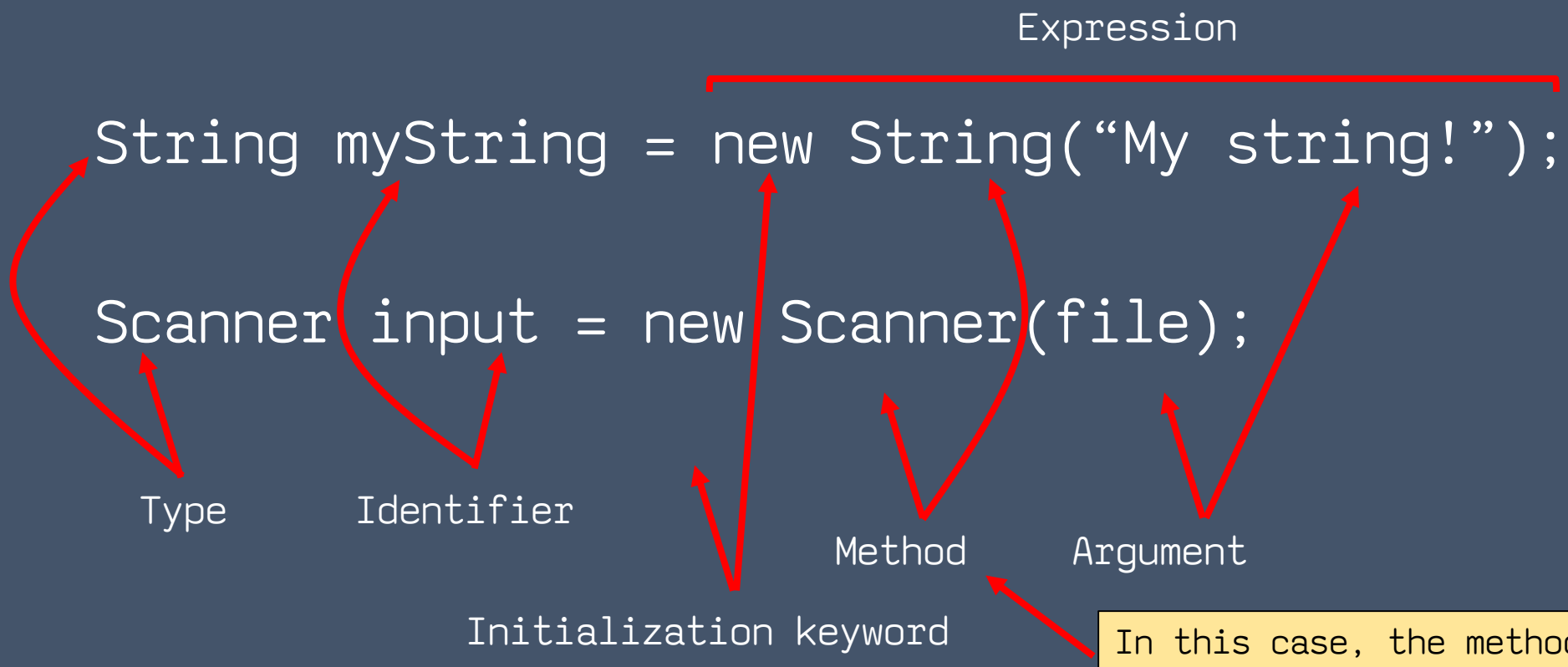
Once we've imported it, we can "summon" its powers when we invoke it:

```
File file = "inputs/cupcakes.nomnomnom";

Scanner input = new Scanner(file);
```



Reference types are objects



In this case, the method is called the "**constructor**" and every reference type has one - it specifies the *minimum* amount and type of data needed to create an **object**

Objects: Scanner

Refers to a file containing the Scanner code

```
import java.util.Scanner;
```

```
Scanner input = new Scanner(System.in);
```

Creates the actual Scanner object

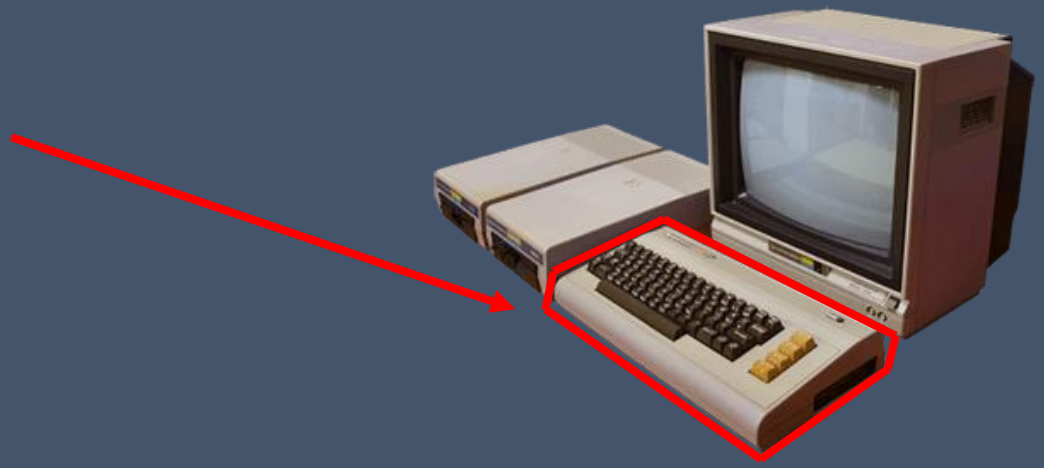
(Pics or it didn't happen)

Objects: Scanner

Creating a Scanner object requires 1 piece of data which represents an input:

- Files
- System input (STDIN)

  (System.in)
- Strings



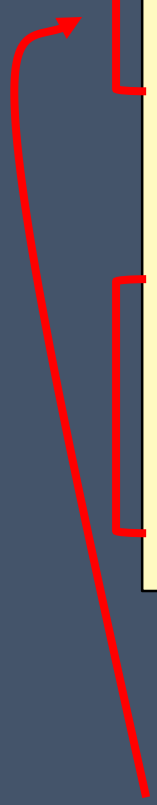
```
Scanner(InputStream source)
Scanner(File source)
Scanner(String source)
  Constructor: Creates a new object to process input

String next()
  Processes the next “input token” up to (not including) a space

String nextLine()
  Processes the next full line up to (and including) the \n (new line) character

int nextInt()
  Processes the next integer available in the input

double nextDouble()
  Processs the next double-precision floating point number in the input
```



“Input token” here refers to any value up to (and not including a space)

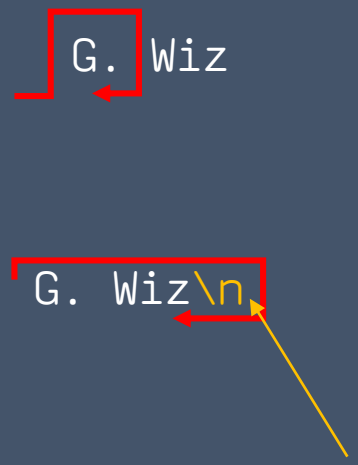
BEWARE! Any of the next____ methods not including “Line” take up to the first delimiter (space character) and do not automatically move to the next line!

```
int number   =  input.nextInt();          6          // 6

double number =  input.nextDouble();       6          // 6.0

String fName   =  input.next();            G. Wiz     "G"

String fullName = input.nextLine();        G. Wiz\n   "G. Wiz"
```



cd to your activities folder
perform a git pull download master

cd to the activity-06 folder