Console Input & Output

Scanner Class & printf

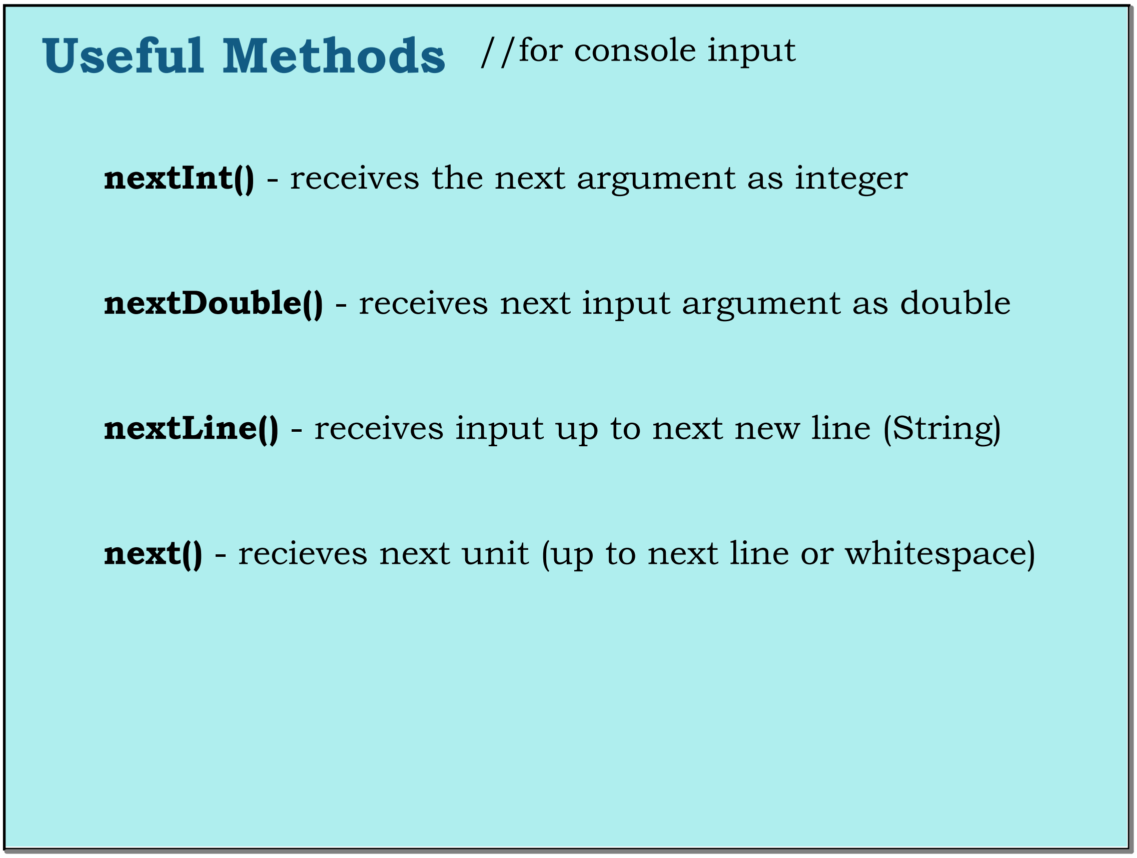
Scanner Class

ttp://docs.oracle.com/javase/1.5.0/docs/api/java/util/Scanner.html

To take in input from the console (i.e. the user types in responses), we create and use a Scanner object that reads from the input stream, System.in.

API (documentation)

aka. javadocs



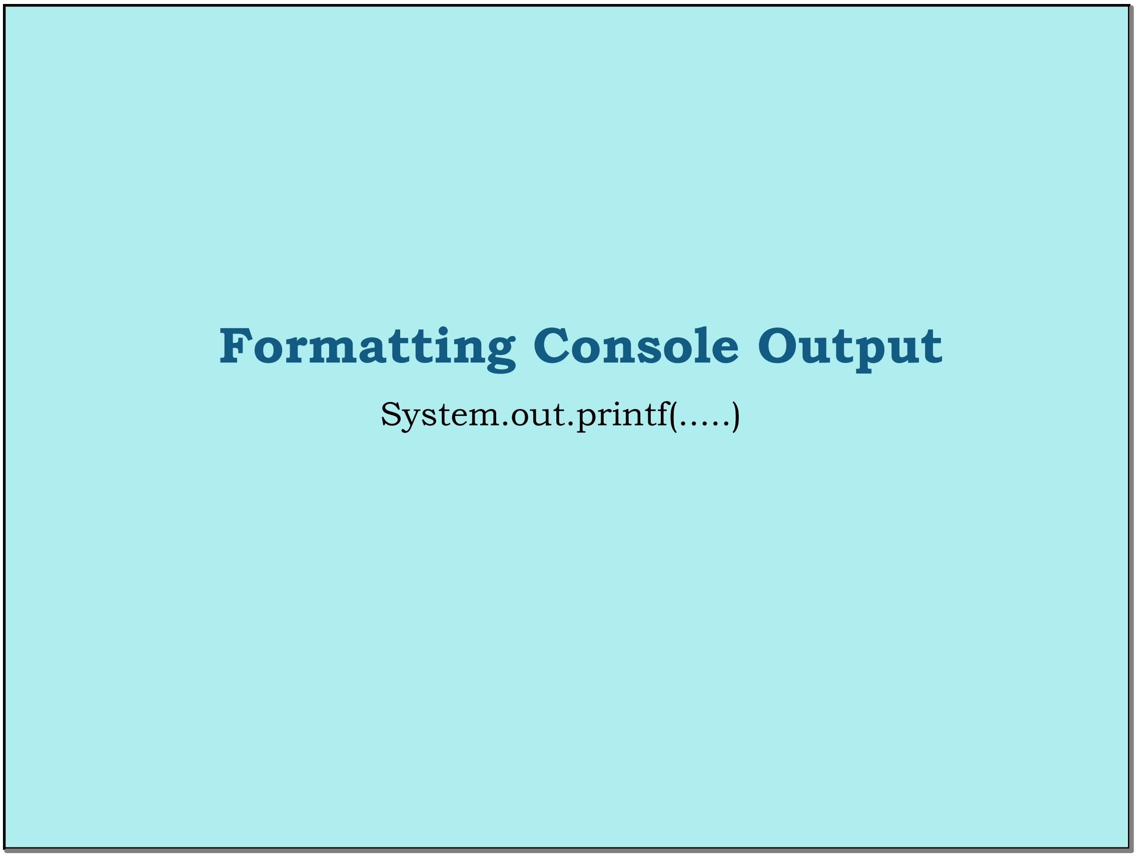
Useful Methods //for console input

nextInt() - receives the next argument as integer

nextDouble() - receives next input argument as double

nextLine() - receives input up to next new line (String)

next() - recieves next unit (up to next line or whitespace)



Formatting Console Output

System.out.printf(.....)

printf

start w/a % sign in string

1st argument is a string that includes formatting indicators;

rest of the arguments correspond to each indicator found in the string.

```
System.out.printf( some string, value, value, ... );
```

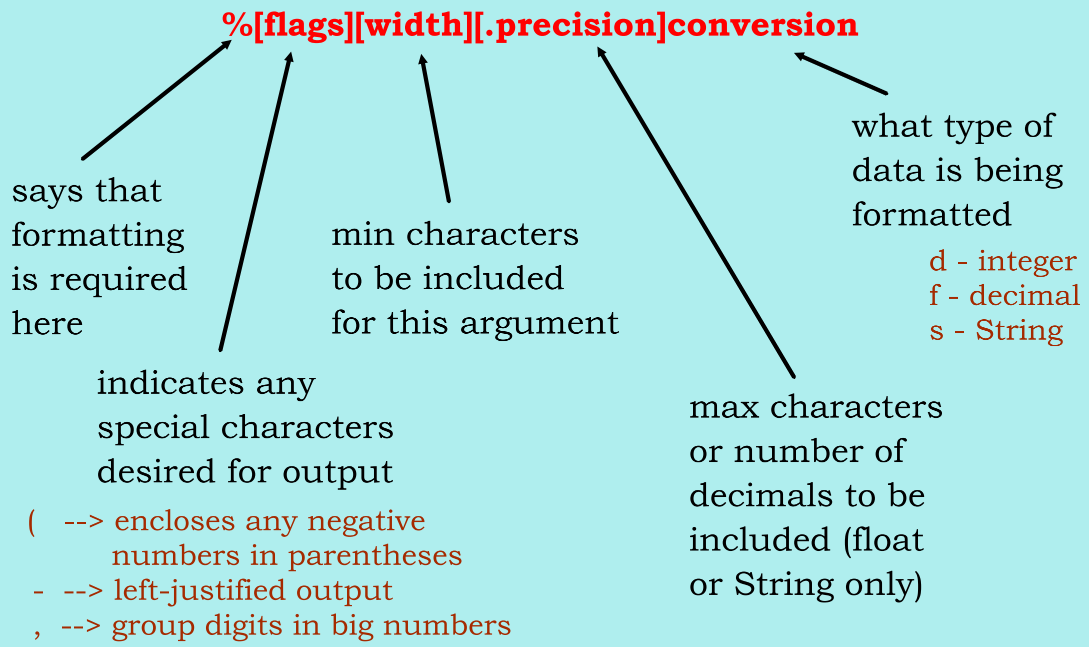
formatting indicator

Example (assume variables used have been declared/initialized)

System.out.printf("The average is: %.2f", sum/totalElements);

System.out.printf("Cost of %d items: %10.2f", numItems, totalCost);

The formatter arguments



%[flags][width][.precision]conversion

says that formatting is required here

indicates any special characters desired for output

- (--> encloses any negative numbers in parentheses
- - --> left-justified output
- , --> group digits in big numbers

min characters to be included for this argument

max characters or number of decimals to be included (float or String only)

what type of data is being formatted

- d - integer
- f - decimal
- s - String

Example (assume variables used have been declared/initialized)

10.025389...

```
System.out.printf("The average is: %.2f", sum/totalElements);
```

7 57.5

```
System.out.printf("\nCost of %d items: %7.2f", numItems, totalCost);
```

The average is: 10.03

Cost of 7 Items:__57.50 //_ is a space

$\underbrace{\%.2f}_{\text{precision}}$

precision (yes, it rounds)

Side Note: Escape Sequences

How to get "special characters" to be a part of a String...

\n	new line
\t	tab
\\	backslash
\"	"
\'	'

and more...

Example

10.43

```
System.out.printf("%-8s%8.2f\n", "Cost:", 10.4292345);
System.out.printf("%-8s---->%8d", "# Items", 5);
```

Cost:______10.43 //_ are spaces

#_Items_---->_______5

String.format(....);

//returns formatted string rather than print it