AP CSA Java Unit 1 Cheat Sheet

by KETHEO via cheatography.com/139637/cs/29497/

INPUT & OUTPUT

INPUT

To use Scanner, import Scanner library:

import java.Object.Scanner

```
Scanner scan = new Scanner(System.in);
name = scan.nextInt();
name = scan.nextLine();
name = scan.nextDouble();
```

OUTPUT

```
System.out.print ( "Hello" );
System.out.println ( "Hello" ); // New line.
```

COMMENTS

```
// A single line comment.
/*
* Multiple
* line comments.
*/
```

JAVADOC

```
package-info.java //Need to generate.
/**
* Javadoc comments generate a HTML file.
* @author
* @version
*/
```

VARIABLES

PRIMITIVE DATA TYPES

int value = **null**; //Doesn't compile.

byte	8 bits
short	16 bits
int	32 bits
long	64 bits
char	Textual: (16 bits)
boolean	Logical: true/false
float (decimal)	Floats 15 places (32 bits)
double (decimal)	Floats 15 places (64 bits)

FINAL VARIABLES

Permanent Values

```
final double PI = 3.14159265;
```

VARIABLES (cont)

```
final String LANGUAGE = "Java";
```

KEYWORDS

abstract	final/ly	public
assert	float	requires
boolean	for	return
break	goto	short
byte	if	static
case	implements	strictfp
catch	import	super
char	instanceof	switch
class	int	synchronized
continue	interface	this
const	long	throw/s
default	module	transient
do	native	true
double	new	try
else	null	var
enum	package	void
exports	private	volatile
extends	protected	while
false		

STRINGS

REFERENCE DATA TYPE

String name = ❝Always within quotes❞;

```
String words = "123 have no value";
```

STRING CONCATENATION

```
System.out.println("Hello " + variable + "." );
System.out.print (variable + " Hello World");
```

CONCATENATION RULES

```
number + number = number
number + String = number + String
String + number = String
```

Above number changed to a String!

```
String + (number) = String + number
```

STRINGS (cont)

Use ( ) to override String change.

CALCULATIONS

COMPOUND ASSIGNMENT OPERATORS

Syntax to assign arithmetic operation result **back-into** "assignment" variable.

+=	Add values
-=	Minus values
***=**	Multiply values
/=	Divide values
%=	Modulus (remainder)
++	Adds one
--	Subtracts one

```
x = x + 1;   //adds one to x
x += 1;      //adds one to x
x++;         //adds one to x
```

MODULAR DIVISION (%)

REMAINDER

Only works on integers!

7 **%** 2 =remainder 1	8 **%** 3 =remainder 2
Find even numbers	x **%** 2 = remainder 0
Find odd numbers	x **%** 2 = remainder 1

MINIMUM & MAXIMUM

Integer.MIN_VALUE ⟷ Integer.MAX_-VALUE

2147483647 ⟷ -2147483648

NAMING CONVENTIONS

Package	**java**, **lang**, **shapes**, etc... **package.name**, **java.io**, etc... **com.example.mypackage**, etc... Lowercase letters. Separate words with dots (.) Companies: "reversed Internet domain" starts their package name.

NAMING CONVENTIONS (cont)

Class	**Color**, **Button**, **Cats**, etc... **CambridgeCitySchools**, etc... NOUNS: Each word starts with an uppercase letter. ✪ No acronyms.
Method	**main()**, **print()**, **equals()**, etc... **newMethod()**, **toString()** etc... VERB: First word lowercase. Adding words: First letter uppercase.
Variable	**area**, **name**, **size**, etc... **newTriangle**, **rightSide**, etc... IDENTIFIER: first word lowercase. Adding words; first letter uppercase. ✪ No keywords. ✪ No special characters to start. ✪ Avoid one letter: x, y, z, etc.
Final Constant	**PI**, **BLUE**, **MATH**, etc... **MAX_PRIORITY**, **CITY_ZIP**, etc... All uppercase letters: Every word separated with an unders-core(_).

TYPE CASTING

(double) 1/3 = 0.3333	Results a double
int value = (int) 4.7	Narrowing Cast
(int) 3.86 = 3	Truncated

WIDENING & NARROWING CASTING

Does not round: Truncates!

byte→short→char→int→long→float→double

Narrowing Casting (manually)

larger → smaller

Widening Casting (***automatic***)

smaller → larger

ROUNDING

int nearestInt = (int) (number + 0.5)

int nearestNegInt = (int) (negNumber – 0.5)

By **KETHEO**
cheatography.com/ketheo/

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