PROCESSING CHEAT SHEET
Data Types & Variables & Operators

THE WITS SCHOOL OF ARTS DIGITAL ARTS

Data Types and Variables
Variables are used to store information. They are identified by a name that you give them. Each variable has a type. Variables must be declared before they can be used.

Declaring a variable:

```
type   name          initial value
int    myAlpha = 10;
```

The initial value is optional, but it is good programming practice to initialise variables when you declare them. In variable naming you be as descriptive as possible. You can use letters and the '_' character. Best practice is camelCase for two words.

Don't use the same word twice and stay away from reserved words used by Processing as programming keywords or special values These include:
boolean, break, byte, case, catch, class, char, color, continue, default, do, double, else, extends, false, final, float, focused, for, if, implements, import, int, long, new, null, private, public, return, static super, this, true, try, void, while.

common data types:

int myAlpha = 10;	whole numbers
float myRadius = 10.2;	floating point numbers
boolean isOpen = true;	only true or false
char myLetter = 'a';	single charaters
String myName = "Joe Black";	charater strings

Environment and State Variables
These are special, read-only variables that give you information about the mouse, window size, etc. Some examples:

frameCount	the current frame number
width, height	size of the display window
mousePressed	true if the mouse button is pressed
mouseX, mouseY	mouse location in the display
pmouseX, pmouseY	previous frame mouse location
keyPressed	true if a keyboard key is pressed
key	the current key being pressed
keyCode	used for special keys (UP, DOWN)

Useful Operators:

+ addition	**+= add assign**	**++ increment**
- subtraction	**-= subt. assign**	**- - decrement**
*** multiplication**	***= mult. assign**	**% modulo**
/ division	**/= div. assign**	
+ join strings	**= assignment**	

Operator Precedence:

y = 5 + 3 * 4;

is y = 32 or 17? ie, which of:

y = (5 + 3) * 4;
y = 5 + (3 * 4);
the answer is 17, the second expression, because of Processing's rules of precedence. The multiplication operator has a higher 'strength' so it is evaluated first, rather than from left to right. * and / operators have higher precedence than + and -

Relational Operators:

>	greater than
>=	greater than or equal to
<	less than
<=	less than or equal to
==	equal to
!=	not equal

Logical Operators
Along with relational operators, case statements with more than one condition will also use Logical Operators

! or !=	logical NOT
&&	logical AND
||	logical OR