ARTESIS PLANTIJN
HOGESCHOOL ANTWERPEN

LINUX CHEAT SHEET

JEROEN DOGGEN, AP UNIVERSITY COLLEGE ANTWERP

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Structure

void **setup**()
void **loop**()

Control Structures

```
if(x<5){}
for(int i = 0; i < 255 i++ ){}
while((x < 6 ){}
```

Further Syntax

// Single line comment
/ * .. * / Multi line comment
#define ANSWER 42
#include <myLib.h>

General Operators

=	assignment
+, −	addition, substraction
*, /	multiplication, division
%	modulo
==	equal to
! =	not equal to
<	less than
<=	less than or equal to

Pointer Access

&	reference operator
*	dereference operator

Bitwise Operators

&	bitwise AND
|	bitwise OR
∧	bitwise XOR
∼	bitwise NOT

Compound Operators

++	Increment
−−	Decrement
+ =	Compound addition
& =	Compound bitwise AND

Constants

```
HIGH, LOW
INPUT, OUTPUT
true, false
```

53 : Decimal
B11010101 : Binary
0x5BA4 : Hexadecimal

Data Types

void	
boolean	0, 1, false, true
char	e.g. 'a' -128 → 127
unsigned char	0 → 255
int	-32.768 → 32.767
unsigned int	0 → 65535
long	-2.147.483.648 → 2.147.483.647
float	-3,4028235E+38 → 3.402835E+38
sizeof (myint)	returns 2 bytes

Arrays

int myInts[6];
int myPins[]=2,4,8,5,6;
int myVals[6]=2,-4,9,3,5;

Strings

char S1[15];
char S2[8]='A','r','d','u','i','n','o';
char S3[8]='A','r','d','u','i','n','o','\0';
char S4[]="Arduino";
char S5[8] = "Arduino";
char S6[15] = "Arduino";

Conversion

char()	**int()**	**long()**
byte()	**word()**	**float()**

Qualifiers

static	Persist between calls
volatile	Use RAM (nice for ISR)
const	Mark read-only
PROGMEM	Use flash memory

Interrupts

attachInterrupt(interrupt, function, type)
detachInterrupt(interrupt)
boolean(interrupt)
interrupts()
noInterrupts()

Advanced I/O

tone(pin, freqhz)
tone(pin, freqhz, duration_ms)
noTone(pin)
shiftOut (dataPin, clockPin, how, value)
unsigned long **pulseIn**(pin, [HIGH,LOW])

Time

unsigned long **millis()**	50 days overflow
unsigned long **micros()**	70 min overflow

delay(ms)
delayMicroseconds(us)

Math

min(x,y) **max**(x,y) **abs**(x)
sin(rad) **cos**(rad) **tan**(rad)
pow(base, exponent)
map(val, fromL, fromH, toL, toH)
constrain(val, fromL, toH)

Pseudo Random Numbers

randomSeed(seed)
long **random**(max)
long **random**(min, max)

ATmega328 Pinout

I/O Pins

	Uno	**Mega**
# of IO	14 + 6	54 + 11
Serial Pins 3	0 - RX, 1 -TX	RX1 → RX4
Interrupts	2,3	2,3,18,19,20,21
PWM Pins	5,6 - 9,10 - 3,11	0 → 13
SPI (SS, MOSI, MISO, SCK)	10→ 13	50→ 53
I2C (SDA, SCK)	A4, A5	20,21

Analog I/O

```
analogReference(EXTERNAL, INTERNAL)
analogRead(pin)
analogWrite(pin)
```

Digital I/O

```
pinMode(pin,[INPUT,OUTPUT])
digitalWrite(pin, value)
int analogRead(pin)
```

Serial Communication

Serial.begin(speed)
Serial.print("Text")
Serial.println("Text")

Websites

```
forum.arduino.cc
playground.arduino.cc
arduino.cc/en/Reference
```

Arduino Uno Board