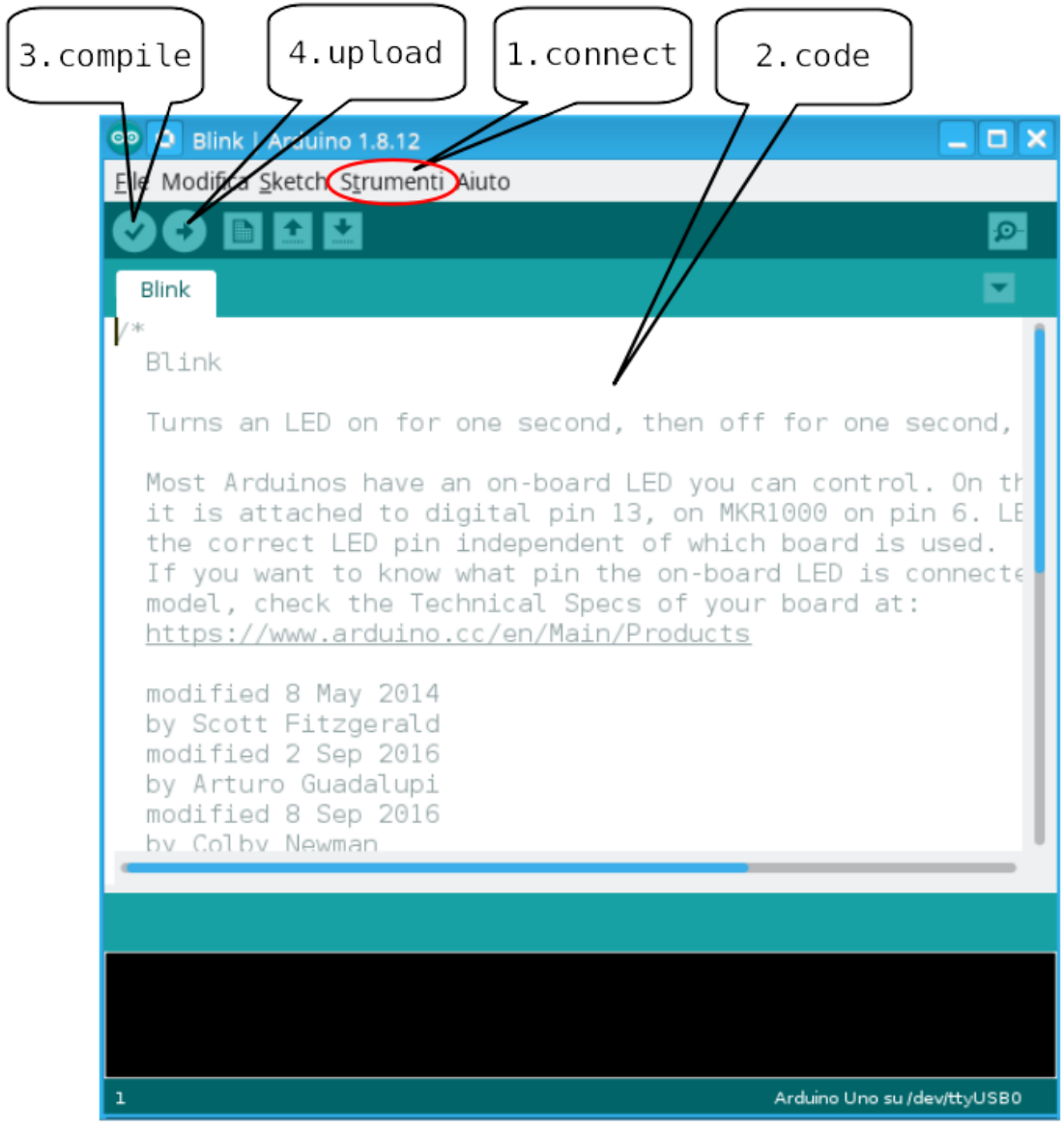
SOFTWARE RECAP

ARDUINO IDE ALLOWS YOU TO CARRY OUT THE 4 STEPS TO PROGRAM THE BOARD:

1. **connect** (the board to computer via USB)
2. **code** (source code writing)
3. **compile** (to generate machine code)
4. **upload** (machine code to board)


3.compile
4.upload
1.connect
2.code
Blink | Arduino 1.8.12
File Modifica Sketch Strumenti Aiuto
Blink
/*
Blink
Turns an LED on for one second, then off for one second,
Most Arduinos have an on-board LED you can control. On th
it is attached to digital pin 13, on MKR1000 on pin 6. LE
the correct LED pin independent of which board is used.
If you want to know what pin the on-board LED is connecte
model, check the Technical Specs of your board at:
https://www.arduino.cc/en/Main/Products
modified 8 May 2014
by Scott Fitzgerald
modified 2 Sep 2016
by Arturo Guadalupi
modified 8 Sep 2016
by Colby Newman
1
Arduino Uno su /dev/ttyUSB0

ARDUINO LANGUAGE

1. arduino only understands `machine code`, long sequences of 0 and 1
2. but we can write algorithms using a (more expressive) `programming language` derived from c/c++
3. after writing one has to compile the code in order to generate the machine code listing

AN ARDUINO PROGRAM IS COMPOSED BASICALLY BY 2 MAIN FUNCTIONS:

- setup(): used to configure board to perform the task (executed once)
- loop(): performs the task (executed repeatedly)

FIRST SKETCH: BLINK BUILTIN LED

```
// the setup function runs once
void setup()
{
    // configure Serial Port
    // to operate at 9600 baud speed
    Serial.begin(9600);

    // configure the pin 13 (connected to the builtin led)
    // as OUTPUT
    pinMode(13, OUTPUT);
}

// the loop function runs over and over again forever
void loop()
{
    // Print "ACCESO" string on Serial Port
    Serial.println("ACCESO");

    // write a voltage value (HIGH) on pin 13
    digitalWrite(13, HIGH);
    delay(1000); // wait for a second

    // Print "ACCESO" string on Serial Port
    Serial.println("SPENTO");

    // write a voltage value (LOW) on pin 13
    digitalWrite(13, LOW);
    delay(1000); // wait for a second
}
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```

```
#define LED 13

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    digitalWrite(LED, LOW);
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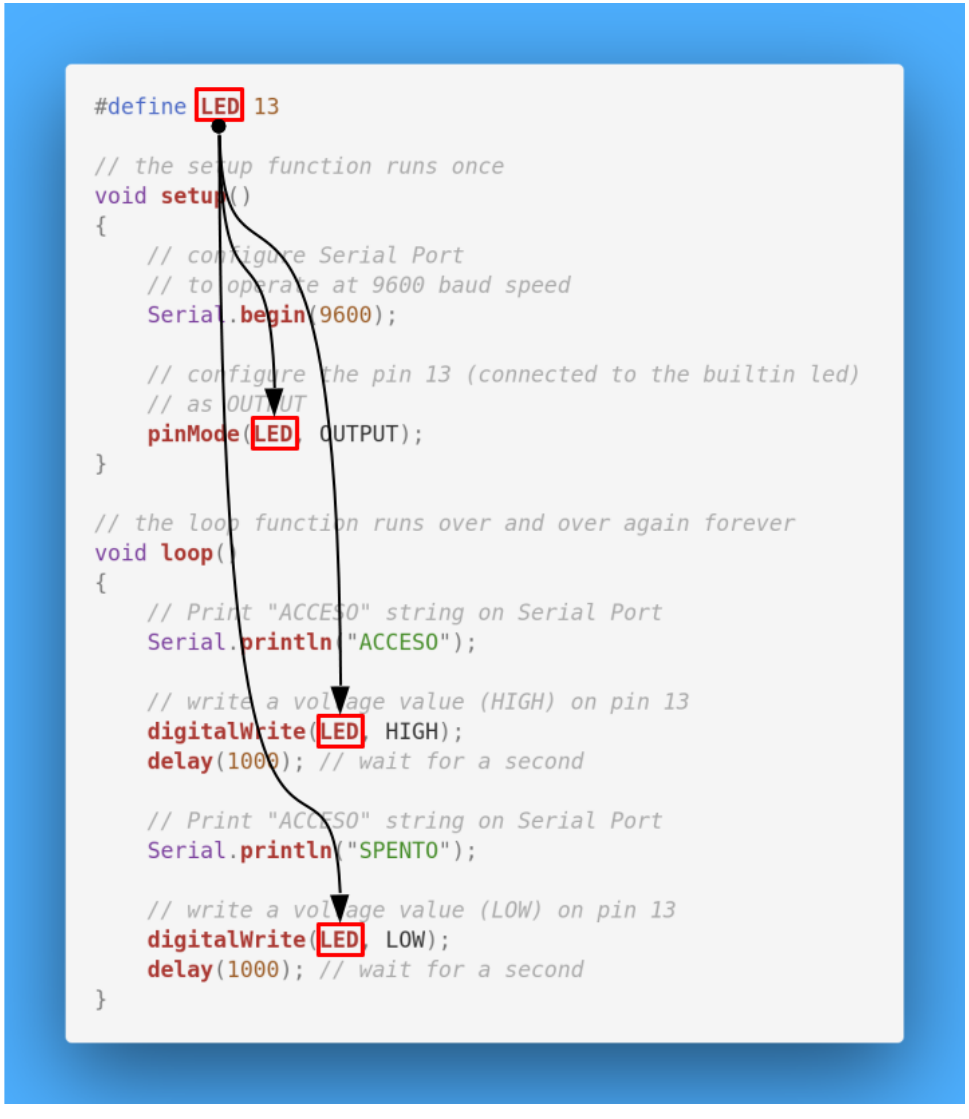
```



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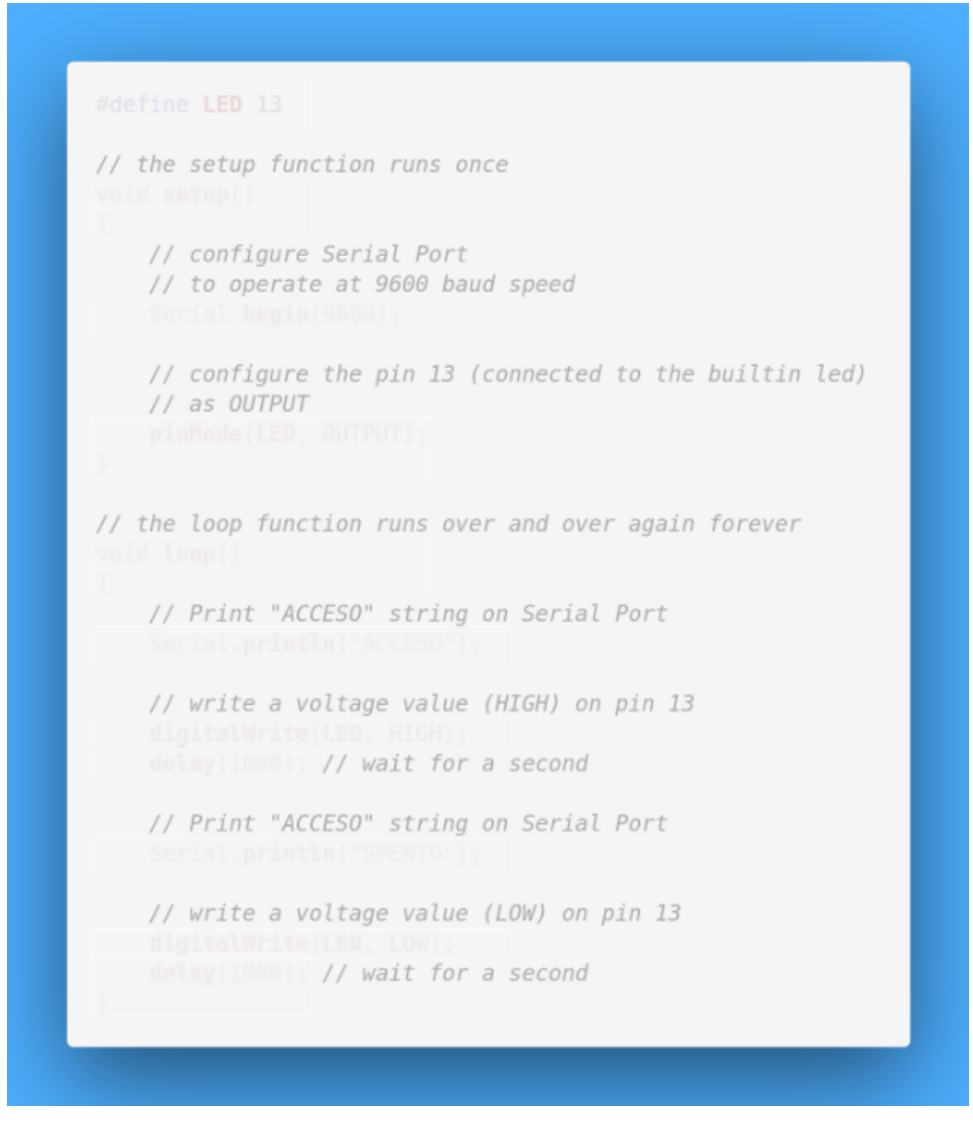
}
```

SYNTACTIC ELEMENTS

COMMENTS

```
// single line comment

/*
    multi
    line
    comment
*/
```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Serial.println("SPENTO");
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}

VALUES

- integer numbers
- float numbers
- strings

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}
```

FUNCTIONS (PROCEDURES)

Perform actions

function_name(arg1, arg2, …, argn);

```
digitalWrite(7, OUTPUT);
```

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}

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```

OBJECTS METHODS

Perform actions on objects

Object.method(arguments);

```
Serial.println("acceso");
```

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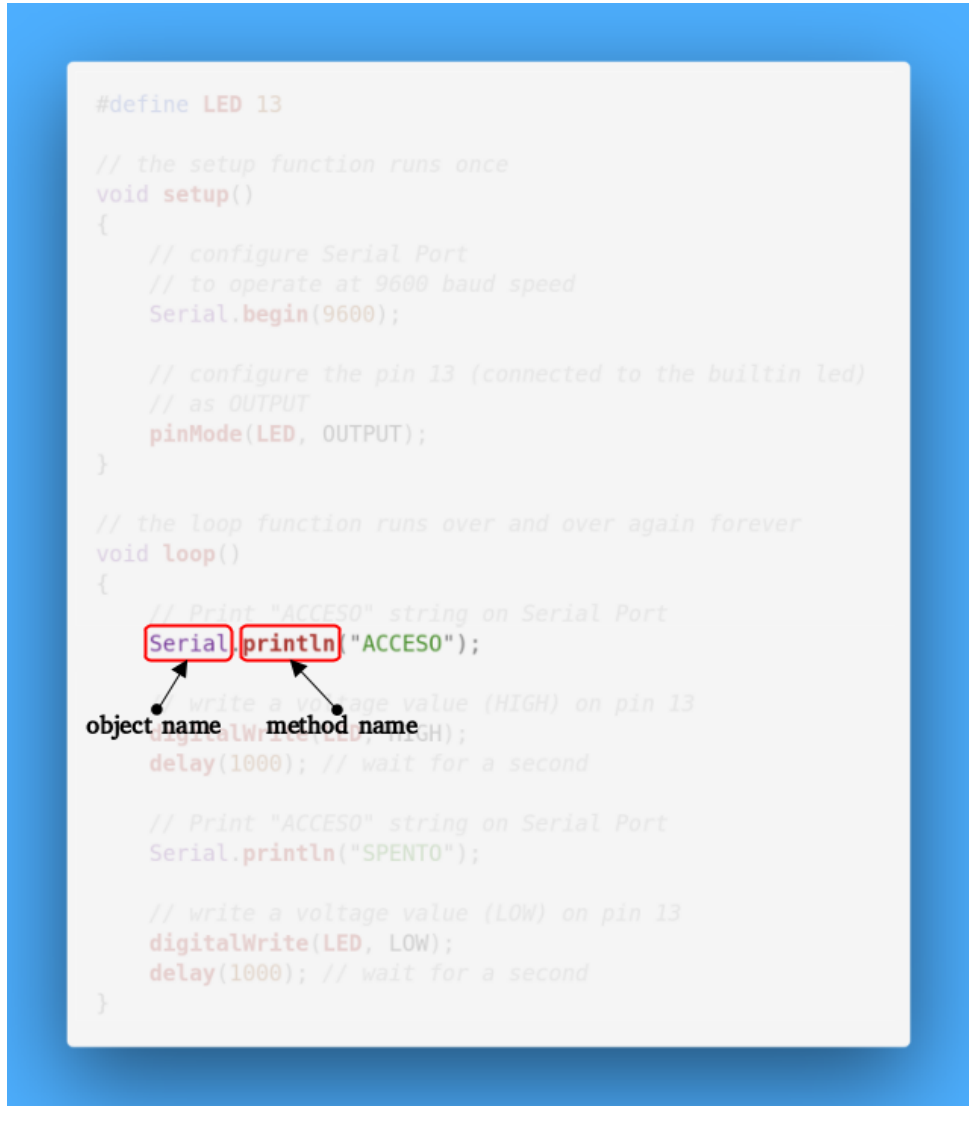
object name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method name

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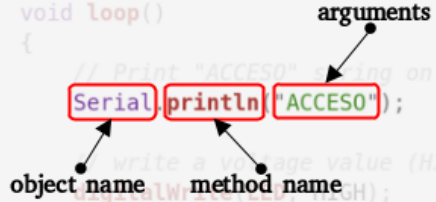

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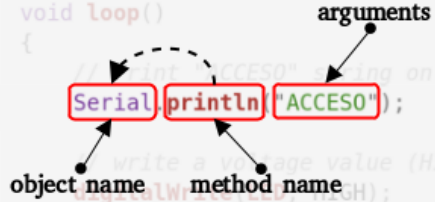

ESERCITAZIONE

WRITING BLINK SKETCH WITH THESE FEATURES:

1. Directive **#define** with label **MY_LED**
2. **Comments** (single line AND multi line)
3. Configuration of **Serial Port** to transmit at 9600 baud
4. Message “**ON**” when the led lights up
5. Message “**OFF**” when the led turns off
6. **Delay** time of 250 milliseconds
7. Saving project with the name **01_*myname*_blink*** (a folder with the same name will automatically be created, with the file **01_*myname*_blink.ino** inside)

*: Substitute ***myname*** with your name