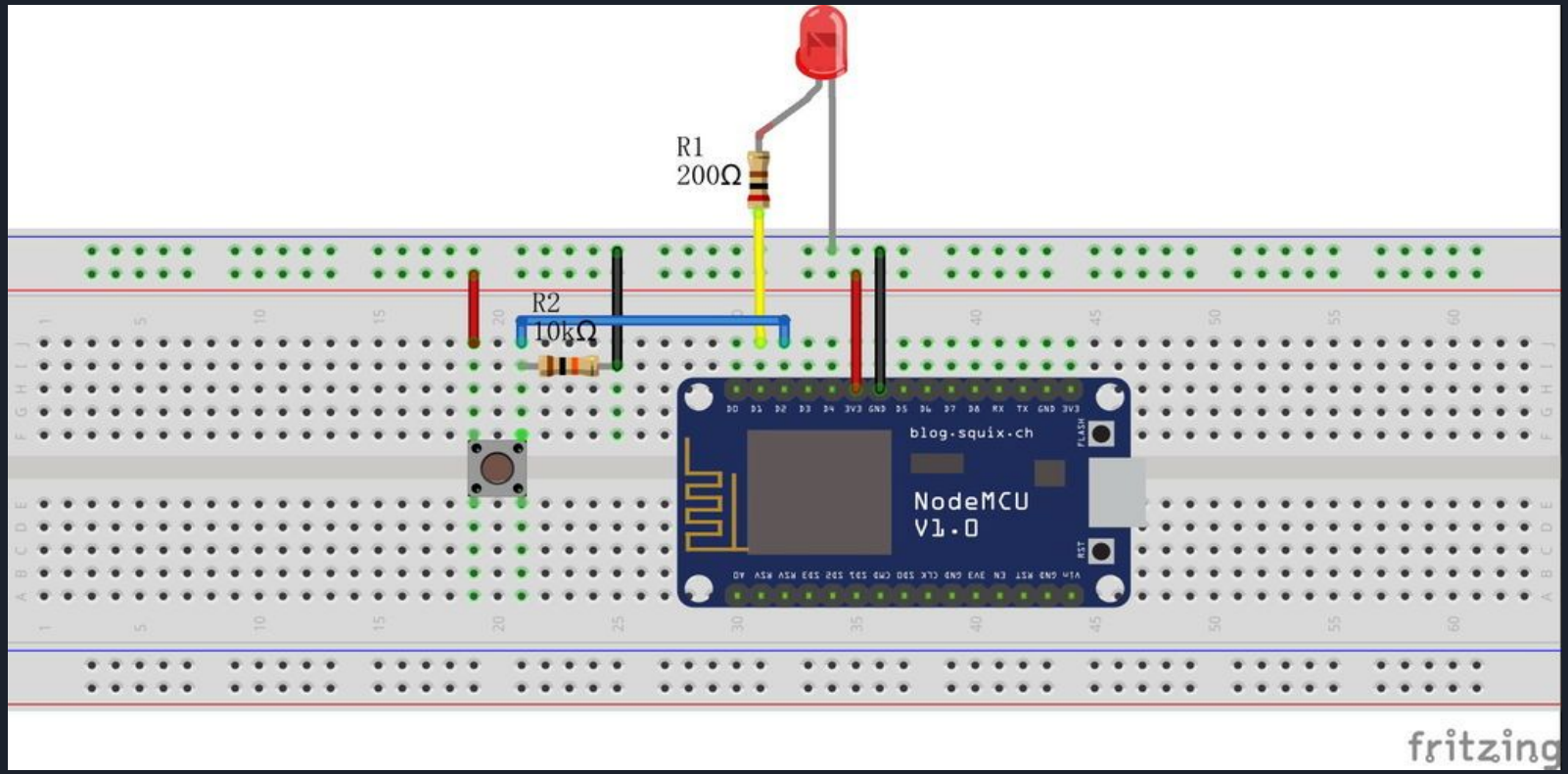
IOT Lab Assignment 2

First esp8266 program (button controlled led)

Install Arduino IDE and setup for esp8266

1. Download the Arduino IDE, the latest version. (https://www.arduino.cc/en/Main/Software)
2. Install the IDE
3. Set up your Arduino IDE as: Go to File->Preferences and copy the URL below to get the ESP board manager extensions: http://arduino.esp8266.com/stable/package_esp8266com_index.json Placing the http:// before the URL lets the Arduino IDE use it...otherwise it gives you a protocol error.
4. Go to Tools > Board > Board Manager> Type "esp8266" and download the Community esp8266 and install.
5. Set up your chip as:
   Tools -> Board -> NodeMCU 1.0 (ESP-12E Module)
   Tools -> Flash Size -> 4M (3M SPIFFS)
   Tools -> CPU Frequency -> 80 Mhz
   Tools -> Upload Speed -> 921600
   Tools-->Port--> (whatever it is)

Button and LED wiring



Basic Arduino Programing

Setup:

- Function runs at boot once then falls into loop function
- Good place to setup gpio pins, wifi settings, initialize variables

Loop:

- Function runs repeatedly
- Do the main work of your program here

General arduino programming guide here

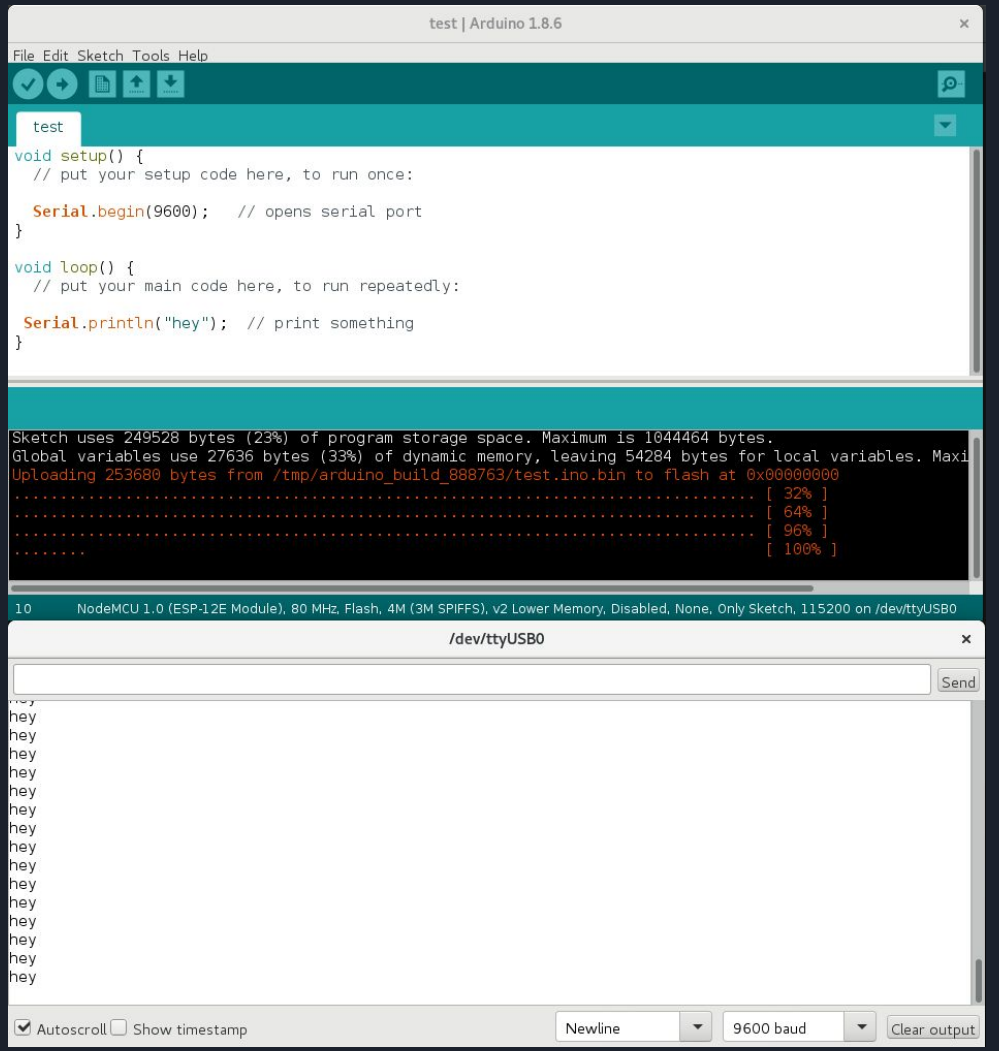
Serial printing

Serial.begin(9600);

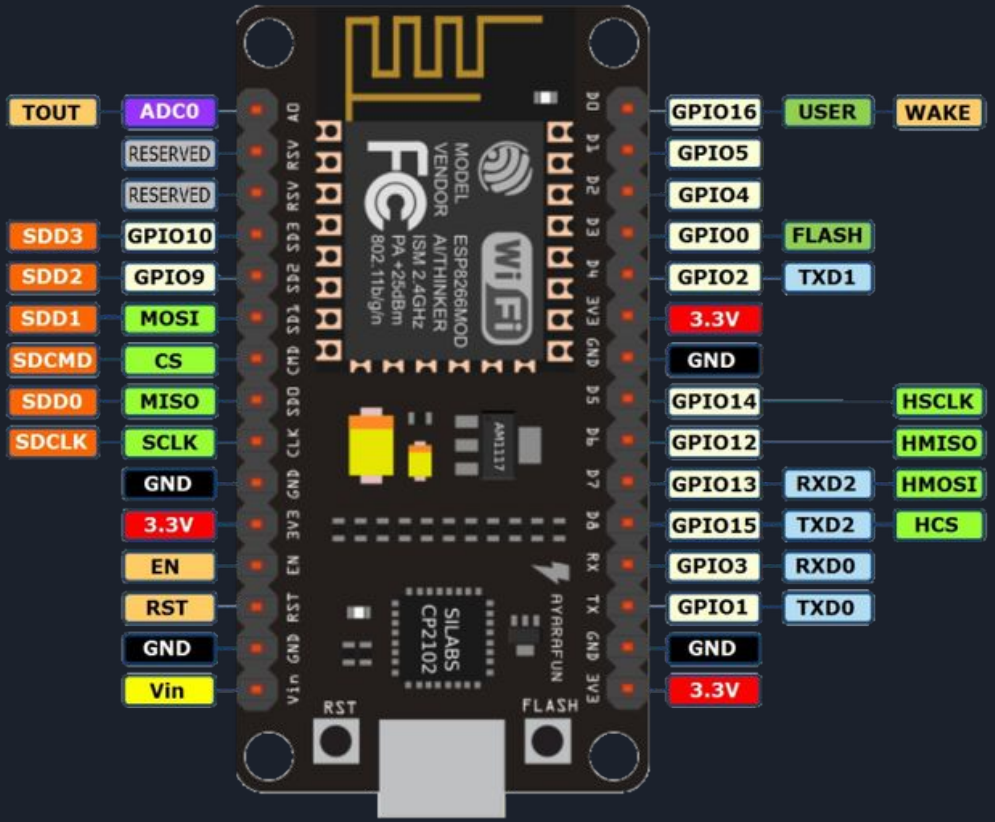
- Setup serial port

Serial.println("hey");

- Print statement just like C



Esp8266 pinout



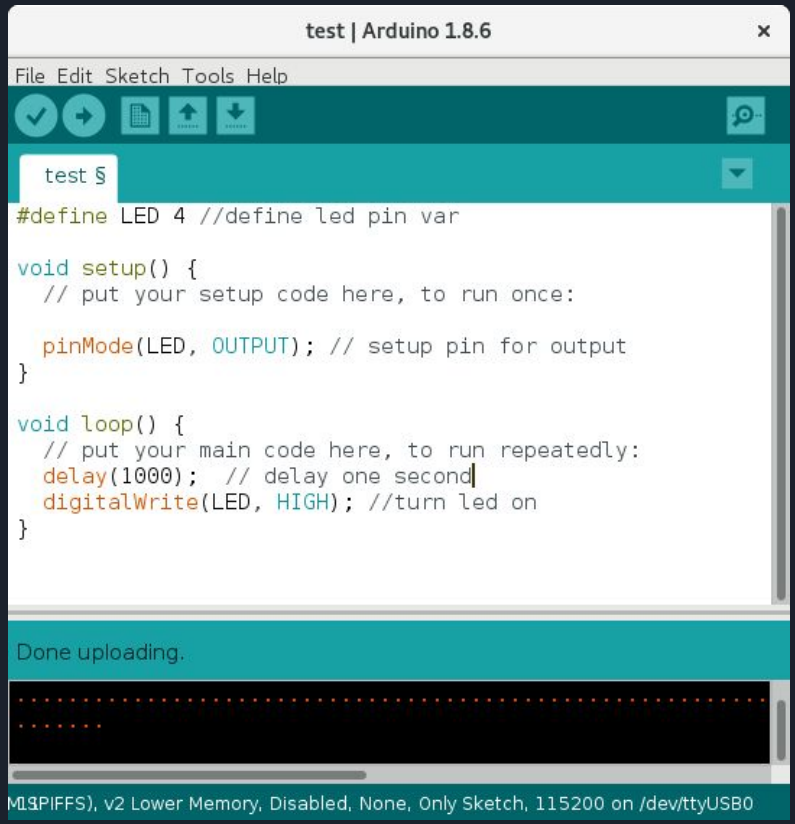
GPIO (General Purpose Input Output)

pinMode(LED, OUTPUT);

- Setup pin as output

digitalWrite(LED, HIGH);

- Set pin to high (on)
- Can also be set to LOW (off)



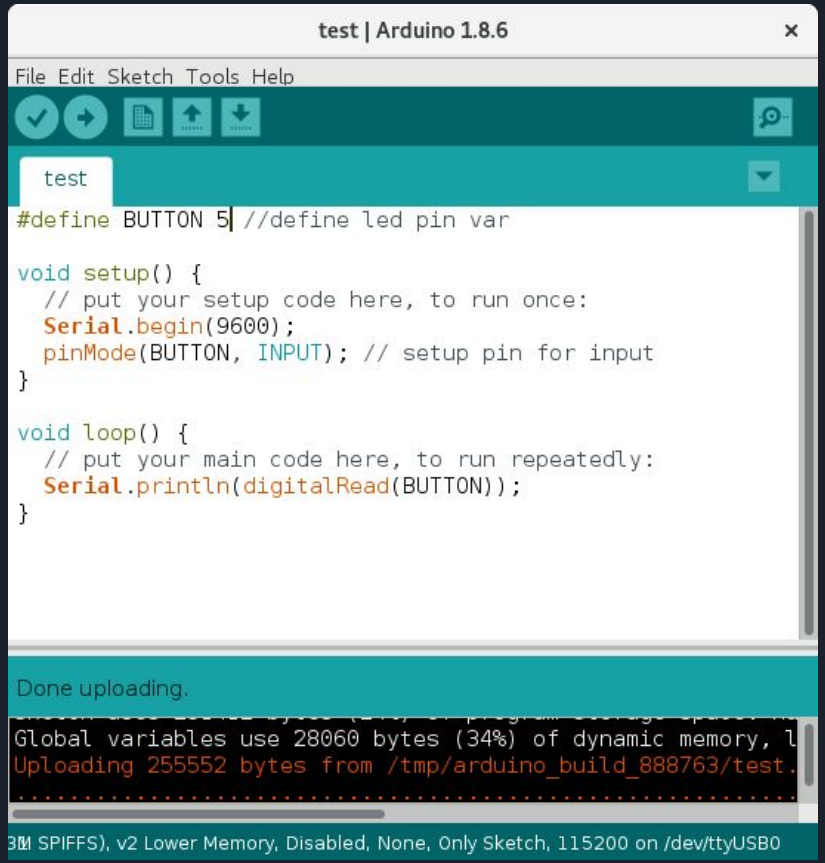
GPIO (General Purpose Input Output)

pinMode(BUTTON, INPUT);

- Set pin as input

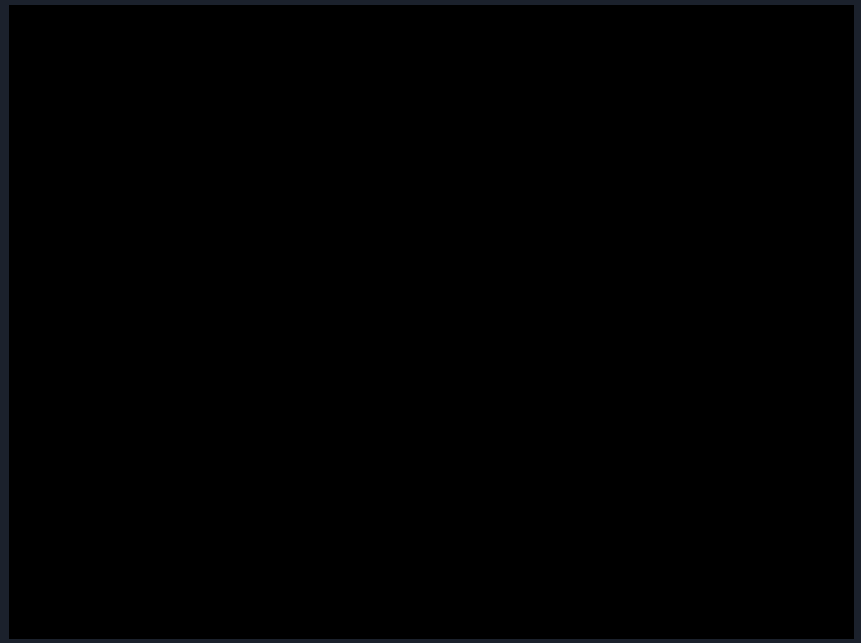
digitalRead(BUTTON);

- Read the value of the pin
- Will equal HIGH or LOW (0/1)



Assignment

- Wire up the button and led
- Create a program that will toggle the state of the led when the button is clicked (each click changes the current state of the led)



- Take a video of yours and send it to me before next class dpivonka@redhat.com