Basic Hardware Control

Overview of basic python commands needed for the exercise

	GPIO = General Purpose Input and Output
`import RPi.GPIO as GPIO`	Add GPIO library
`GPIO.setmode(GPIO.BCM)`	Use BCM port names
`GPIO.setup(5, GPIO.OUT)`	Set port 5 to Output
`GPIO.setup(5, GPIO.IN, pull_up_down = GPIO.PUD_DOWN)`	Set port 5 to input. You can now read the input value. When 3.3 volt is applied value is True else False
`GPIO.output(5, True)`	We use *Pull Down* (PUD_DOWN) when we switching 3.3V. We use Pull Up (PUD_UP) when we switch to ground (GND)
`x = GPIO.input(5)`	Set port 5 “ON” (3.3V) True = ON / False = OFF Read port 5 into variable X
`import time`	Add time library
`time.sleep(5)`	Wait 5 seconds

2.1 Connect traffic light to *breakout board*.

Black = Ground (GND)
Green = Green led
Yellow = Yellow led
Red = Red led

2.2 Write program that will make the yellow light blink. Start with:

```
import RPi.GPIO as GPIO
yellowLed = 5
GPIO.setmode(GPIO.BCM)
GPIO.setup(yellowLed, GPIO.OUT)
```

2.3 Write “normal” traffic sequence

5 seconds green

1 second yellow

5 seconds red

2.4 Connect switch to *breakout board.*

1 cable to 3.3V

1 cable to GPIO port (port start with P and number)

2.5 Write a program that continuously shows the state of the switch

2.6 Modify your traffic light program so that:

- When switch is off, the normal routine runs (Green -> Yellow -> Red)
- When switch is on, the yellow light blinks