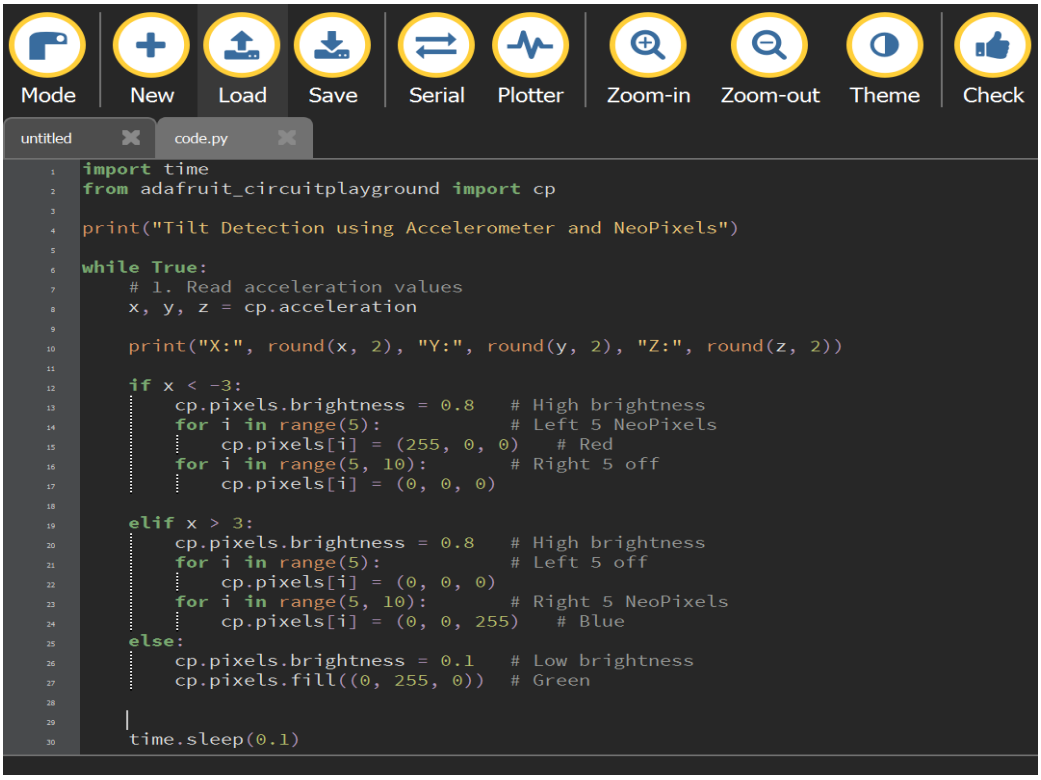
Control NeoPixel Lights using the Tilt of the Circuit Playground Express (CPX) Board

Code:




```python
import time
from adafruit_circuitplayground import cp

print("Tilt Detection using Accelerometer and NeoPixels")

while True:
    # 1. Read acceleration values
    x, y, z = cp.acceleration

    print("X:", round(x, 2), "Y:", round(y, 2), "Z:", round(z, 2))

    if x < -3:
        cp.pixels.brightness = 0.8    # High brightness
        for i in range(5):            # Left 5 NeoPixels
            cp.pixels[i] = (255, 0, 0)    # Red
        for i in range(5, 10):        # Right 5 off
            cp.pixels[i] = (0, 0, 0)

    elif x > 3:
        cp.pixels.brightness = 0.8    # High brightness
        for i in range(5):            # Left 5 off
            cp.pixels[i] = (0, 0, 0)
        for i in range(5, 10):        # Right 5 NeoPixels
            cp.pixels[i] = (0, 0, 255)    # Blue
    else:
        cp.pixels.brightness = 0.1    # Low brightness
        cp.pixels.fill((0, 255, 0))  # Green

    time.sleep(0.1)
```

Step-by-Step Explanation

Step 1: Import libraries
`time` for delays and `cp` for CPX sensors (accelerometer + NeoPixels).

Step 2: Start an infinite loop
The program keeps running, continuously checking the tilt.

Step 3: Read accelerometer values
`x, y, z = cp.acceleration` → reads motion in 3 axes.

Step 4: Print values
Shows the x, y, z readings on the serial monitor to observe how they change when the board tilts.

Step 5: Detect left tilt (`x < -3`)
When the board tilts left, **left 5 NeoPixels** glow **red**, right side turns off.

Step 6: Detect right tilt (`x > 3`)
When the board tilts right, **right 5 NeoPixels** glow **blue**, left side turns off.

Step 7: Detect flat position (`-3 <= x <= 3`)
When the board is flat, **all 10 NeoPixels** glow **green** at lower brightness.

Step 8: Add delay
`time.sleep(0.1)` gives a smooth lighting transition and prevents flicker.

Outcome

- Tilt **left → Red (left half)**
- Tilt **right → Blue (right half)**
- **Flat → Green (all pixels)**