// PROJECT  :RotaryEncoderNanoPlotter

// PURPOSE  :Plots CLK and DT (A and B) as a square wave on the Serial Plotter

// COURSE   :ICS4U

// AUTHOR   :C. D'Arcy

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// MCU      :328P

// STATUS   :Working

// REFERENCE:http://darcy.rsgc.on.ca/ACES/TEI4M/2021/images/RotaryEncoderSquare.png

#define INT0Pin 2         // A

#define INT1Pin 3         // B

volatile uint8\_t pinA;    //not PINA

volatile uint8\_t pinB;    //not PINB

volatile uint8\_t state;

volatile boolean triggered = false;

#define RUNLENGTH 20

void setup() {

  **Serial**.begin(9600);

  while (!**Serial**);

  attachInterrupt(digitalPinToInterrupt(INT0Pin), readEncoderA, CHANGE);

  attachInterrupt(digitalPinToInterrupt(INT1Pin), readEncoderB, CHANGE);

  **Serial**.print("CLK(A):");

  **Serial**.print(',');

  **Serial**.println("DT(B):");

}

void readEncoderA() {

  triggered = true;

  pinA = digitalRead(INT0Pin);

  pinB = digitalRead(INT1Pin);

}

void readEncoderB() {

  triggered = true;

  pinA = digitalRead(INT0Pin);

  pinB = digitalRead(INT1Pin);

}

void loop() {

  if (triggered) {

    displayPlotter();

    triggered = false;

  }

}

void displayPlotter() {

  for (uint8\_t i = 0; i < RUNLENGTH; i++) {

    **Serial**.print(pinA ? 4 : 3);

    **Serial**.print(',');

    **Serial**.println(pinB ? 1 : 0);

  }

}