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const int button1 = 2; //first button is on pin 8
const int button2 = 3; //second is on pin 9
const int button3 = 4; //third is pin 10
const int button4 = 5; //fourth is pin 11
const int button5 = 6; //third is pin 10
const int button6 = 7; //fourth is pin 11
const int LED[] = {14,15,16,17,18,19};
const int Red = 8; //red LED is on pin 4
const int greenLed = 9; //green LED is pin 12
void checkEntered1(int button);
int code[] = {6,5,5,4,3,2}; //the desired code is entered in this array,
//separated by commas
int entered[7]; //create a new empty array for the code entered by
//the user (has 4 elements)
void setup(){ //run once at sketch startup
Serial.begin(9600); //begin Serial
pinMode(button1, INPUT_PULLUP); //button 1 is an input
pinMode(button2, INPUT_PULLUP); //button 2 is an input
pinMode(button3, INPUT_PULLUP); //button 3 is an input
pinMode(button4, INPUT_PULLUP); //button 4 is an input
pinMode(button5, INPUT_PULLUP); //button 3 is an input
pinMode(button6, INPUT_PULLUP); //button 4 is an input
pinMode(Red, OUTPUT); //the red LED is an output
pinMode(greenLed, OUTPUT); // the green LED is an output
// setupLights(); //run the setupLights routine
// setupLights(); //run it again
// delay(650); //delay (only for effect, :P not needed)
digitalWrite(Red, LOW); //turn the red LED on
for (int i = 0; i < 6;i++){ //work through numbers 0-3
Serial.println(code[i]); //print each digit of the code
Serial.println(entered[i]); //print each element of the entered[]
//array (this was for me to check that it //started at 0
pinMode(LED[i],OUTPUT); }
}
void loop(){ //run repeatedly
if (digitalRead(button1) == LOW){ //if button1 is pressed
checkEntered1(1); //call checkEntered and pass it a 1
delay(250); //wait, needed for correct functioning, otherwise //buttons are deemed to be pressed more than once
}
else if (digitalRead(button2) == LOW){ //if button2 is pressed
checkEntered1(2); //call checkEntered1 and pass it a 2
delay(250); //wait
}
else if (digitalRead(button3) == LOW){ //if button3 is pressed
checkEntered1(3); //call checkEntered1 and pass it a 3
delay(250); //wait
}
else if (digitalRead(button4) == LOW){ //if button4 is pressed
checkEntered1(4); //call checkEntered1 and pass it a 4
delay(250); //wait
}
else if (digitalRead(button5) == LOW){ //if button4 is pressed
checkEntered1(5); //call checkEntered1 and pass it a 4
delay(250); //wait
}
else if (digitalRead(button6) == LOW){ //if button4 is pressed
checkEntered1(6); //call checkEntered1 and pass it a 4
delay(250); //wait
}
}
void checkEntered1(int button){ //check the first element of the entered[] array
digitalWrite(LED[button-1],HIGH);
if (entered[0] != 0){ //if it is not a zero, i.e. it has already been inputted
checkEntered2(button); //move on to checkEntered2, passing it "button"
}
else if(entered[0] == 0){ //if it is zero, i.e. if it hasn't been defined with a button yet
entered[0] = button; //set the first element as the button that has been pressed
Serial.print("1: ");
Serial.println(entered[0]); //for debugging
}
}
void checkEntered2(int button){ //check the second element of the entered[] array
digitalWrite(LED[button-1],HIGH);
if (entered[1] != 0){ //if it is not a zero, i.e. it has already been inputted
checkEntered3(button); //move on to checkEntered3, passing it "button"
}
else if(entered[1] == 0){ //if it is zero, i.e. if it hasn't been defined with a button yet
entered[1] = button; //set the second element as the button that has been pressed
Serial.print("2: ");
Serial.println(entered[1]); //for debugging
}
}
void checkEntered3(int button){ //check the third element of the entered[] array
digitalWrite(LED[button-1],HIGH);
if (entered[2] != 0){ //if it is not a zero, i.e. it has already been inputted
checkEntered4(button); //move on to checkEntered4, passing it "button"
}
else if (entered[2] == 0){ //if it is zero, i.e. if it hasn't been defined with a button yet
entered[2] = button; //set the third element as the button that has been pressed
Serial.print("3: ");
Serial.println(entered[2]); //for debugging
}
}
void checkEntered4(int button){ //check the third element of the entered[] array
digitalWrite(LED[button-1],HIGH);
if (entered[3] != 0){ //if it is not a zero, i.e. it has already been inputted
checkEntered5(button); //move on to checkEntered4, passing it "button"
}
else if (entered[3] == 0){ //if it is zero, i.e. if it hasn't been

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defined with a button yet entered[3] = button; //set the third element as the button
that has been pressed Serial.print("4: ");Serial.println(entered[3]); //for debugging
} }void checkEntered5(int button){ //check the third element of the entered[] array
digitalWrite(LED[button-1],HIGH); if (entered[4] != 0){ //if it is not a zero, i.e. it
has already been inputted checkEntered6(button); //move on to checkEntered4, passing
it "button" } else if (entered[4] == 0){ //if it is zero, i.e. if it hasn't been
defined with a button yet entered[4] = button; //set the third element as the button
that has been pressed Serial.print("5: ");Serial.println(entered[4]); //for debugging
} }void checkEntered6(int button){ //check the fourth element of the entered[] array
digitalWrite(LED[button-1],HIGH); if (entered[5] == 0){ //if it is zero, i.e. if it
hasn't been defined with a button yet entered[5] = button; //set the final element as
the button that has been pressed Serial.print("6: ");Serial.println(entered[5]); //for
debugging delay(100); //allow time for processing compareCode(); //call the
compareCode function }}void compareCode(){ //checks if the code entered is correct by
comparing the code[] array with the entered[] array for (int i = 0; i<6;i++){ //these
three lines are for debugging Serial.println(entered[i]); } if
((entered[0]==code[0]) && (entered[1]==code[1]) && (entered[2]==code[2]) &&
(entered[3]==code[3]) && (entered[4]==code[4])&& (entered[5]==code[5])){ //if all the
elements of each array are equal digitalWrite(Red, LOW); // turn the red LED off
digitalWrite(greenLed, HIGH); //turn the green LED on delay(1000); //wait for a bit
digitalWrite(greenLed, LOW); //turn the green LED off for (int i = 0; i < 7; i++){
//this next loop is for debugging entered[i] = 0; } loop(); //return
to loop() (not really necessary) } else { //if you (or the intruder) get the code
wrong digitalWrite(Red,HIGH); delay(1000); digitalWrite(Red,LOW);
Serial.println("Red OFF"); for (int i = 0; i < 7; i++){ //this next loop is for
debugging entered[i] = 0; } } close_all();}void
close_all(){digitalWrite(LED[0],LOW);digitalWrite(LED[1],LOW);digitalWrite(LED[2],LOW);di
gitalWrite(LED[3],LOW);digitalWrite(LED[4],LOW);digitalWrite(LED[5],LOW);}st button is on
pin 8const int button2 = 3; //second is on pin 9const int button3 = 4; //third is pin
10const int button4 = 5; //fourth is pin 11const int button5 = 6; //third is pin 10const
int button6 = 7; //fourth is pin 11const int LED[] = {14,15,16,17,18,19};const int Red =
8; //red LED is on pin 4const int greenLed = 9; //green LED is pin 12void
checkEntered1(int button);int code[] = {6,5,5,4,3,2}; //the desired code is entered in
this array, //separated by commasint entered[7]; //create a new
empty array for the code entered by //the user (has 4 elements)void
setup(){ //run once at sketch startup Serial.begin(9600); //begin Serial
pinMode(button1, INPUT_PULLUP); //button 1 is an input pinMode(button2, INPUT_PULLUP);
//button 2 is an input pinMode(button3, INPUT_PULLUP); //button 3 is an input
pinMode(button4, INPUT_PULLUP); //button 4 is an input pinMode(button5, INPUT_PULLUP);
//button 3 is an input pinMode(button6, INPUT_PULLUP); //button 4 is an input
pinMode(Red, OUTPUT); //the red LED is an output pinMode(greenLed, OUTPUT); // the green
LED is an output// setupLights(); //run the setupLights routine// setupLights(); //run
it again // delay(650); //delay (only for effect, :P not needed) digitalWrite(Red, LOW);
//turn the red LED on for (int i = 0; i < 6;i++){ //work through numbers 0-3
Serial.println(code[i]); //print each digit of the code Serial.println(entered[i]);
//print each element of the entered[] //array (this was
for me to check that it //started at 0
pinMode(LED[i],OUTPUT); }}void loop(){ //run repeatedly if (digitalRead(button1) ==
LOW){ //if button1 is pressed checkEntered1(1); //call checkEntered and pass it a 1
delay(250); //wait, needed for correct functioning, otherwise //buttons are
deemed to be pressed more than once } else if (digitalRead(button2) == LOW){ //if
button2 is pressed checkEntered1(2); //call checkEntered1 and pass it a 2
delay(250); //wait } else if (digitalRead(button3) == LOW){ //if button3 is pressed
checkEntered1(3); //call checkEntered1 and pass it a 3 delay(250); //wait }

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else if (digitalRead(button4) == LOW){ //if button4 is pressed    checkEntered1(4);
//call checkEntered1 and pass it a 4    delay(250); //wait    } else if
(digitalRead(button5) == LOW){ //if button4 is pressed    checkEntered1(5); //call
checkEntered1 and pass it a 4    delay(250); //wait    } else if
(digitalRead(button6) == LOW){ //if button4 is pressed    checkEntered1(6); //call
checkEntered1 and pass it a 4    delay(250); //wait    } }void checkEntered1(int
button){ //check the first element of the entered[] array    digitalWrite(LED[button-
1],HIGH);    if (entered[0] != 0){ //if it is not a zero, i.e. it has already been inputted
checkEntered2(button); //move on to checkEntered2, passing it "button"    } else
if(entered[0] == 0){ //if it is zero, i.e. if it hasn't been defined with a button yet
entered[0] = button; //set the first element as the button that has been pressed
Serial.print("1: ");Serial.println(entered[0]); //for debugging    } }void
checkEntered2(int button){ //check the second element of the entered[] array
digitalWrite(LED[button-1],HIGH);    if (entered[1] != 0){ //if it is not a zero, i.e. it
has already been inputted    checkEntered3(button); //move on to checkEntered3, passing
it "button"    } else if(entered[1] == 0){ //if it is zero, i.e. if it hasn't been
defined with a button yet    entered[1] = button; //set the second element as the button
that has been pressed    Serial.print("2: ");Serial.println(entered[1]); //for debugging
    } }void checkEntered3(int button){ //check the third element of the entered[] array
digitalWrite(LED[button-1],HIGH);    if (entered[2] != 0){ //if it is not a zero, i.e. it
has already been inputted    checkEntered4(button); //move on to checkEntered4, passing
it "button"    } else if (entered[2] == 0){ //if it is zero, i.e. if it hasn't been
defined with a button yet    entered[2] = button; //set the third element as the button
that has been pressed    Serial.print("3: ");Serial.println(entered[2]); //for debugging
    } }void checkEntered4(int button){ //check the third element of the entered[] array
digitalWrite(LED[button-1],HIGH);    if (entered[3] != 0){ //if it is not a zero, i.e. it
has already been inputted    checkEntered5(button); //move on to checkEntered4, passing
it "button"    } else if (entered[3] == 0){ //if it is zero, i.e. if it hasn't been
defined with a button yet    entered[3] = button; //set the third element as the button
that has been pressed    Serial.print("4: ");Serial.println(entered[3]); //for debugging
    } }void checkEntered5(int button){ //check the third element of the entered[] array
digitalWrite(LED[button-1],HIGH);    if (entered[4] != 0){ //if it is not a zero, i.e. it
has already been inputted    checkEntered6(button); //move on to checkEntered4, passing
it "button"    } else if (entered[4] == 0){ //if it is zero, i.e. if it hasn't been
defined with a button yet    entered[4] = button; //set the third element as the button
that has been pressed    Serial.print("5: ");Serial.println(entered[4]); //for debugging
    } }void checkEntered6(int button){ //check the fourth element of the entered[] array
digitalWrite(LED[button-1],HIGH);    if (entered[5] == 0){ //if it is zero, i.e. if it
hasn't been defined with a button yet    entered[5] = button; //set the final element as
the button that has been pressed    Serial.print("6: ");Serial.println(entered[5]); //for
debugging    delay(100); //allow time for processing    compareCode(); //call the
compareCode function    } }void compareCode(){ //checks if the code entered is correct by
comparing the code[] array with the entered[] array    for (int i = 0; i<6;i++){ //these
three lines are for debugging    Serial.println(entered[i]);    } if
((entered[0]==code[0]) && (entered[1]==code[1]) && (entered[2]==code[2]) &&
(entered[3]==code[3]) && (entered[4]==code[4])&& (entered[5]==code[5])){ //if all the
elements of each array are equal    digitalWrite(Red, LOW); // turn the red LED off
digitalWrite(greenLed, HIGH); //turn the green LED on    delay(1000); //wait for a bit
digitalWrite(greenLed, LOW); //turn the green LED off    for (int i = 0; i < 7; i++){
//this next loop is for debugging    entered[i] = 0;    }    loop(); //return
to loop() (not really necessary)    } else { //if you (or the intruder) get the code
wrong    digitalWrite(Red,HIGH);    delay(1000);    digitalWrite(Red,LOW);
Serial.println("Red OFF");    for (int i = 0; i < 7; i++){ //this next loop is for
debugging    entered[i] = 0;    }    } }void

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