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ECE 375

Lab 2 Prelab

1. When wanting to configure Port B so that all 8 of its pins are configured as outputs, I/O register **PORTB (the data register for Port B)** should be used to make to make this configuration, and the 8-bit binary value that muse be written to configure all 8 pins as outputs is **11111111**.

2. Suppose all 8 of Port D's pins have been configured as inputs, I/O register **PIND (the register that input pins for Port D)** must be used to read the current state of Port D's pins.

3. The function of a PORTx register **does** differ depending on the setting of its corresponding DDRx register. **When a 1 is written to the DDRx register, the tri-state buffer is enabled causing any value written to a PORTx register to appear on the pin. But when 0 is written to the DDRx register, the tri-state buffer is disabled allowing any signal on the pin to be latched onto a PINx register, causing the function of a PORTx register not being in use at that time.**

Notes: (from lab 2 description and textbook)

- 7 General-Purpose I/O Ports: Port A through Port G

- Each Port, 3 I/O Registers:
  PORTx (Data Register), DDRx (Data Direction Register), and PINx (Input Pins)

    - PORTx: Output data onto the port pins

    - PINx: Input data from the port pins (read-only)

    - DDRx: Control lines function as input or output, since I/O pin be read from or written to

- 0 written to DDRxn disables tri-state buffer:
  Allowing any signal on pin be latched onto PINxn

- 1 written to DDRxn enables tri-state buffer:
  Causes any value written to PORTxn to appear on the pin