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## Arduino Piano Game

### Objective:

Create a simple interactive **piano** using an Arduino, where pressing buttons plays musical notes, and can optionally be turned into a **game** by matching tones.

### Components Required:

- Arduino Uno
- Piezo buzzer or speaker
- Push buttons (4–8 or more)
- Resistors for buttons (pull-down or pull-up)
- Breadboard & jumper wires

### Circuit Overview:

- Each **push button** is connected to a digital pin and represents a **different note** (like C, D, E, F...).
- A **piezo buzzer** is connected to a PWM pin to generate tones.
- Optional: Add LEDs to blink with each note or show correct/wrong input in game mode.

### Working Principle:

- When a button is pressed, the Arduino generates a specific **frequency** to play a corresponding note.
- The **game version** may play a melody first, and the player must repeat it by pressing the correct buttons.
- It can include **score tracking** or **levels** using logic and arrays.

### Use Cases:

- Fun musical toy
- Learn sound generation and button inputs
- Simple memory game project for beginners

### Extensions:

- Add an LCD screen to show notes or scores
  - Use capacitive touch instead of buttons
  - Make a 1-octave full piano keyboard!
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