```
int speakerID = 3;
int ledIDs[] = {8, 9, 10, 11};
int buttonIDs[] = {4, 5, 6, 7};
int frequencies[] = {220, 440, 660, 880};
int presses[3000];

int index = 0;
int buttonTrigger = 0;

void setup() {
  Serial.begin(9600);
  for (int i = 0; i < 4; i++) {
      pinMode(ledIDs[i], OUTPUT);
      pinMode(buttonIDs[i], INPUT);
      i++;
  }
}


void loop() {
  Serial.println("Loop started!");
  int repeat = 0;

  // repeat the sequence up until current index
  while (repeat < index) {
    Serial.print("Repeat index number ");
    Serial.println(repeat);
    digitalWrite(ledIDs[presses[repeat]], HIGH);
    tone(speakerID, frequencies[presses[repeat]]);
    delay(500);
    noTone(speakerID);
    digitalWrite(ledIDs[presses[repeat]], LOW);
    repeat++;
  }

  // now allow the user to input the next button
  buttonTrigger = waitButtonID();
  digitalWrite(ledIDs[buttonTrigger], HIGH);
  tone(speakerID, frequencies[buttonTrigger]);
  delay(750);
  noTone(speakerID);
  digitalWrite(ledIDs[buttonTrigger], LOW);
  presses[index] = buttonTrigger;
  Serial.print("Saved button press at ID number ");
  Serial.print(buttonTrigger+4);
  Serial.print(" at array index ");
  Serial.println(repeat);
  index++;
}


// waits for button press and returns the ID of the button which was pressed
int waitButtonID() {
  while(true)
      for (int id = 0; id < 4; id++)
```

```
            if (digitalRead(buttonIDs[id]))
                return id;
    }
```