```
int speakerID = 3;
int ledIDs[] = {8, 9, 10, 11};
int buttonIDs[] = {4, 5, 6, 7};
int frequencies[] = {220, 440, 660, 880};
int presses[25];

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();

  // and enable the corresponding LED + correct sound
  digitalWrite(ledIDs[buttonTrigger], HIGH);
  tone(speakerID, frequencies[buttonTrigger]);
  delay(750);
  noTone(speakerID);
  digitalWrite(ledIDs[buttonTrigger], LOW);


  // this is an easy to implement way to achieve this behaviour, but very inefficient!
  // I chose this solution because it does not matter for problem sizes like this
  if (index < 24){
      presses[index] = buttonTrigger;
      Serial.print("Saved button press at ID number ");
      Serial.print(buttonTrigger+4);
      Serial.print(" at array index ");
      Serial.println(repeat);
      index++;
```

```
  }else{
      // move all entries one to the left to overwrite the entry that was 25 iterations
      for (int i = 0; i < 23; i++){
          presses[i] = presses[i+1];
      }
      presses[index] = buttonTrigger;
      Serial.print("Saved button press at ID number ");
      Serial.print(buttonTrigger+4);
      Serial.println("and removed the entry 25 iterations ago!");
  }
}


// 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;
}
```