Android API Walkthrough
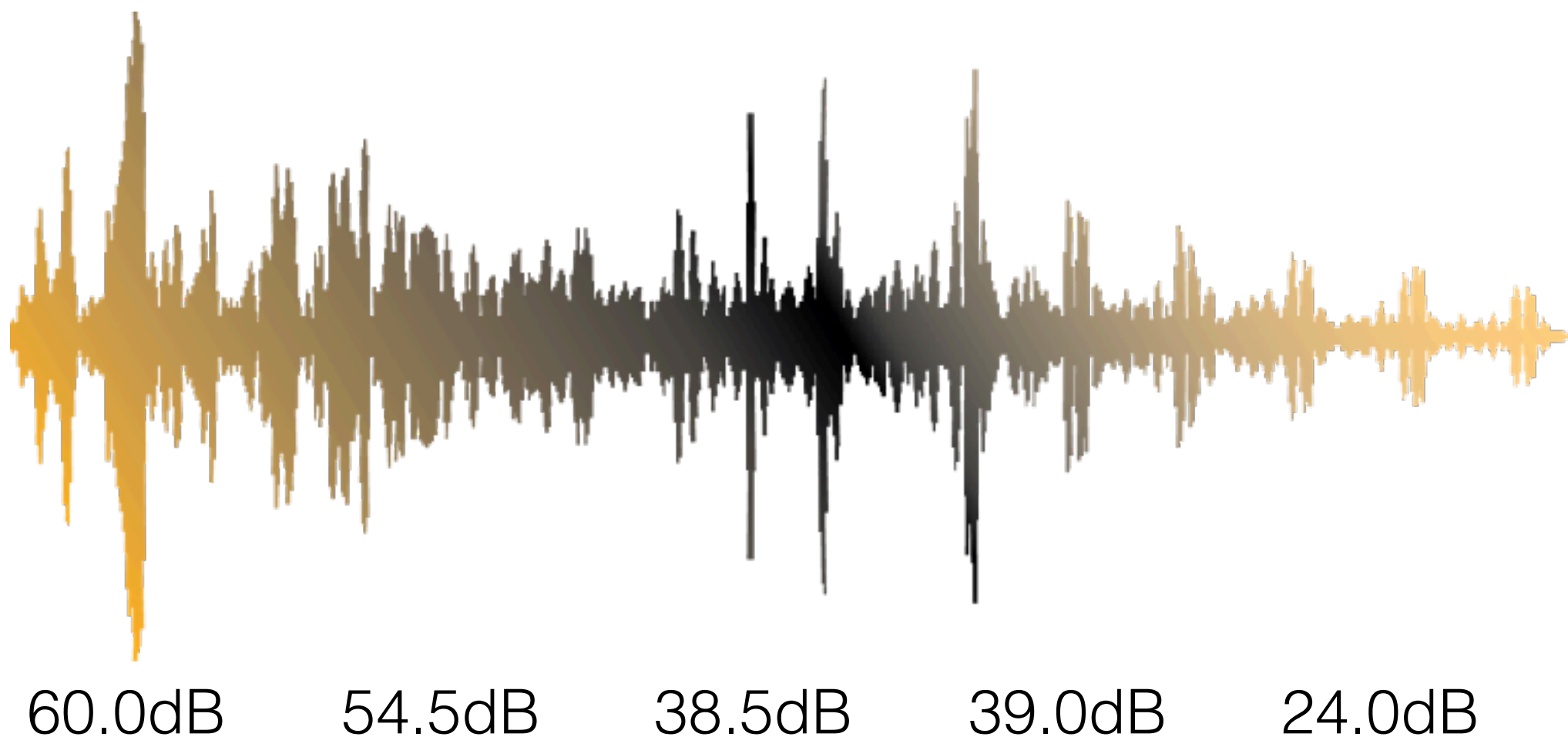
Running Example

Suppose developing a sleep monitor. The task is to get audio loudness every 10 minutes.

60.0dB   54.5dB   38.5dB   39.0dB   24.0dB

Android Permissions

- To record audio, you will need RECORD_AUDIO permission.

```
In AndroidManifest.xml:
<uses-permission android:name="android.permission.RECORD_AUDIO" />
```

- Handle runtime permission.

```java
if (ContextCompat.checkSelfPermission(this.context, Manifest.permission.RECORD_AUDIO)
        != PackageManager.PERMISSION_GRANTED) {
    Log.d("Task0", "Permission denied.");
    // TODO Bonus: request permission at runtime.
    return;
}
```

Initializing AndroidRecord

```java
int sampleRate = 8000;
int bufferSize = AudioRecord.getMinBufferSize(sampleRate, AudioFormat.CHANNEL_IN_DEFAULT,
        AudioFormat.ENCODING_PCM_16BIT);
AudioRecord audioRecord = new AudioRecord(MediaRecorder.AudioSource.MIC, sampleRate,
        AudioFormat.CHANNEL_IN_DEFAULT, AudioFormat.ENCODING_PCM_16BIT, bufferSize);

while (true) {
    // Record audio for a duration, save the audio data to a buffer
    // Calculate loudness based on the audio record

    try {
        Thread.sleep(INTERVAL);
    } catch (InterruptedException e) {
        e.printStackTrace();
    }
}
```

Other types of data

- Location: LocationManager

- Contact: ContentProvider, ContentResolver, …

- Incoming SMS: Intent, BroadcastReceiver, …

- Motion: SensorManager

- …

Android Resources

- Android Developers: https://developer.android.com/

- StackOverflow: https://stackoverflow.com/

- Google: https://www.google.com/