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Firebase Realtime Database CRUD Operation for Android

February 28, 2017 by [Belal Khan](#) — [18 Comments](#)

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Hey guys here is the complete **Firebase Realtime Database** guide. Now days NoSQL databases are gaining popularity and **Firebase Realtime Database** is one of the NoSQL database.

In this tutorial we will learn modeling SQL tables to NoSQL Firebase Database. And then we will also learn the basic CRUD operation on the database (**Create, Read, Update and Delete**).

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Firebase Realtime Database Video Tutorial

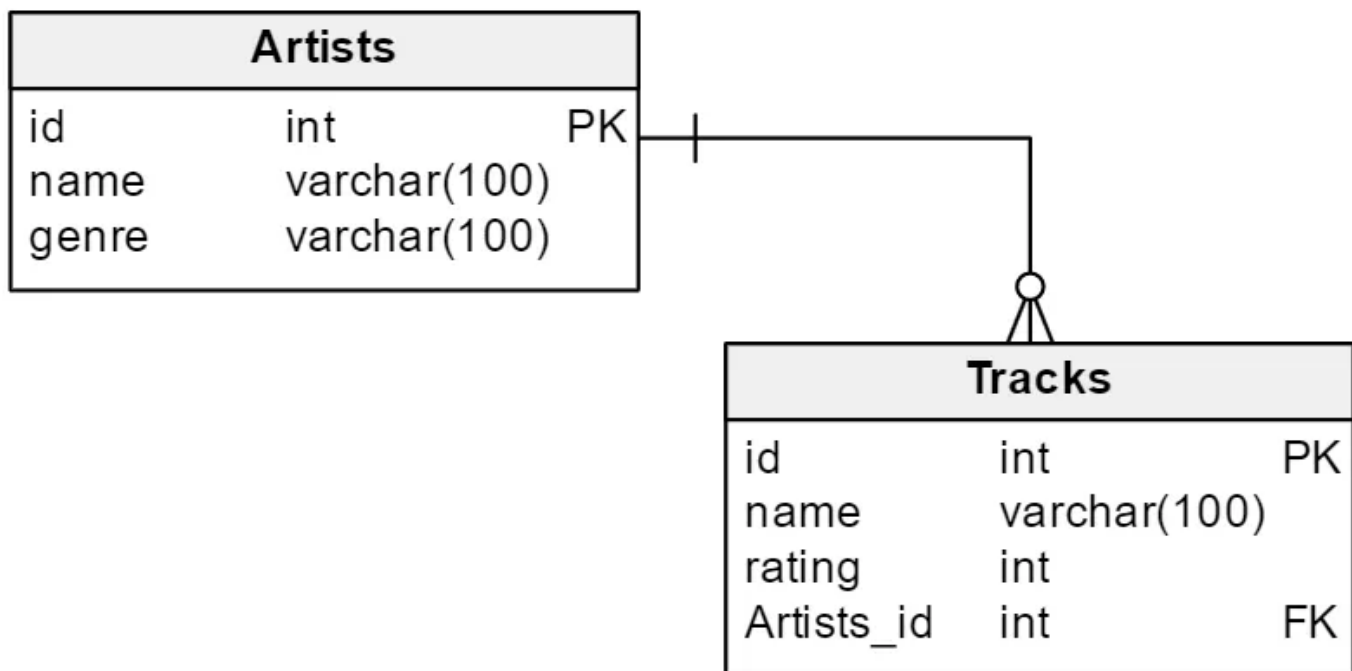
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Firestore Realtime Database Tutorial for Android - Saving Data #1



Designing Database

- For this example I have following two tables.



- But firebase is not an SQL database and it does not stores data in tabular format. It uses JSON tree structure. So for firebase realtime database the structure for above database will be.

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```
        "genre": "Rock",
    },
    "artist_id_2": {
        "name": "Arijit Singh",
        "genre": "Rock"
    }
},

"Tracks": {
    "artist_id_1": {
        "track_id_1": {
            "name": "Taj dar e haram",
            "rating": 5
        }
    }
}
```



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- I hope you got a clear understanding of the Firebase Realtime Database structure now. So lets jump into Android Studio.

Firestore Database Basics

- You have the database structure now you need to know the basic operations. So lets understand the steps of handling firestore database.

Getting Database Reference

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```
FirebaseDatabase.getInstance().getReference("path"); //Dont pass any path if you want root of the tree
```

- The data is stored in the JSON Tree form so you need to get the reference of an specified path. Like in the above database we can get all the Artists by passing “Artists”. If you want to access everything don’t pass anything and it will create a reference of the root of the tree.

Write Operation

- **setValue()** – This method will take a model java class object that will hold all the variables to be stored in the reference. The same method will be used to update the values at it overwrites the data of the specified reference.
- Suppose we have to store an Artist to our reference then we will create a model class as below.

```
Java
1 @IgnoreExtraProperties
2 public class Artist {
3     private String artistId;
4     private String artistName;
5     private String artistGenre;
6
7     public Artist(){
8
9     }
10
11     public Artist(String artistId, String artistName, String artistGenre) {
12         this.artistId = artistId;
13         this.artistName = artistName;
14         this.artistGenre = artistGenre;
15     }
16
17     public String getArtistId() {
18         return artistId;
19     }
20
21     public String getArtistName() {
22         return artistName;
23     }
24
25     public String getArtistGenre() {
26         return artistGenre;
27     }
28 }
```

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- The update operation will also be done in the same way.

Read Operation

- We will attach a **ValueEventListener** to the reference to read the data.

```
Java
1  databaseReference.addValueEventListener(new ValueEventListener() {
2      @Override
3      public void onDataChange(DataSnapshot dataSnapshot) {
4
5      }
6
7      @Override
8      public void onCancelled(DatabaseError databaseError) {
9
10     }
11 });
```

- Whenever you will change something in the Database the method **onDataChange()** will be executed. It contains all the data inside the specified path in the reference. We can use the **DataSnapshot** object to read all the data inside the reference. If some error occurs **onCancelled()** method will be called.
- **onDataChange()** method will also called once after the app launch and hence you can read the data at starting as well.

Delete Operation

- **removeValue()** can be used to delete the data.
- Now lets understand the operations in an Android Project.

Firebase Realtime Database Project

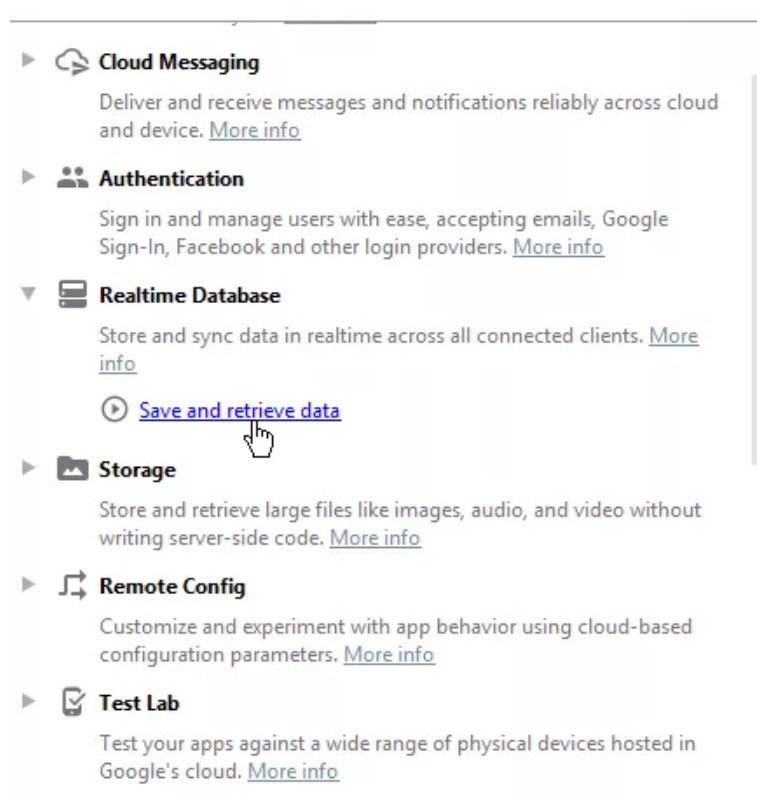
Creating Android Studio Project

- Open Android Studio and create a new project. In my case I have created **FirebaseDatabaseExample**.
- Now once your project is loaded completely, add Firebase Database in it.

Adding Firebase Database

- Go to **tools -> Firebase**, it will open an assistant. Now from the assistant go to Realtime Database.

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- Connect to your Firebase Project and Setup the dependencies.

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remains available when your app goes offline. Data is stored in a JSON tree structure rather than a table, eliminating the need for complex SQL queries.

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1 Connect your app to Firebase

 Connected

2 Add the Realtime Database to your app

 Dependencies set up correctly

3 Configure Firebase Database Rules

The Realtime Database provides a declarative rules language that allows you to define how your data should be structured, how it should be indexed, and when your data can be read from and written to. By default, read and write access to your database is restricted so only authenticated users can read or write data. To get started without setting up [Authentication](#), you can [configure your rules for public access](#). This does make your database open to anyone, even people not using your app, so be sure to restrict your database again when you set up authentication.

4 Write to your database

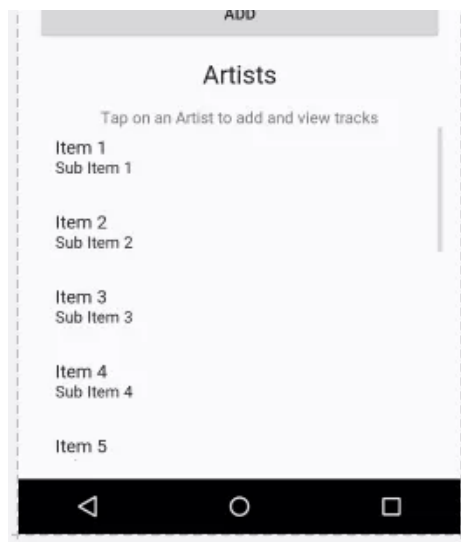
Retrieve an instance of your database using `getInstance()` and reference the location you want to write to.

- Now you are ready to use Firebase Database in your project.

Creating Activity Layouts

- We need two activities. One is to add **Artists** and other one is to add **Tracks** to database. We will use **MainActivity.java** and **activity_main.xml** for Artists. But you need to create one more activity for Tracks. So I have created **ArtistActivity** and **activity_artist.xml**.
- Now first come inside **activity_main.xml**. Here we will create the following layout.

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- As you can see the layout contains the following thing.
EditText: Here we will enter the name.
Spinner: Here we will give some genres so that we can select one of them.
Button: To save the new artist in Firebase.
ListView: To display all the saved artist from Firebase.
- For creating this layout you can use the following xml code.

activity_main.xml

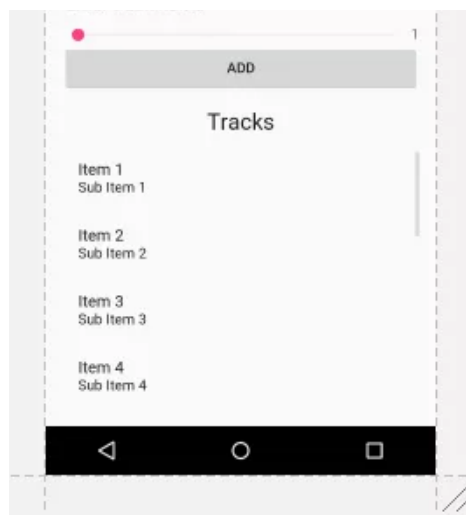
```
1 <?xml version="1.0" encoding="utf-8"?>
2 <RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
3     xmlns:tools="http://schemas.android.com/tools"
4     android:id="@+id/activity_main"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent"
7     android:paddingBottom="@dimen/activity_vertical_margin"
8     android:paddingLeft="@dimen/activity_horizontal_margin"
9     android:paddingRight="@dimen/activity_horizontal_margin"
10    android:paddingTop="@dimen/activity_vertical_margin"
11    tools:context="net.simplifiedcoding.firebaseioexample.MainActivity">
12
13
14    <EditText
15        android:id="@+id/editTextName"
16        android:layout_width="match_parent"
17        android:layout_height="wrap_content"
18        android:hint="Enter name" />
19
20    <Spinner
```


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```
27 <Button
28     android:id="@+id/buttonAddArtist"
29     android:layout_width="match_parent"
30     android:layout_height="wrap_content"
31     android:layout_below="@id/spinnerGenres"
32     android:text="Add" />
33
34 <TextView
35     android:id="@+id/textView"
36     android:layout_width="match_parent"
37     android:layout_height="wrap_content"
38     android:layout_below="@id/buttonAddArtist"
39     android:padding="@dimen/activity_horizontal_margin"
40     android:text="Artists"
41     android:textAlignment="center"
42     android:textAppearance="@style/Base.TextAppearance.AppCompat.Large" />
43
44 <TextView
45     android:id="@+id/textView1"
46     android:layout_width="match_parent"
47     android:layout_height="wrap_content"
48     android:layout_below="@id/textView"
49     android:text="Tap on an Artist to add and view tracks"
50     android:textAlignment="center" />
51
52 <ListView
53     android:id="@+id/listViewArtists"
54     android:layout_width="match_parent"
55     android:layout_height="wrap_content"
56     android:layout_below="@+id/textView1"></ListView>
57
58 </RelativeLayout>
```

- For **ArtistsActivity** we will create almost the same layout with little changes. So this activity will be like.

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- For this activity you can again use the following xml.

activity_artist.xml

```

1  <?xml version="1.0" encoding="utf-8"?>
2  <RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
3      xmlns:tools="http://schemas.android.com/tools"
4      android:id="@+id/activity_artist"
5      android:layout_width="match_parent"
6      android:layout_height="match_parent"
7      android:paddingBottom="@dimen/activity_vertical_margin"
8      android:paddingLeft="@dimen/activity_horizontal_margin"
9      android:paddingRight="@dimen/activity_horizontal_margin"
10     android:paddingTop="@dimen/activity_vertical_margin"
11     tools:context="net.simplifiedcoding.firebaseioexample.ArtistActivity">
12
13     <TextView
14         android:id="@+id/textViewArtist"
15         android:padding="@dimen/activity_horizontal_margin"
16         android:textAlignment="center"
17         android:textAppearance="@style/Base.TextAppearance.AppCompat.Large"
18         android:textStyle="bold"
19         android:layout_width="match_parent"
20         android:layout_height="wrap_content" />
21
22     <EditText
23         android:layout_below="@id/textViewArtist"
24         android:id="@+id/editTextName"
25         android:layout_width="match_parent"
26         android:layout_height="wrap_content"
27         android:hint="Enter track name" />

```

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```
34         android:layout_below="@id/editTextName">
35
36         <SeekBar
37             android:layout_weight="1"
38             android:id="@+id/seekBarRating"
39             android:layout_width="match_parent"
40             android:layout_height="wrap_content"
41             android:max="5"></SeekBar>
42
43         <TextView
44             android:text="1"
45             android:id="@+id/textViewRating"
46             android:layout_width="wrap_content"
47             android:layout_height="wrap_content" />
48
49     </LinearLayout>
50
51
52     <Button
53         android:id="@+id/buttonAddTrack"
54         android:layout_width="match_parent"
55         android:layout_height="wrap_content"
56         android:layout_below="@id/linearLayout"
57         android:text="Add" />
58
59     <TextView
60         android:id="@+id/textView"
61         android:layout_width="match_parent"
62         android:layout_height="wrap_content"
63         android:layout_below="@id/buttonAddTrack"
64         android:padding="@dimen/activity_horizontal_margin"
65         android:text="Tracks"
66         android:textAlignment="center"
67         android:textAppearance="@style/Base.TextAppearance.AppCompat.Large" />
68
69     <ListView
70         android:id="@+id/listViewTracks"
71         android:layout_width="match_parent"
72         android:layout_height="wrap_content"
73         android:layout_below="@+id/textView"></ListView>
74
75 </RelativeLayout>
```

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- Create a java class named **Artist** and write the following code.

```
1 package net.simplifiedcoding.firbasedatabaseexample;
2
3 import com.google.firebase.database.IgnoreExtraProperties;
4
5 /**
6  * Created by Belal on 2/26/2017.
7  */
8 @IgnoreExtraProperties
9 public class Artist {
10     private String artistId;
11     private String artistName;
12     private String artistGenre;
13
14     public Artist(){
15         //this constructor is required
16     }
17
18     public Artist(String artistId, String artistName, String artistGenre) {
19         this.artistId = artistId;
20         this.artistName = artistName;
21         this.artistGenre = artistGenre;
22     }
23
24     public String getArtistId() {
25         return artistId;
26     }
27
28     public String getArtistName() {
29         return artistName;
30     }
31
32     public String getArtistGenre() {
33         return artistGenre;
34     }
35 }
```

- Now again create one more class named **Track** and write the following code.

Track.java

Java

```
1 package net.simplifiedcoding.firbasedatabaseexample;
2
```

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```
9 public class Track {
10     private String id;
11     private String trackName;
12     private int rating;
13
14     public Track() {
15
16     }
17
18     public Track(String id, String trackName, int rating) {
19         this.trackName = trackName;
20         this.rating = rating;
21         this.id = id;
22     }
23
24     public String getTrackName() {
25         return trackName;
26     }
27
28     public int getRating() {
29         return rating;
30     }
31 }
```

- Now lets save an artist to the database.

Saving an Artist

- Come inside **MainActivity.java** and write the following code.

MainActivity.java

Java

```
package net.simplifiedcoding.firbasedatabaseexample;

import android.content.Intent;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.text.TextUtils;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ListView;
import android.widget.Spinner;
```

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```
import com.google.firebase.database.ValueEventListener;

import java.util.ArrayList;
import java.util.List;

public class MainActivity extends AppCompatActivity {

    //we will use these constants later to pass the artist name and id to another activity
    public static final String ARTIST_NAME = "net.simplifiedcoding.firedatabaseexample.artistname";
    public static final String ARTIST_ID = "net.simplifiedcoding.firedatabaseexample.artistid";

    //view objects
    EditText editTextName;
    Spinner spinnerGenre;
    Button buttonAddArtist;
    ListView listViewArtists;

    //a list to store all the artist from firebase database
    List<Artist> artists;

    //our database reference object
    DatabaseReference databaseArtists;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        //getting the reference of artists node
        databaseArtists = FirebaseDatabase.getInstance().getReference("artists");

        //getting views
        editTextName = (EditText) findViewById(R.id.editTextName);
        spinnerGenre = (Spinner) findViewById(R.id.spinnerGenres);
        listViewArtists = (ListView) findViewById(R.id.listViewArtists);

        buttonAddArtist = (Button) findViewById(R.id.buttonAddArtist);

        //list to store artists
        artists = new ArrayList<>();

        //adding an onclicklistener to button
        buttonAddArtist.setOnClickListener(new View.OnClickListener() {
            @Override
```

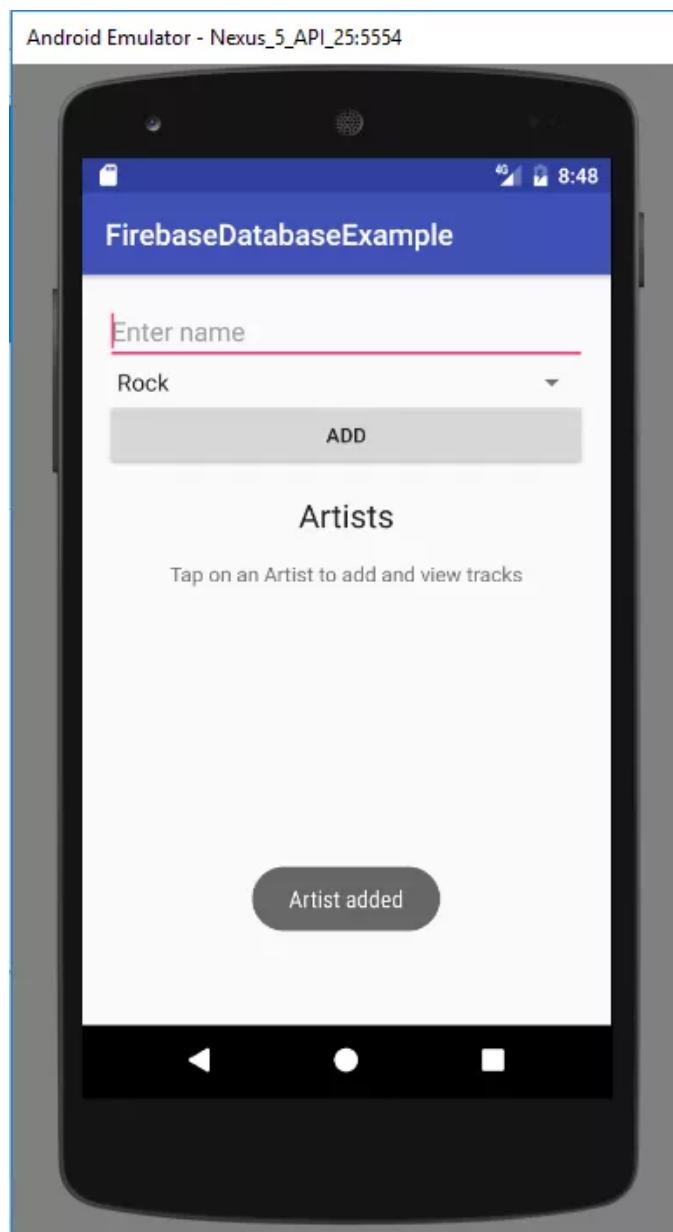
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```
    });  
}  
  
/*  
 * This method is saving a new artist to the  
 * Firebase Realtime Database  
 * */  
private void addArtist() {  
    //getting the values to save  
    String name = editTextName.getText().toString().trim();  
    String genre = spinnerGenre.getSelectedItem().toString();  
  
    //checking if the value is provided  
    if (!TextUtils.isEmpty(name)) {  
  
        //getting a unique id using push().getKey() method  
        //it will create a unique id and we will use it as the Primary Key for our Artist  
        String id = databaseArtists.push().getKey();  
  
        //creating an Artist Object  
        Artist artist = new Artist(id, name, genre);  
  
        //Saving the Artist  
        databaseArtists.child(id).setValue(artist);  
  
        //setting edittext to blank again  
        editTextName.setText("");  
  
        //displaying a success toast  
        Toast.makeText(this, "Artist added", Toast.LENGTH_LONG).show();  
    } else {  
        //if the value is not given displaying a toast  
        Toast.makeText(this, "Please enter a name", Toast.LENGTH_LONG).show();  
    }  
}  
}
```

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- Now try running the application.



- The toast is fine now lets check the database.

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```

artistId: "-Ke41CVpb9KXCS1sdX4"
artistName: "Atif Aslam"

```

- So we the artist is getting save. Everytime you will save an artist a new child node inside artists will be created with a unique id.

Retrieving Artists

- Now we will fetch all the artists. We already have the **ListView** to display all the artists with genre. But before proceeding in retrieving the artists in ListView we will create a Layout File and a Custom Adapter for the list.
- So first create a new layout file named **layout_artist_list.xml** it will contain two **TextView**.

layout_artist_list.xml

```

1  <?xml version="1.0" encoding="utf-8"?>
2  <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
3      android:orientation="vertical" android:layout_width="match_parent"
4      android:layout_height="match_parent">
5
6      <TextView
7          android:text="Atif Aslam"
8          android:textAppearance="@style/Base.TextAppearance.AppCompat.Large"
9          android:id="@+id/textViewName"
10         android:layout_width="match_parent"
11         android:layout_height="wrap_content" />
12
13     <TextView
14         android:text="Rock"
15         android:textAppearance="@style/Base.TextAppearance.AppCompat.Medium"
16         android:id="@+id/textViewGenre"
17         android:layout_width="match_parent"
18         android:layout_height="wrap_content" />
19
20
21 </LinearLayout>

```

- Now create one more class named **ArtistList** and write the following code.

ArtistList.java

Java

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```

7 import android.view.ViewGroup;
8 import android.widget.AdapterView;
9 import android.widget.TextView;
10
11 import java.util.List;
12
13 /**
14  * Created by Belal on 2/26/2017.
15  */
16
17 public class ArtistList extends ArrayAdapter<Artist> {
18     private Activity context;
19     List<Artist> artists;
20
21     public ArtistList(Activity context, List<Artist> artists) {
22         super(context, R.layout.layout_artist_list, artists);
23         this.context = context;
24         this.artists = artists;
25     }
26
27
28     @Override
29     public View getView(int position, View convertView, ViewGroup parent) {
30         LayoutInflater inflater = context.getLayoutInflater();
31         View listViewItem = inflater.inflate(R.layout.layout_artist_list, null, true);
32
33         TextView textViewName = (TextView) listViewItem.findViewById(R.id.textViewName);
34         TextView textViewGenre = (TextView) listViewItem.findViewById(R.id.textViewGenre);
35
36         Artist artist = artists.get(position);
37         textViewName.setText(artist.getArtistName());
38         textViewGenre.setText(artist.getArtistGenre());
39
40         return listViewItem;
41     }
42 }

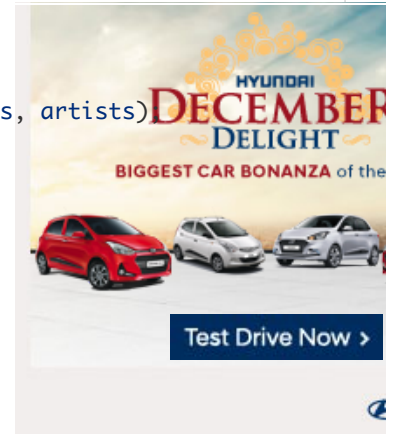
```

- Now lets retrieve all the artists. For this we will attach a **ValueEventListener** to the database reference object, inside **onStart()** method of MainActivity.

	Java
1	@Override
2	protected void onStart() {
3	super.onStart();

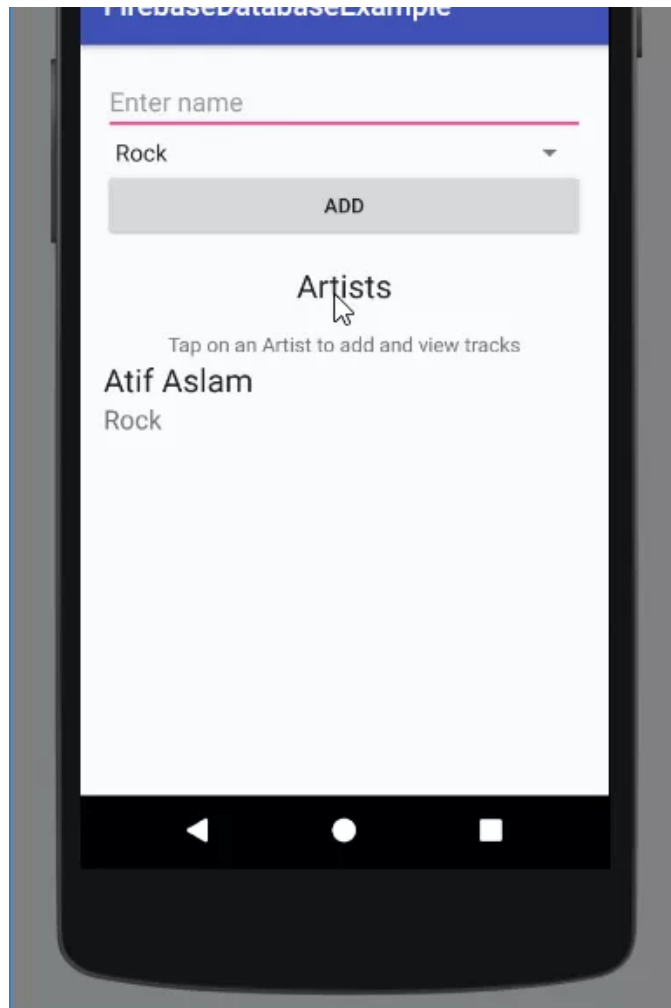
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```
10     artists.clear();
11
12     //iterating through all the nodes
13     for (DataSnapshot postSnapshot : dataSnapshot.getChildren()) {
14         //getting artist
15         Artist artist = postSnapshot.getValue(Artist.class);
16         //adding artist to the list
17         artists.add(artist);
18     }
19
20     //creating adapter
21     ArtistList artistAdapter = new ArtistList(MainActivity.this, artists);
22     //attaching adapter to the listview
23     listViewArtists.setAdapter(artistAdapter);
24 }
25
26 @Override
27 public void onCancelled(DatabaseError databaseError) {
28
29 }
30 });
31 }
```

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- Now again run the application.

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- So the Artists are getting fetched. Also if you will add new Artist it will be automatically added inside the **ListView** as the method **onDataChange()** will be executed on any data change.
- Now we will add **Tracks** to a particular Artist. For this we will open a new Activity when an Artist is selected from the ListView. For this we have to attach an **OnItemClickListener** to the **ListView**.
- So add the following code inside **onCreate()** method.

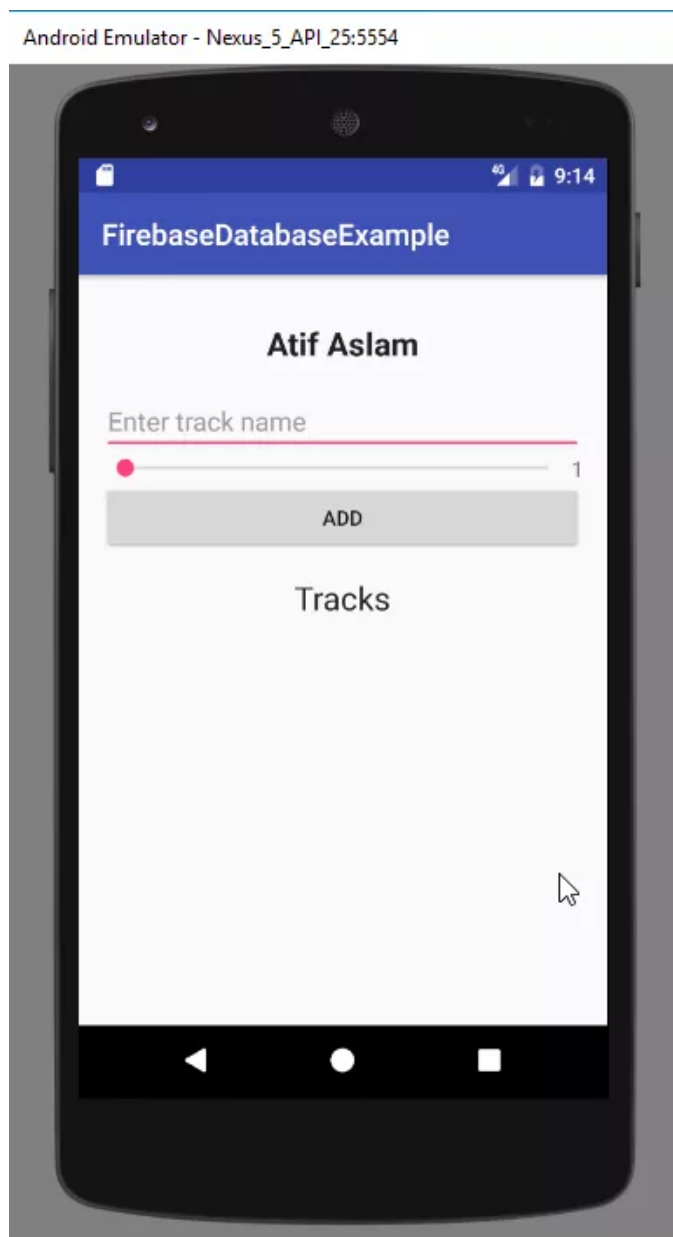
Java

```
1 //attaching listener to listview
2 listViewArtists.setOnItemClickListener(new AdapterView.OnItemClickListener() {
3     @Override
4     public void onItemClick(AdapterView<?> adapterView, View view, int i, long l) {
5         //getting the selected artist
6         Artist artist = artists.get(i);
7
8         //creating an intent
9         Intent intent = new Intent(getApplicationContext(), ArtistActivity.class);
```

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```
16         startActivity(intent);  
17     }  
18     });
```

- Now run your application and select an Artist from the List. A new activity will open displaying the artist name.



- Now let's proceed in adding and retrieving tracks. But before we need to create one more class for the adapter of Track List.
- So create a new class named **TrackList** and write the following code.

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```

5 import android.os.Bundle;
6 import android.view.ViewGroup;
7 import android.widget.AdapterView;
8 import android.widget.TextView;
9
10 import java.util.List;
11
12 /**
13  * Created by Belal on 2/26/2017.
14  */
15
16 public class TrackList extends ArrayAdapter<Track> {
17     private Activity context;
18     List<Track> tracks;
19
20     public TrackList(Activity context, List<Track> tracks) {
21         super(context, R.layout.layout_artist_list, tracks);
22         this.context = context;
23         this.tracks = tracks;
24     }
25
26
27     @Override
28     public View getView(int position, View convertView, ViewGroup parent) {
29         LayoutInflater inflater = context.getLayoutInflater();
30         View listViewItem = inflater.inflate(R.layout.layout_artist_list, null, true);
31
32         TextView textViewName = (TextView) listViewItem.findViewById(R.id.textViewName);
33         TextView textViewRating = (TextView) listViewItem.findViewById(R.id.textViewGenre);
34
35         Track track = tracks.get(position);
36         textViewName.setText(track.getTrackName());
37         textViewRating.setText(String.valueOf(track.getRating()));
38
39         return listViewItem;
40     }
41 }

```

- Now lets add and retrieve tracks.

Adding and Retrieving Tracks from Firebase Realtime Database

- Come inside **ArtistActivity.java** and write the following code. The process is same as we did above that is why I am not explaining the codes with comments.

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```

5 import android.os.Bundle;
6 import android.text.TextUtils;
7 import android.view.View;
8 import android.widget.Button;
9 import android.widget.EditText;
10 import android.widget.ListView;
11 import android.widget.SeekBar;
12 import android.widget.TextView;
13 import android.widget.Toast;
14
15 import com.google.firebase.database.DataSnapshot;
16 import com.google.firebase.database.DatabaseError;
17 import com.google.firebase.database.DatabaseReference;
18 import com.google.firebase.database.FirebaseDatabase;
19 import com.google.firebase.database.ValueEventListener;
20
21 import java.util.ArrayList;
22 import java.util.List;
23
24 public class ArtistActivity extends AppCompatActivity {
25
26     Button buttonAddTrack;
27     EditText editTextTrackName;
28     SeekBar seekBarRating;
29     TextView textViewRating, textViewArtist;
30     ListView listViewTracks;
31
32     DatabaseReference databaseTracks;
33
34     List<Track> tracks;
35
36     @Override
37     protected void onCreate(Bundle savedInstanceState) {
38         super.onCreate(savedInstanceState);
39         setContentView(R.layout.activity_artist);
40
41         Intent intent = getIntent();
42
43         /*
44          * this line is important
45          * this time we are not getting the reference of a direct node
46          * but inside the node track we are creating a new child with the artist id
47          * and inside that node we will store all the tracks with unique ids
48          * */
49         databaseTracks = FirebaseDatabase.getInstance().getReference("tracks").child(intent.getStringExtra("artist_id"));

```

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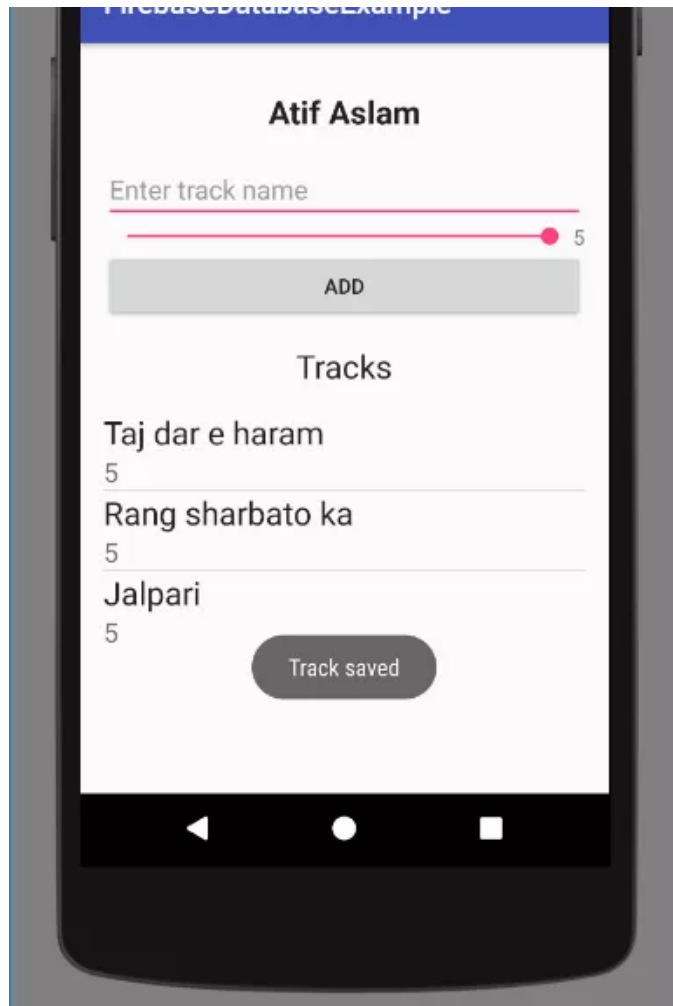
```
56     listViewTracks = (ListView) findViewById(R.id.listViewTracks);
57
58     tracks = new ArrayList<>();
59
60     textViewArtist.setText(intent.getStringExtra(MainActivity.ARTIST_NAME));
61
62     seekBarRating.setOnSeekBarChangeListener(new SeekBar.OnSeekBarChangeListener() {
63         @Override
64         public void onProgressChanged(SeekBar seekBar, int i, boolean b) {
65             textViewRating.setText(String.valueOf(i));
66         }
67
68         @Override
69         public void onStartTrackingTouch(SeekBar seekBar) {
70
71         }
72
73         @Override
74         public void onStopTrackingTouch(SeekBar seekBar) {
75
76         }
77     });
78
79     buttonAddTrack.setOnClickListener(new View.OnClickListener() {
80         @Override
81         public void onClick(View view) {
82             saveTrack();
83         }
84     });
85 }
86
87 @Override
88 protected void onStart() {
89     super.onStart();
90
91     databaseTracks.addValueEventListener(new ValueEventListener() {
92         @Override
93         public void onDataChange(DataSnapshot dataSnapshot) {
94             tracks.clear();
95             for (DataSnapshot postSnapshot : dataSnapshot.getChildren()) {
96                 Track track = postSnapshot.getValue(Track.class);
97                 tracks.add(track);
98             }
99             TrackList trackListAdapter = new TrackList(ArtistActivity.this, tracks);
100             listViewTracks.setAdapter(trackListAdapter);
```


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```
107     });
108 }
109
110 private void saveTrack() {
111     String trackName = editTextTrackName.getText().toString().trim();
112     int rating = seekBarRating.getProgress();
113     if (!TextUtils.isEmpty(trackName)) {
114         String id = databaseTracks.push().getKey();
115         Track track = new Track(id, trackName, rating);
116         databaseTracks.child(id).setValue(track);
117         Toast.makeText(this, "Track saved", Toast.LENGTH_LONG).show();
118         editTextTrackName.setText("");
119     } else {
120         Toast.makeText(this, "Please enter track name", Toast.LENGTH_LONG).show();
121     }
122 }
123 }
```

- Again run your application and try adding tracks.

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- As you can see tracks are getting saved. Now lets see updating the Artist.

Updating Artist in Firebase Database

- For updating an existing artist name or genre we will show a Dialog to enter new detail. Dialog will be opened on long pressing an Artist from the list.
- So first create a new layout file named **update_dialog.xml** and write the following xml code. The same dialog will be used for deleting the artist as well.

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
3     android:layout_width="match_parent"
4     android:layout_height="match_parent"
5     android:orientation="vertical"
6     android:padding="@dimen/activity_horizontal_margin">
```

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```
13         android:hint="Enter name" />
14
15     <Spinner
16         android:id="@+id/spinnerGenres"
17         android:layout_width="match_parent"
18         android:layout_height="wrap_content"
19         android:layout_below="@id/editTextName"
20         android:entries="@array/genres"></Spinner>
21
22     <LinearLayout
23         android:layout_width="match_parent"
24         android:layout_height="wrap_content"
25         android:orientation="horizontal">
26
27         <Button
28             android:id="@+id/buttonUpdateArtist"
29             android:layout_width="wrap_content"
30             android:layout_height="wrap_content"
31             android:layout_weight="1"
32             android:text="Update" />
33
34         <Button
35             android:id="@+id/buttonDeleteArtist"
36             android:layout_width="wrap_content"
37             android:layout_height="wrap_content"
38             android:layout_weight="1"
39             android:text="Delete" />
40
41     </LinearLayout>
42
43
44 </LinearLayout>
```

- As you can see we have two buttons one to update the artist and other one to delete the artist.
- Now come inside **MainActivity.java** and define a method **updateArtist()**.

Java

```
1 private boolean updateArtist(String id, String name, String genre) {
2     //getting the specified artist reference
3     DatabaseReference dR = FirebaseDatabase.getInstance().getReference("artists").child(id);
4
5     //updating artist
6     Artist artist = new Artist(id, name, genre);
7     dR.setValue(artist);
```

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and on update button click we are calling the above method **updateArtist()** to update the artist.

Java

```
1 private void showUpdateDeleteDialog(final String artistId, String artistName) {
2
3     AlertDialog.Builder dialogBuilder = new AlertDialog.Builder(this);
4     LayoutInflater inflater = getLayoutInflater();
5     final View dialogView = inflater.inflate(R.layout.update_dialog, null);
6     dialogBuilder.setView(dialogView);
7
8     final EditText editTextName = (EditText) dialogView.findViewById(R.id.editTextName);
9     final Spinner spinnerGenre = (Spinner) dialogView.findViewById(R.id.spinnerGenres);
10    final Button buttonUpdate = (Button) dialogView.findViewById(R.id.buttonUpdateArtist);
11    final Button buttonDelete = (Button) dialogView.findViewById(R.id.buttonDeleteArtist);
12
13    dialogBuilder.setTitle(artistName);
14    final AlertDialog b = dialogBuilder.create();
15    b.show();
16
17
18    buttonUpdate.setOnClickListener(new View.OnClickListener() {
19        @Override
20        public void onClick(View view) {
21            String name = editTextName.getText().toString().trim();
22            String genre = spinnerGenre.getSelectedItem().toString();
23            if (!TextUtils.isEmpty(name)) {
24                updateArtist(artistId, name, genre);
25                b.dismiss();
26            }
27        }
28    });
29
30
31    buttonDelete.setOnClickListener(new View.OnClickListener() {
32        @Override
33        public void onClick(View view) {
34
35            /*
36             * we will code this method to delete the artist
37             * */
38
39        }
40    });
41 }
```

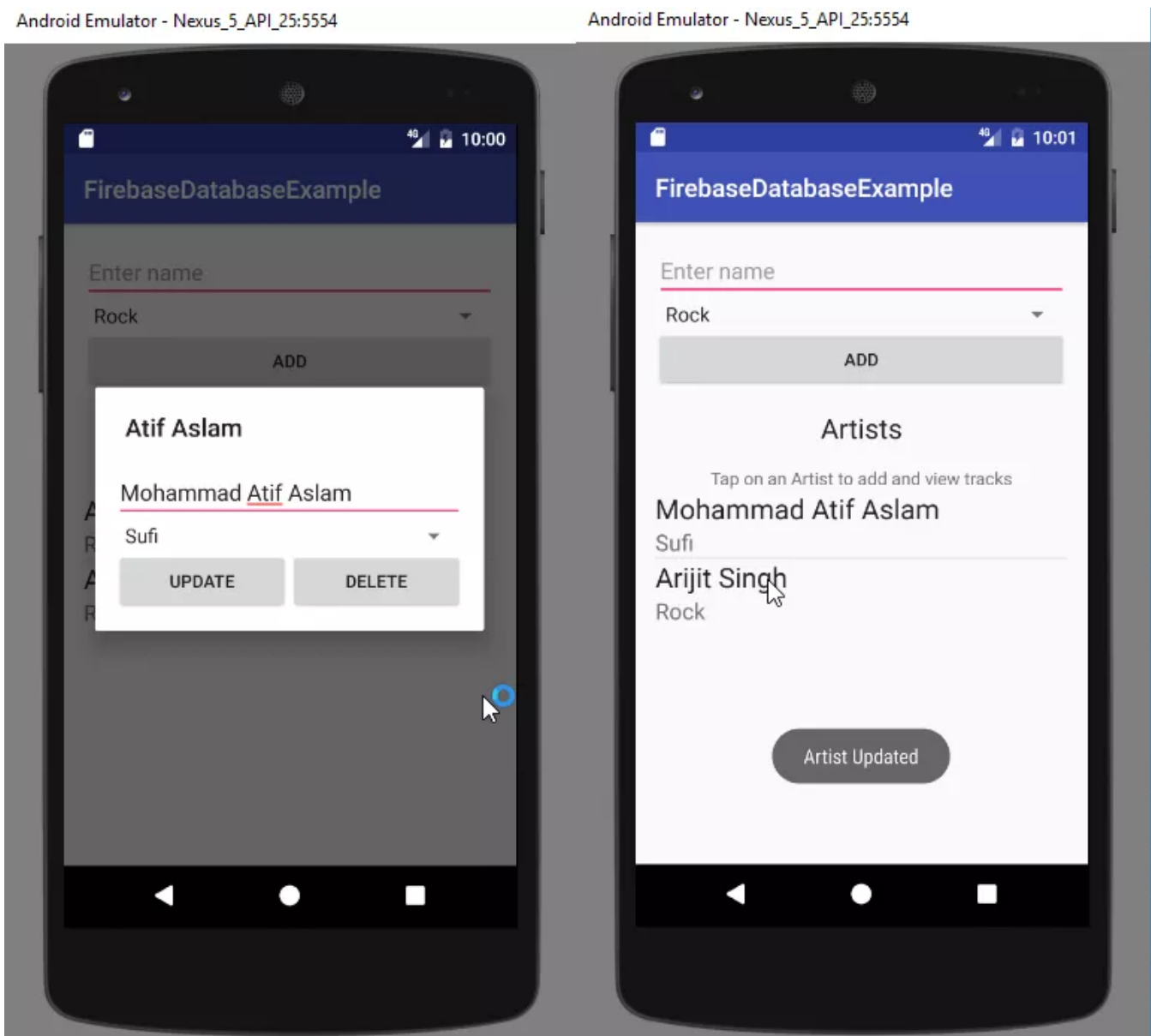
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```

2      @Override
3      public boolean onItemClick(AdapterView<?> adapterView, View view, int i, long l) {
4          Artist artist = artists.get(i);
5          showUpdateDeleteDialog(artist.getArtistId(), artist.getArtistName());
6          return true;
7      }
8  });

```

- Now again try running the application. Long press on an Artist and try updating it.



- So the update is working fine. Now only the delete operation is remaining. So let's delete an Artist.

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Java

```
1 private boolean deleteArtist(String id) {
2     //getting the specified artist reference
3     DatabaseReference dR = FirebaseDatabase.getInstance().getReference("artists").child(id);
4
5     //removing artist
6     dR.removeValue();
7
8     //getting the tracks reference for the specified artist
9     DatabaseReference drTracks = FirebaseDatabase.getInstance().getReference("tracks").child(id);
10
11    //removing all tracks
12    drTracks.removeValue();
13    Toast.makeText(getApplicationContext(), "Artist Deleted", Toast.LENGTH_LONG).show();
14
15    return true;
16 }
```

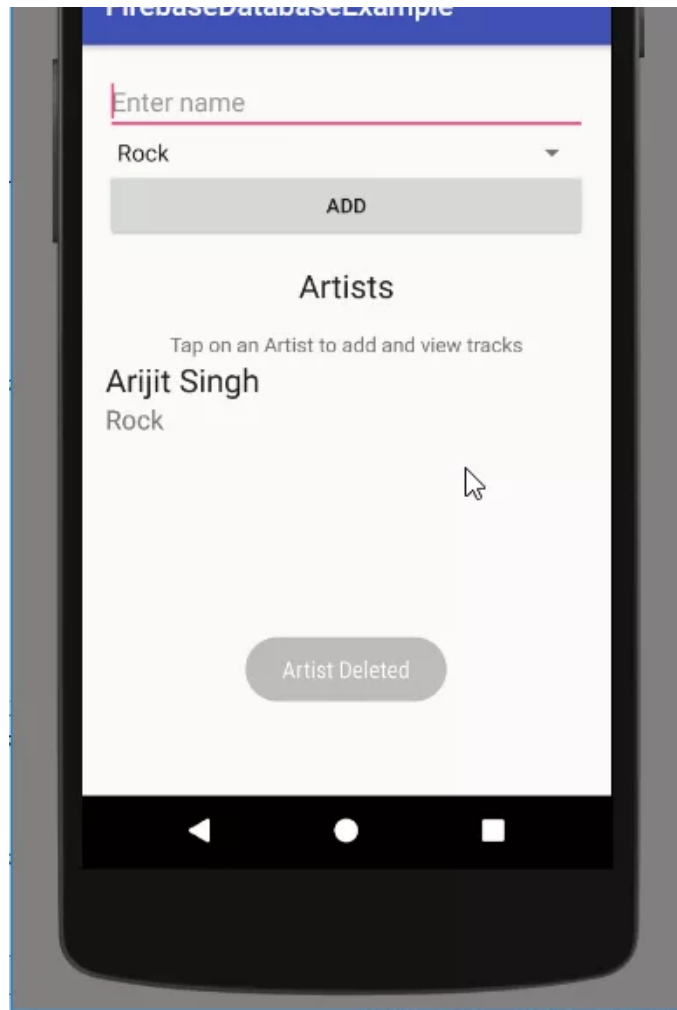
- Now call this method inside Click Listener of Delete Artist Button which is inside **showUpdateDeleteDialog()**.

Java

```
1 buttonDelete.setOnClickListener(new View.OnClickListener() {
2     @Override
3     public void onClick(View view) {
4
5         deleteArtist(artistId);
6         b.dismiss();
7     }
8 });
```

- Now run your application and try deleting an Artist.

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- Bingo! the delete is working fine as well. If you are having troubles about this **Firebase Realtime Database Tutorial** you can get my source code from below.

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So thats all for this Firebase Realtime Database tutorial. We covered all the operations like **Creating, Reading, Updating and Deleting (CRUD) data in Firebase Realtime Database**. If you are having any queries and confusions then lets discuss in comment section.

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About Belal Khan

I am Belal Khan, I am currently pursuing my MCA. In this blog I write tutorials and articles related to coding, app development, android etc.

Comments



Waqas Khalid says

[March 2, 2017 at 6:44 am](#)

Thanks a lot for the wonderful tutorial. Great Explanation. You made this look really easy.

[Reply](#)

Avinash Manohar says

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Reply



abdolati ali says

March 25, 2017 at 12:15 pm

Thank you.

Reply



Kivanç says

March 26, 2017 at 6:30 pm

Thanks for tutorial Belal Khan.

I have a question: I want to make a search (android.support.v7.widget.SearchView) on this realtime database and I'm new on android development. I tried this;

```
@Override
```

```
@TargetApi(Build.VERSION_CODES.N_MR1)
```

```
public boolean onCreateOptionsMenu(Menu menu) {
```

```
    getMenuInflater().inflate(R.menu.option_search, menu);
```

```
    if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.JELLY_BEAN) {
```

```
        SearchManager manager = (SearchManager) getSystemService(Context.SEARCH_SERVICE);
```

```
        SearchView search = (SearchView) menu.findItem(R.id.search).getActionView();
```

```
        search.setSearchableInfo(manager.getSearchableInfo(getComponentName()));
```

```
        search.setOnQueryTextListener(new SearchView.OnQueryTextListener() {
```

```
            @Override
```

```
            public boolean onQueryTextSubmit(String query) {
```

```
                return false;
```

```
            }
```

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```
//attaching adapter to the listview  
listViewArtists.setAdapter(artistAdapter);  
artistAdapter.getFilter().filter(newText);
```

```
return false;  
}  
});
```

```
}  
return true;  
}
```

but this wasn't succeed. Could you lead me about, how can we make query on our database? Thank you.

[Reply](#)



Simon says

April 12, 2017 at 10:39 pm

Hello I also interested in search option. Did you find some solution?

[Reply](#)



Ruben says

March 27, 2017 at 9:57 am

Fantastic, thanks for sharing!!! Congratulations.

[Reply](#)

Dayakar says

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fad says

May 7, 2017 at 6:01 pm

thank you for the tutorial. I want to ask a question. how can we query an artist and show it a textview (equivalent of select * from artist whe name="atif aslam")?

Reply



Monil says

May 24, 2017 at 10:13 am

Hi Belal,

I have done the same steps but databaseReference is throwing null exception.

I have posted the question in stackoverflow with code and screenshot.

Please suggest the reason

<https://stackoverflow.com/questions/44155101/firebase-databasereference-is-taking-null-value-on-initialization>

Reply



arnel says

July 25, 2017 at 2:05 pm

Thanks it was a great tutorial.

Reply

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Reply



Jaime says

August 30, 2017 at 1:58 pm

Your artistID es different that the node ID. Why is that?

Reply



Andre says

October 23, 2017 at 8:29 am

Hi,

Is really necessary to repeat the Key as an attribute on the object?

Reply



Saad says

November 4, 2017 at 9:54 am

can you tell me about custom login in firebase using android with source code.

Reply



Noah says

November 6, 2017 at 1:57 pm

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[Reply](#)



Utsav says

November 24, 2017 at 11:20 pm

Excellent Tutorial.

[Reply](#)



arunkuamr says

December 14, 2017 at 10:08 am

nice work,real help to me

[Reply](#)



Android Developer says

December 16, 2017 at 12:06 pm

Thanks for the wonderful tutorial!!

I was wondering what if i need to store album cover (i.e., and image) as well??? It would be a great help if you can guide.

[Reply](#)

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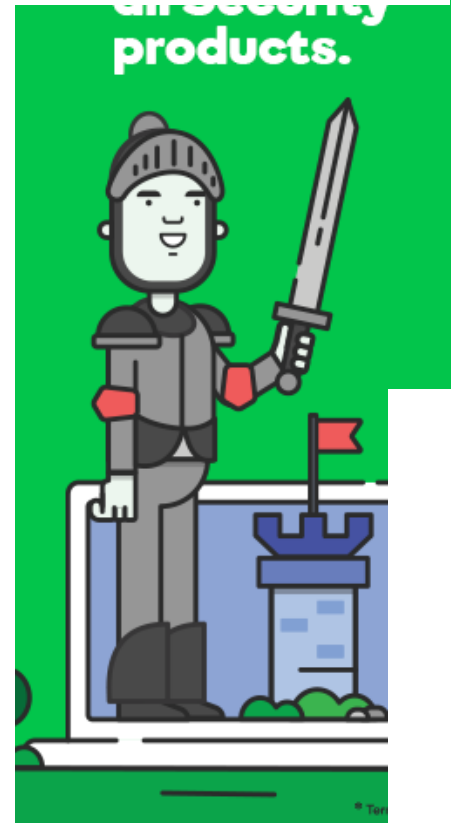
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