



I - Install FireBase

Ghi chú: Tạo Project từ API 9 trở lên

B1: Mở file build.gradle

```
dependencies {  
    compile 'com.firebase:firebase-client-android:2.5. 0+'  
}
```

và

```
android {  
    ...  
    packagingOptions {
```

```
        exclude 'META-INF/LICENSE'

        exclude 'META-INF/LICENSE-FIREBASE.txt'

        exclude 'META-INF/NOTICE'

    }

}
```

B2: Xin permission ra Internet (Android.Manifest.xml)

```
<uses-permission android:name="android.permission.INTERNET" />
```

B3: Test

```
@Override
public void onCreate() {
    super.onCreate();
    Firebase.setAndroidContext(this);
    // other setup code
}

Firebase myFirebaseRef = new Firebase("https://<YOUR-FIREBASE-APP>.firebaseio.com/");
```

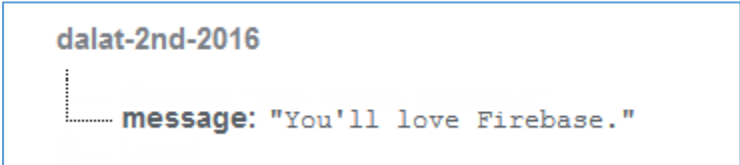
<YOUR-FIREBASE-APP> là app bạn đã tạo trên server.

II - Save data

```
Firestore.setAndroidContext(this);  
Firestore myFirestoreRef = new Firestore("https://dalat-2nd-2016.firebaseio.com/");
```

// Case 1

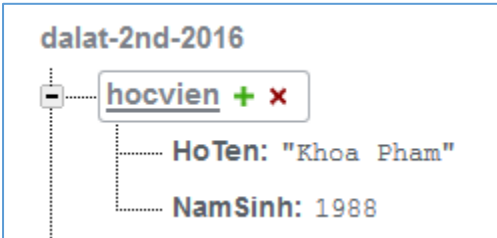
```
myFirestoreRef.child("message").setValue("You'll love Firestore.");
```



```
dalat-2nd-2016  
└── message: "You'll love Firestore."
```

// Case 2

```
Firestore alanRef = myFirestoreRef.child("hocvien");  
HocVien alan = new HocVien("Khoa Pham", 1988);  
alanRef.setValue(alan);
```



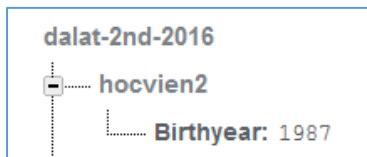
```
dalat-2nd-2016  
└── hocvien + x  
    ├── HoTen: "Khoa Pham"  
    └── NamSinh: 1988
```

// Case 3

```

Firebase usersRef = myFirebaseRef.child("hocvien2");
Map<String, Integer> alanisawesomeMap = new HashMap<String, Integer>();
alanisawesomeMap.put("Birthyear", 1987);
usersRef.setValue(alanisawesomeMap);

```

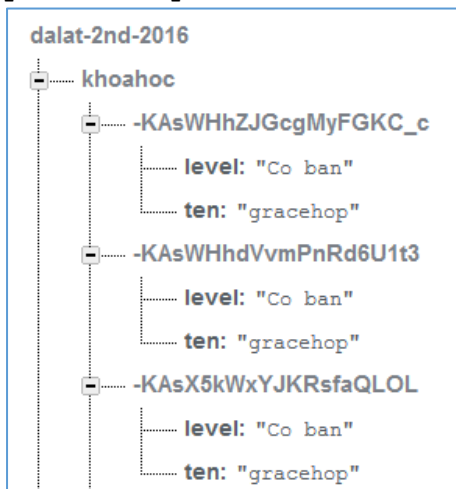


// Case 4

```

Firebase postRef = myFirebaseRef.child("khoahoc");
postRef.push().setValue(new HocVien("Khoa Pham", 1988));
postRef.push().setValue(new HocVien("Khoa Pham 2", 1989));
postRef.push().setValue(new HocVien("Khoa Pham 3", 1920));

```



III – Retrieving data

```
// 5 // You'll love Firebase
myFirebaseRef.child("message").addValueEventListener(new ValueEventListener() {
    @Override
    public void onDataChange(DataSnapshot snapshot) {
        Log.d("ABC", snapshot.getValue().toString());
    }
    @Override public void onCancelled(FirebaseError error) { }
});

// 5a
// Get a reference to our posts
Firebase refMessage = new Firebase("https://dalat-2nd-2016.firebaseio.com/");
// Attach an listener to read the data at our posts reference
refMessage.addValueEventListener(new ValueEventListener() {
    @Override
    public void onDataChange(DataSnapshot snapshot) {
        Log.d("ABC", snapshot.getValue().toString());
    }
    @Override
    public void onCancelled(FirebaseError firebaseError) {
        Log.d("ABC", "The read failed: " + firebaseError.getMessage());
    }
});
```

IV - Query

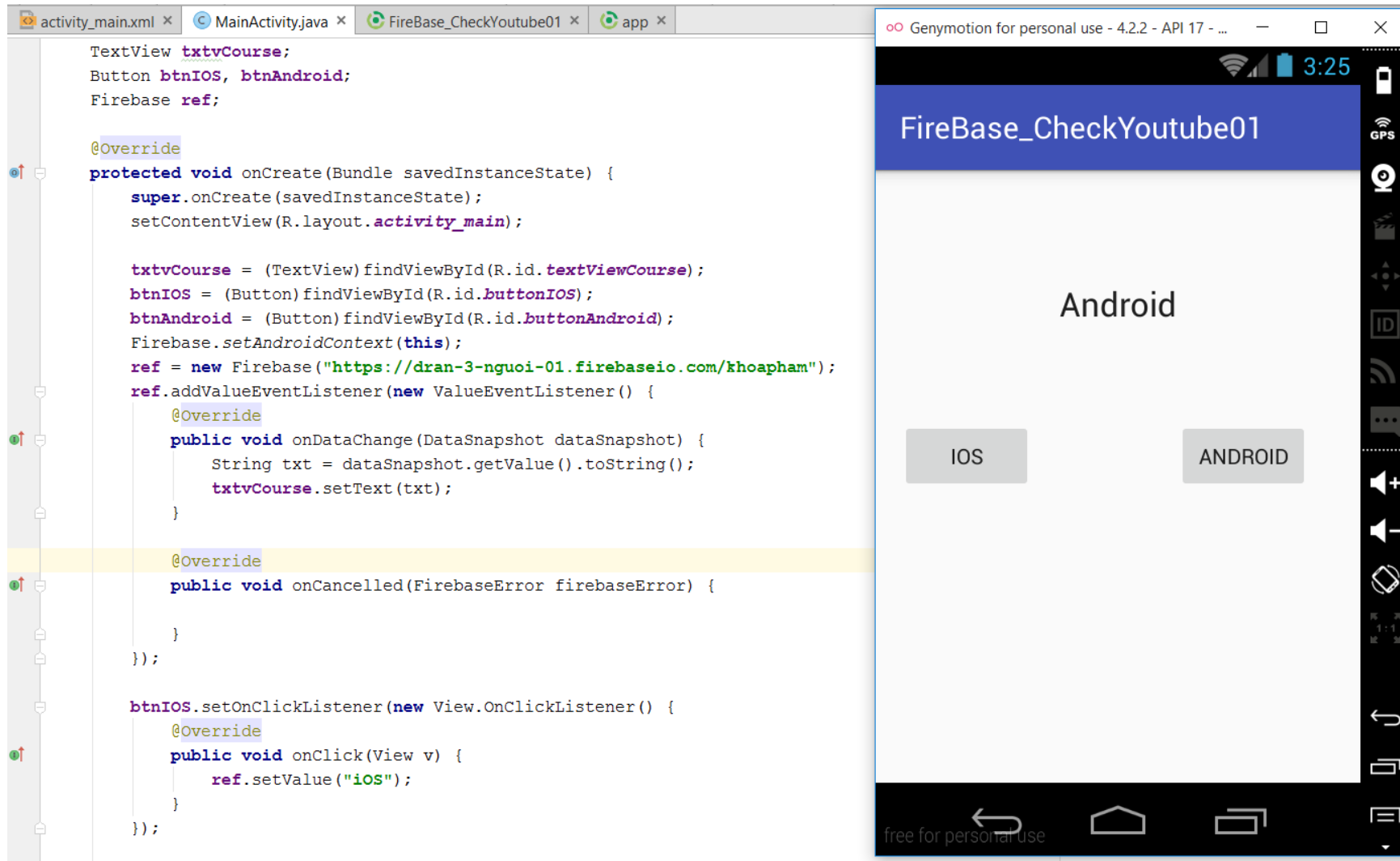
```
Query queryRef = myFirebaseRef.child("khoahoc").orderByChild("NamSinh");
queryRef.addChildEventListener(new ChildEventListener() {
    @Override
    public void onChildAdded(DataSnapshot snapshot, String previousChild) {
        Log.d("BBB", snapshot.getChildrenCount() + " khoa hoc");
        HocVien post = snapshot.getValue(HocVien.class);
        Log.d("BBB", post.HoTen + " - " + String.valueOf(post.NamSinh) );
        Log.d("BBB", "----");
        // add array for adapter
    }

    @Override
    public void onChildChanged(DataSnapshot dataSnapshot, String s) {
    }

    @Override
    public void onChildRemoved(DataSnapshot dataSnapshot) {
    }

    @Override
    public void onChildMoved(DataSnapshot dataSnapshot, String s) {
    }

    @Override
    public void onCancelled(FirebaseError firebaseError) {
    }
});
```



The screenshot displays the Android Studio IDE with the `MainActivity.java` file open. The code defines a `MainActivity` that uses `TextView` and `Button` widgets. It initializes a `Firestore` instance and sets up a `ValueEventListener` to monitor changes to a document. The `onCreate` method sets the content view to `R.layout.activity_main` and finds the `txtvCourse` and `btnIOS` widgets. The `onDataChange` method updates the `txtvCourse` text when the document value changes. The `onClick` method for `btnIOS` sets the document value to `"ios"`.

The Genymotion emulator on the right shows the app's UI. The title bar reads `Firestore_CheckYoutube01`. The main content area displays the word `Android` in a large font. Below it, there are two buttons: `IOS` and `ANDROID`. The status bar at the top shows the time as 3:25 and various system icons. The bottom navigation bar includes a back arrow, a home icon, and a recent apps icon.

The image shows the Android Studio IDE with the `MainActivity.java` file open. The code defines a `MainActivity` class that extends `AppCompatActivity` . It includes a `ListView` (`lv`), an `EditText` (`edtHoTen`), a `Button` (`btnAdd`), and an `ArrayList<String>` (`mang`). The `onCreate` method initializes the `ListView` with an `ArrayAdapter` and sets the `EditText` and `Button`. The `btnAdd` has an `OnClickListener` that pushes the text from `edtHoTen` to the `mang` list. A `ChildEventListener` is added to the `Firestore` database to update the `mang` list when data is added.

```
activity_main.xml x MainActivity.java x
ListView lv;
EditText edtHoTen;
Button btnAdd;
ArrayList<String> mang;

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    Firebase.setAndroidContext(this);
    final Firebase ref = new Firebase("https://dran-3-nguoi-01.firebaseio.com");

    lv = (ListView) findViewById(R.id.listViewKhoaHoc);
    mang = new ArrayList<String>();
    final ArrayAdapter adapter = new ArrayAdapter(getApplicationContext(),
    lv.setAdapter(adapter);

    edtHoTen = (EditText) findViewById(R.id.editTextHoTen);
    btnAdd = (Button) findViewById(R.id.buttonAdd);
    btnAdd.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            ref.push().setValue(edtHoTen.getText().toString());
        }
    });

    ref.addChildEventListener(new ChildEventListener() {
        @Override
        public void onChildAdded(DataSnapshot dataSnapshot, String s) {
            mang.add(dataSnapshot.getValue(String.class));
            adapter.notifyDataSetChanged();
        }
    });
}
```

The Genymotion emulator shows the app running on a virtual device. The app has a blue header with the title "Firebase_check03". Below the header is a white input field with a red vertical line on the left and a grey "ADD" button on the right. The list below the input field contains the following items: "1111", "2222", "3333", and "88888".

Bổ sung hàm cho bài tập tại lớp:

- Snippet: <http://khoapham.vn/KhoaPhamTraining/android/snippet/>
- Chuyển ImageView sang mảng Byte Array

```
public byte[] ImageView_To_Byte() {  
    //Bitmap bmp = BitmapFactory.decodeResource(getResources(), R.drawable.chomuc);  
    BitmapDrawable drawable = (BitmapDrawable) imgvHinhSP.getDrawable();  
    Bitmap bmp = drawable.getBitmap();  
  
    ByteArrayOutputStream stream = new ByteArrayOutputStream();  
    bmp.compress(Bitmap.CompressFormat.PNG, 100, stream);  
    byte[] byteArray = stream.toByteArray();  
    return byteArray;  
}
```

- Chuyển mảng ByteArray thành dạng chuỗi (để save chuỗi này lên Firebase)

```
String imageFile = Base64.encodeToString(ImageView_To_Byte(), Base64.DEFAULT);
```