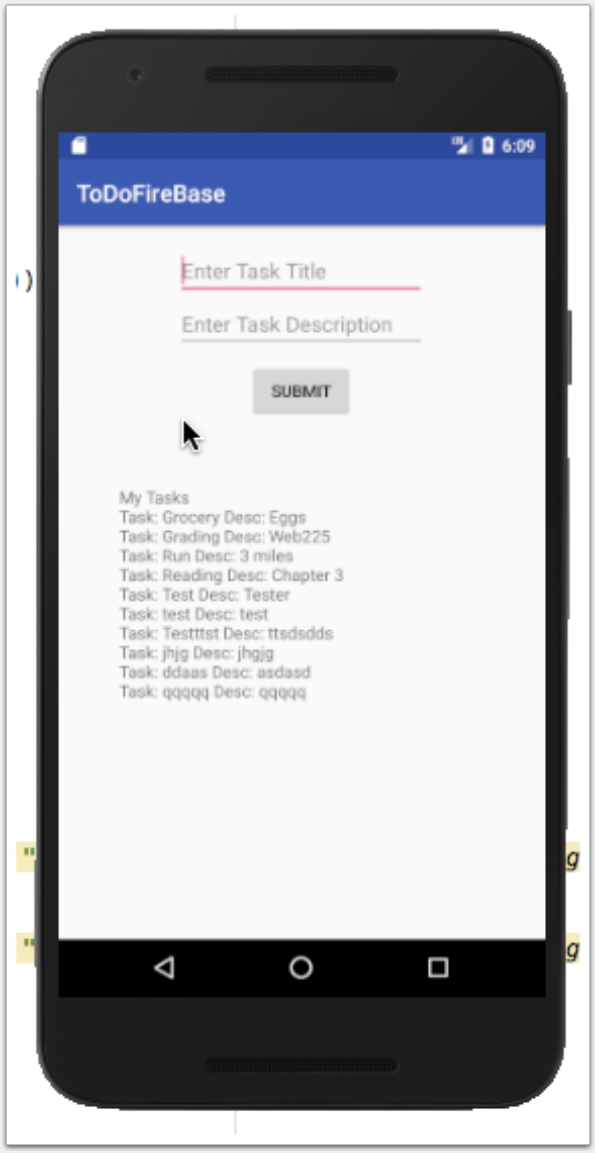
Android Emulator - ToDoList using Firebase

Github Link: https://github.com/RVCAndroidClass/TaskFirebase

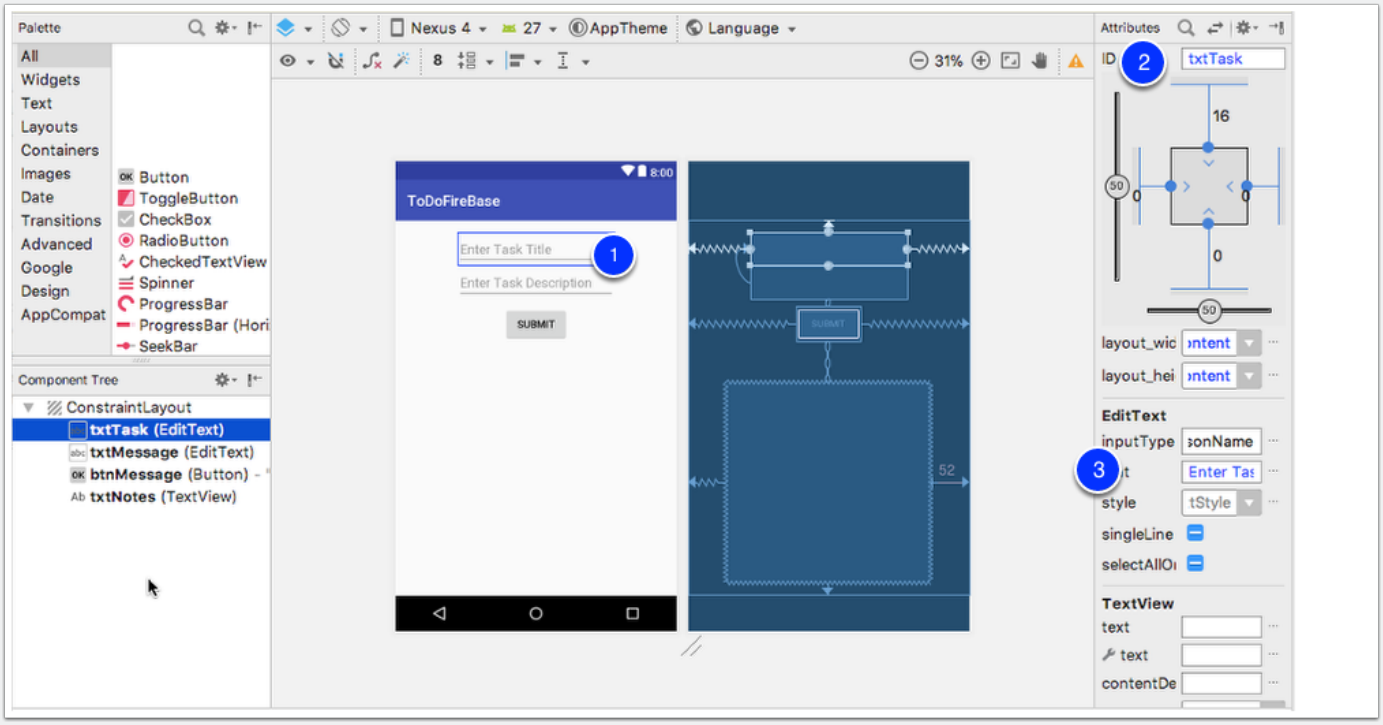
1. Go to http://gmail.com
2. Create a NEW Gmail Account Just For App
3. Logoff of Google in all of your web browsers (go to http://google.com in all your browsers)



Create New Project Named MyTodoList

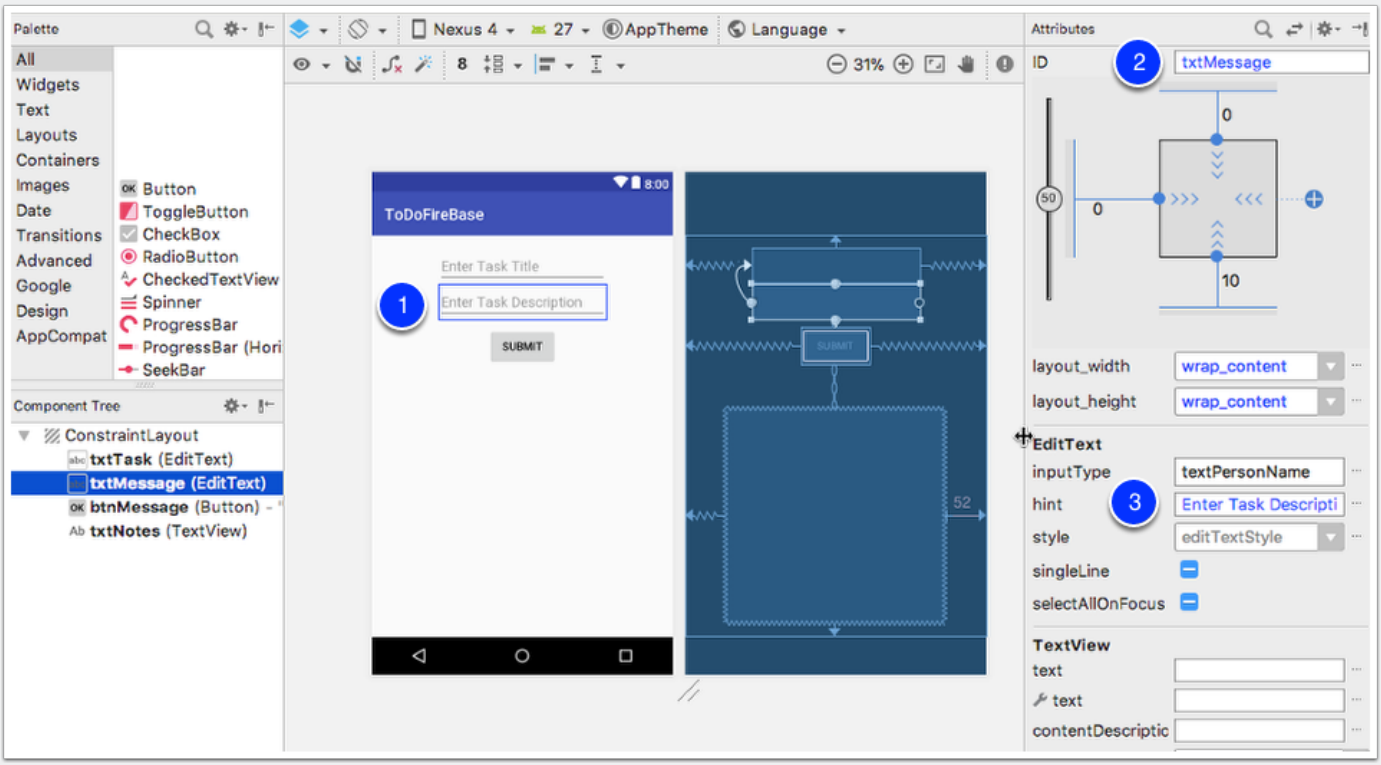
1. Remove Hello Label
2. Add EditText,
3. ID: txtTask

4. Hint: Enter Task Name



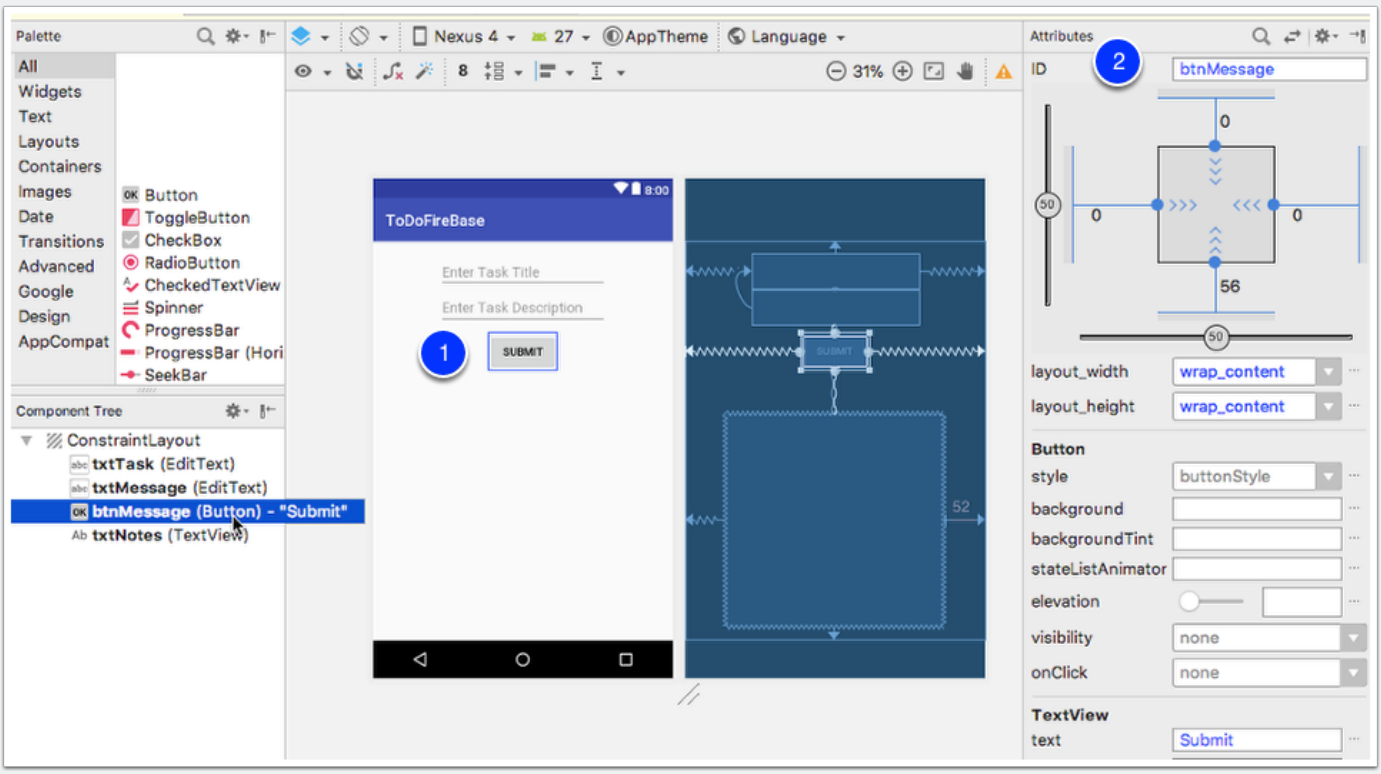
activity_main.xml - Add txtMessage

1. Add EditText
2. ID: txtMessage
3. Hint: Enter Task Description



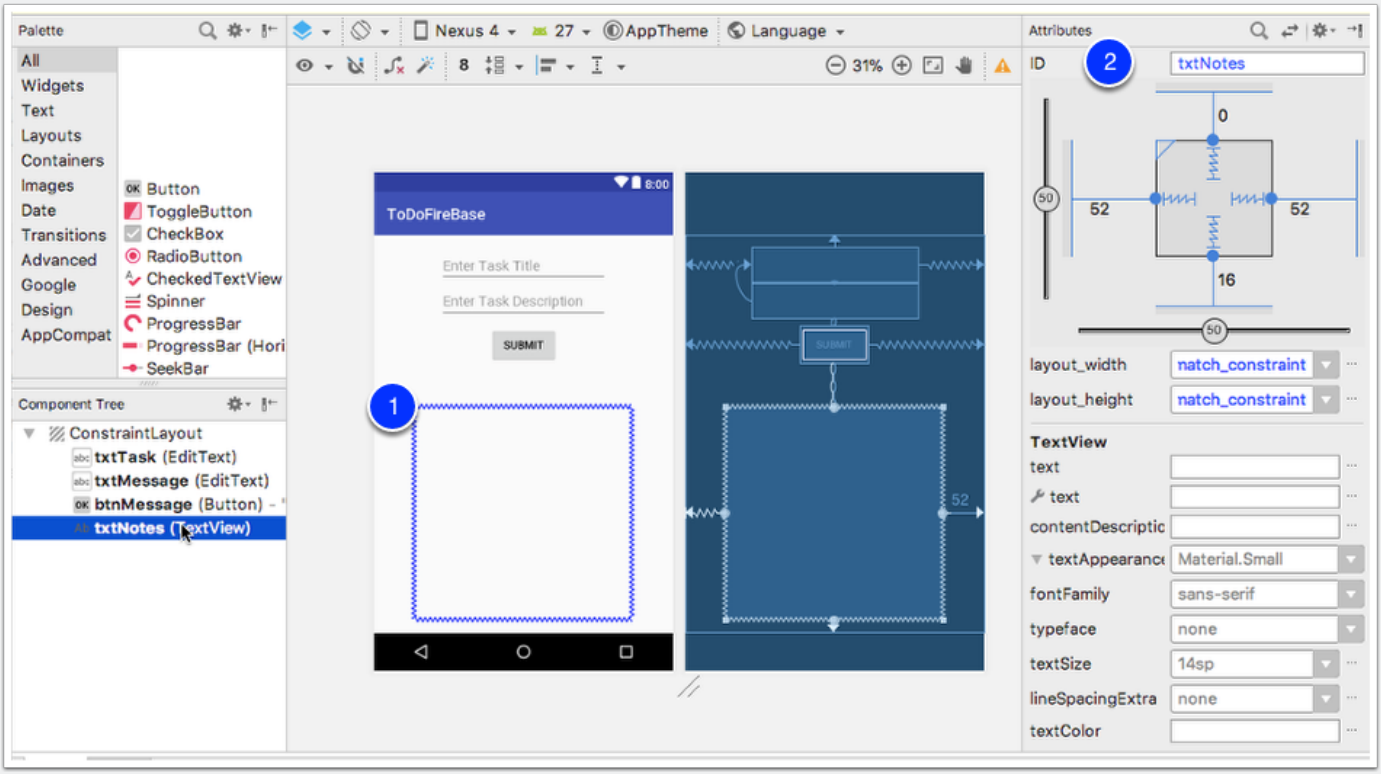
Adding btnMessage

1. Add Button
2. ID: btnMessage



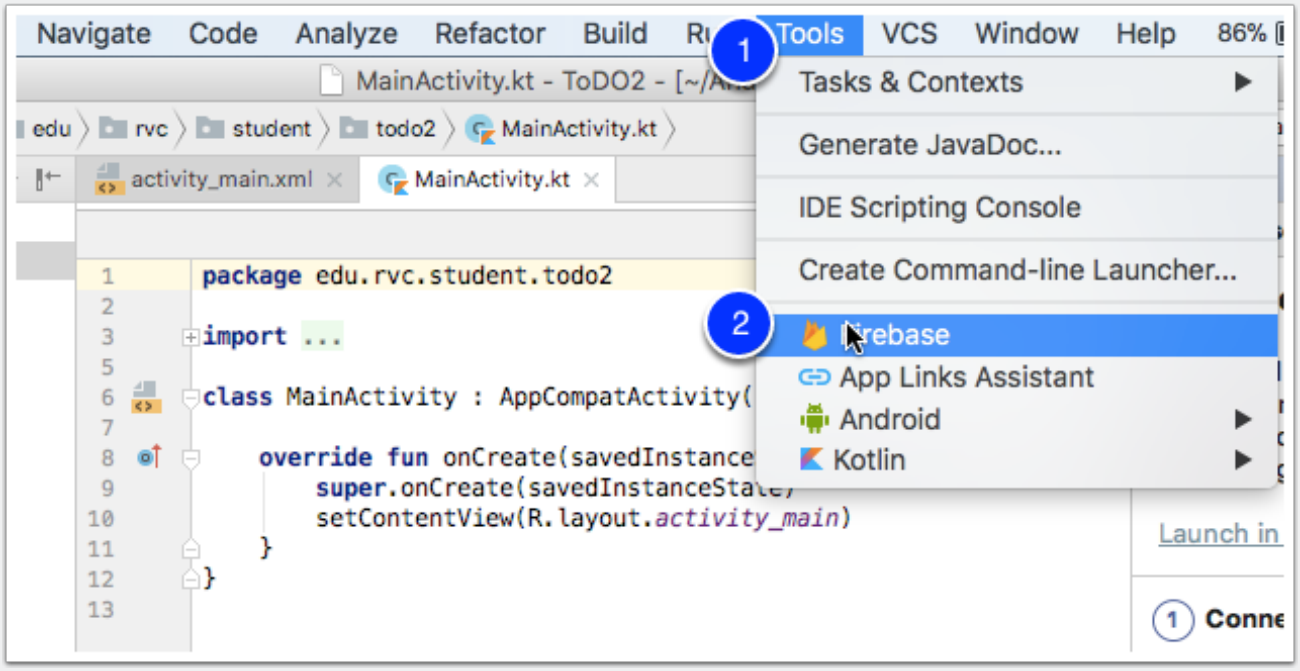
activity_main.xml - Add txtNotes

1. Add TextView
2. ID; txtNotes



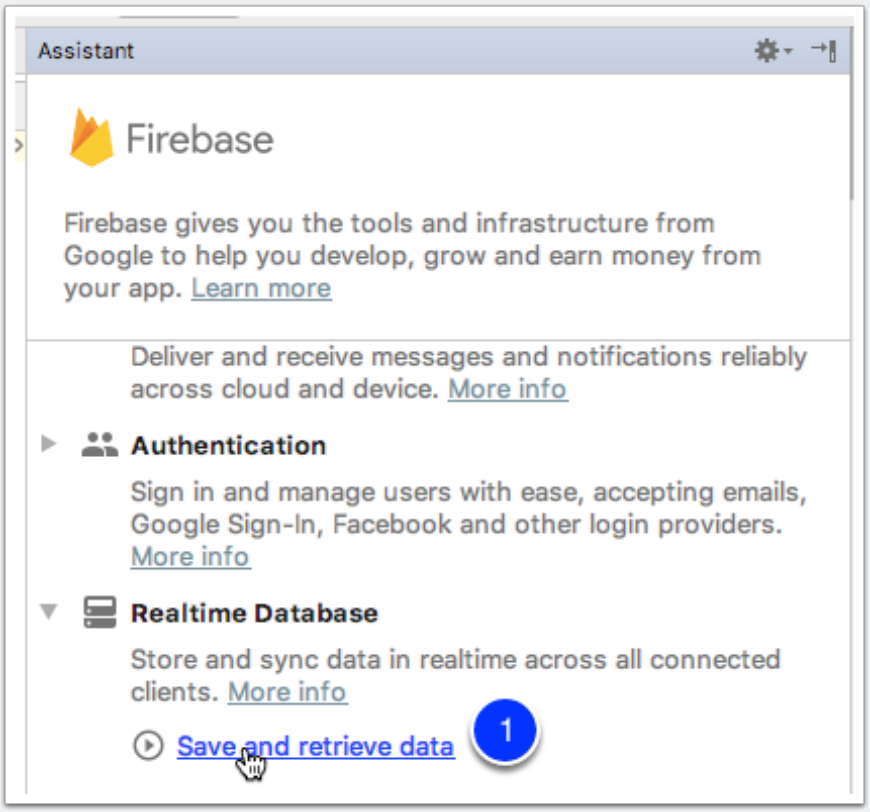
Create a FireBase Database Connection

1. Click on Tools
2. Click on Firecase



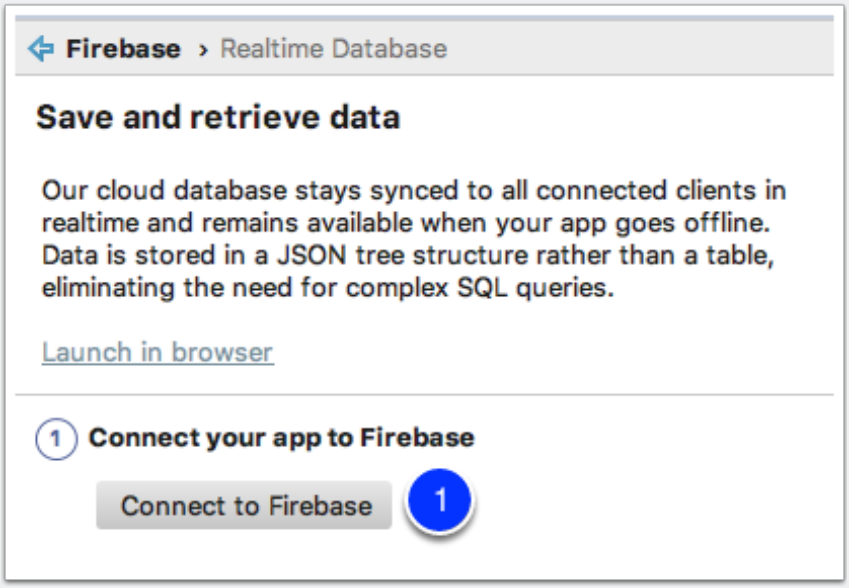
Create FireBase Connection

1. Click on Save and Retrieve data



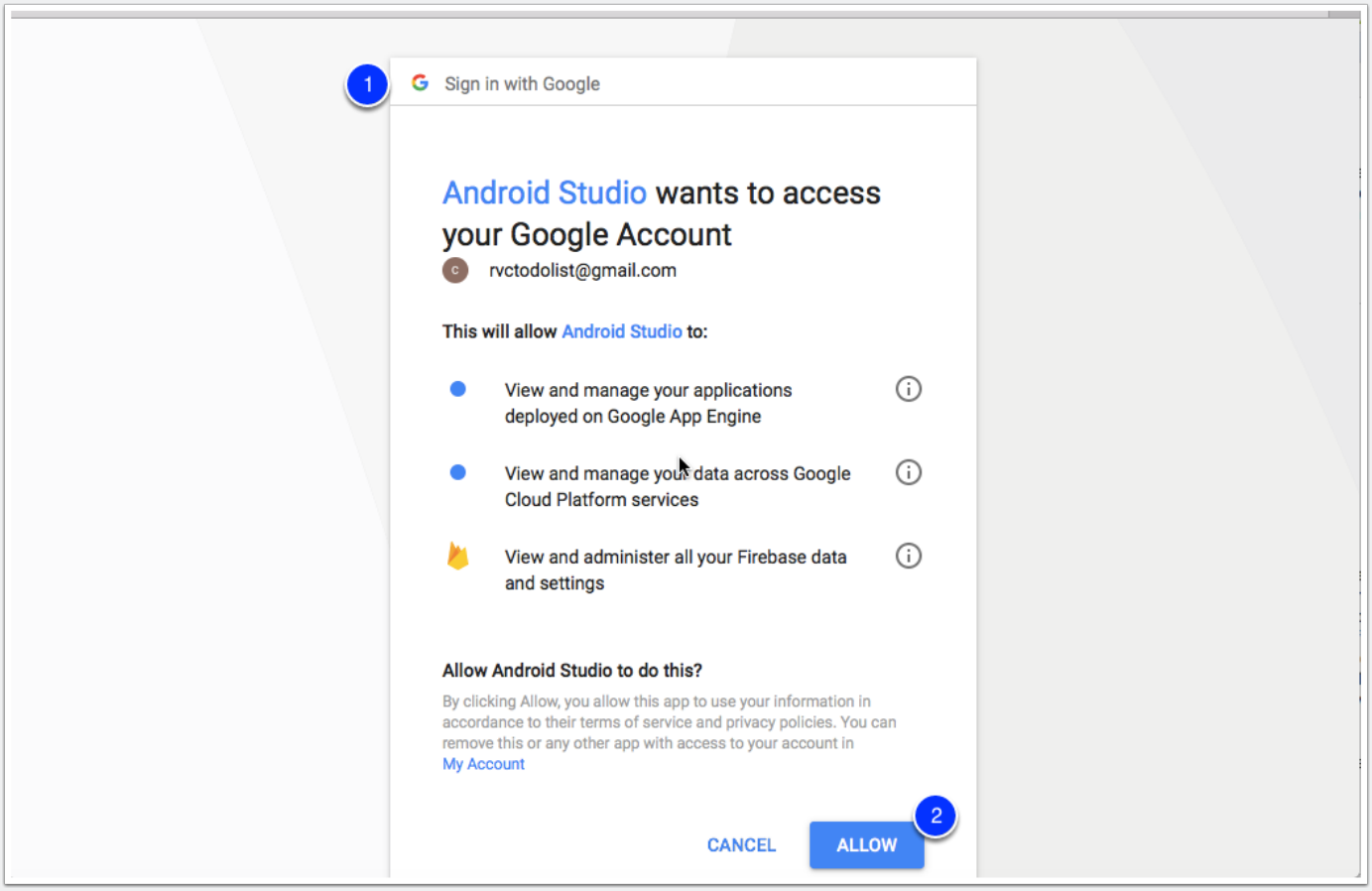
Create FireBase Connection

Click on **Connect to Firebase**



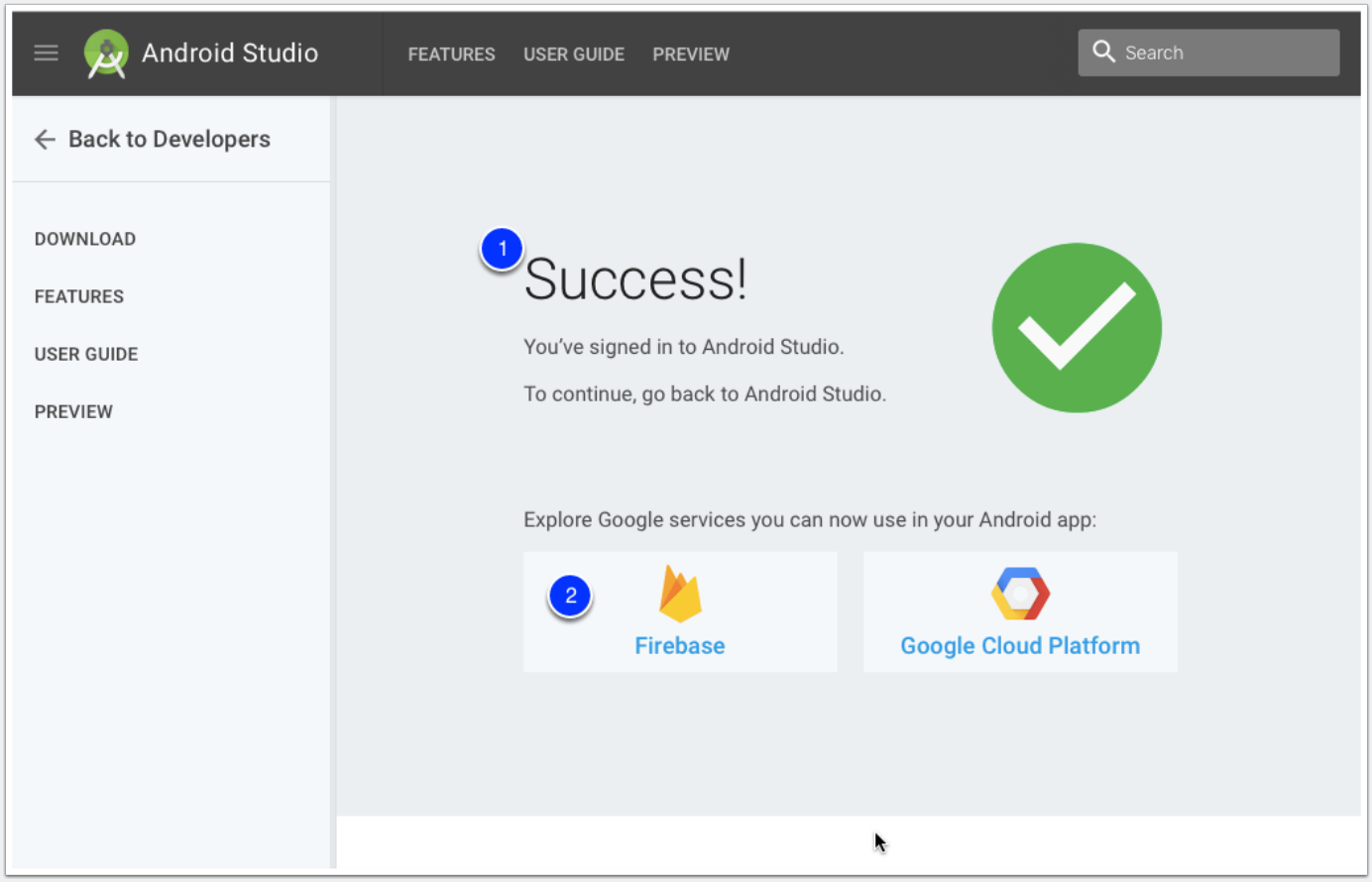
Sign in - Google Accounts

1. Sign-in to new Google account
2. Allow Android Studio to Access your new Google Account



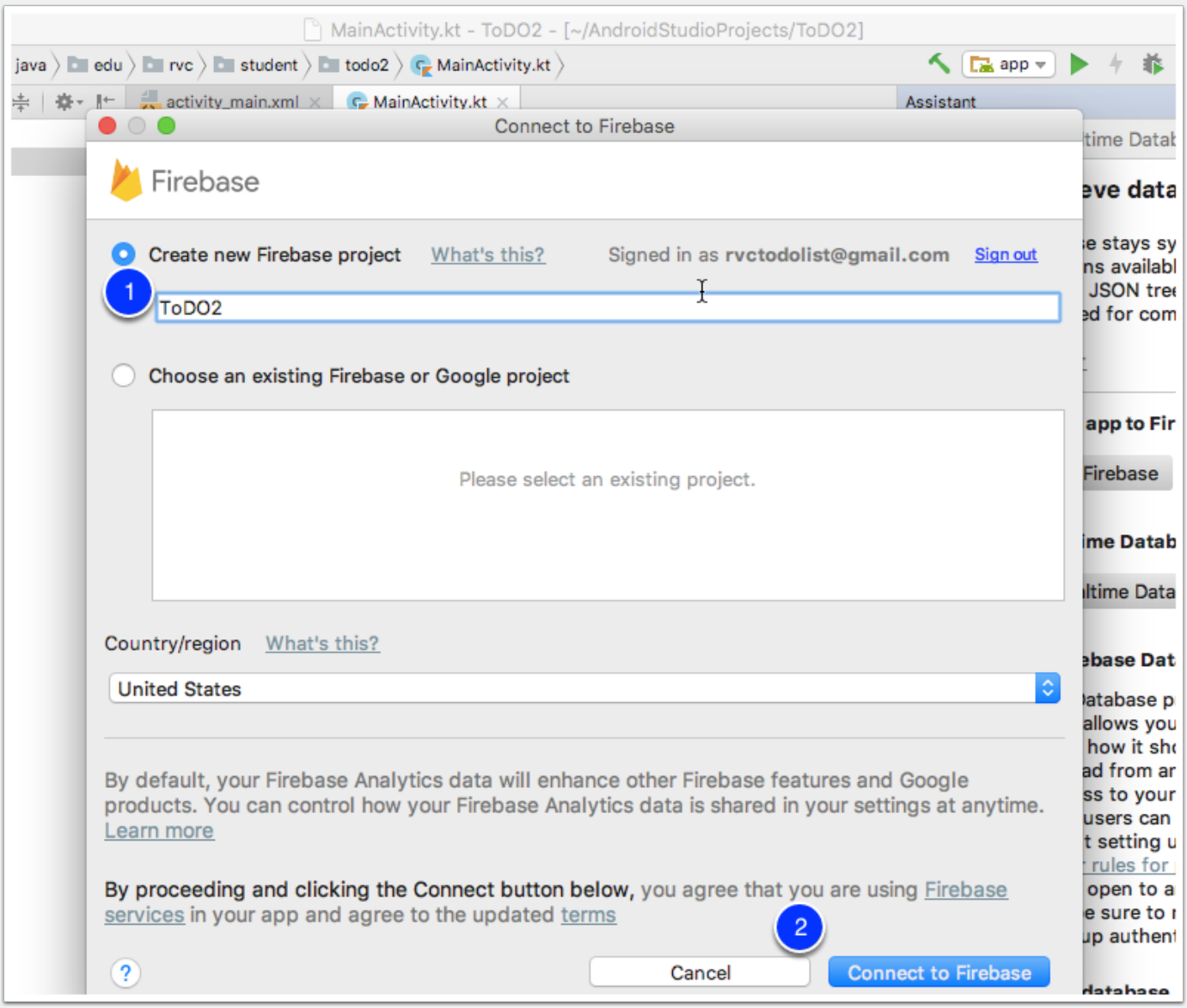
Sign into Android Studio | Android Studio

1. You Should See a Success Message!
2. Click on **Firebase**



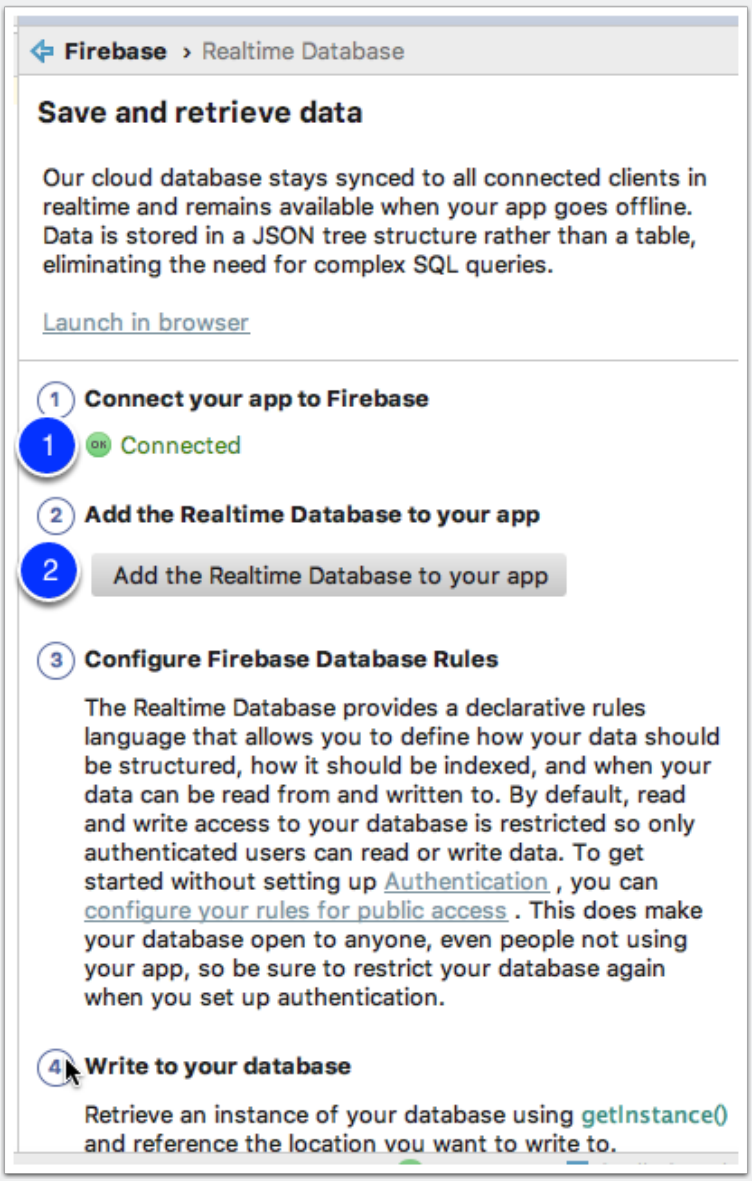
Connect to Firebase

1. It should populate with your new Android Project Name
2. Click **Connect to FireBase**



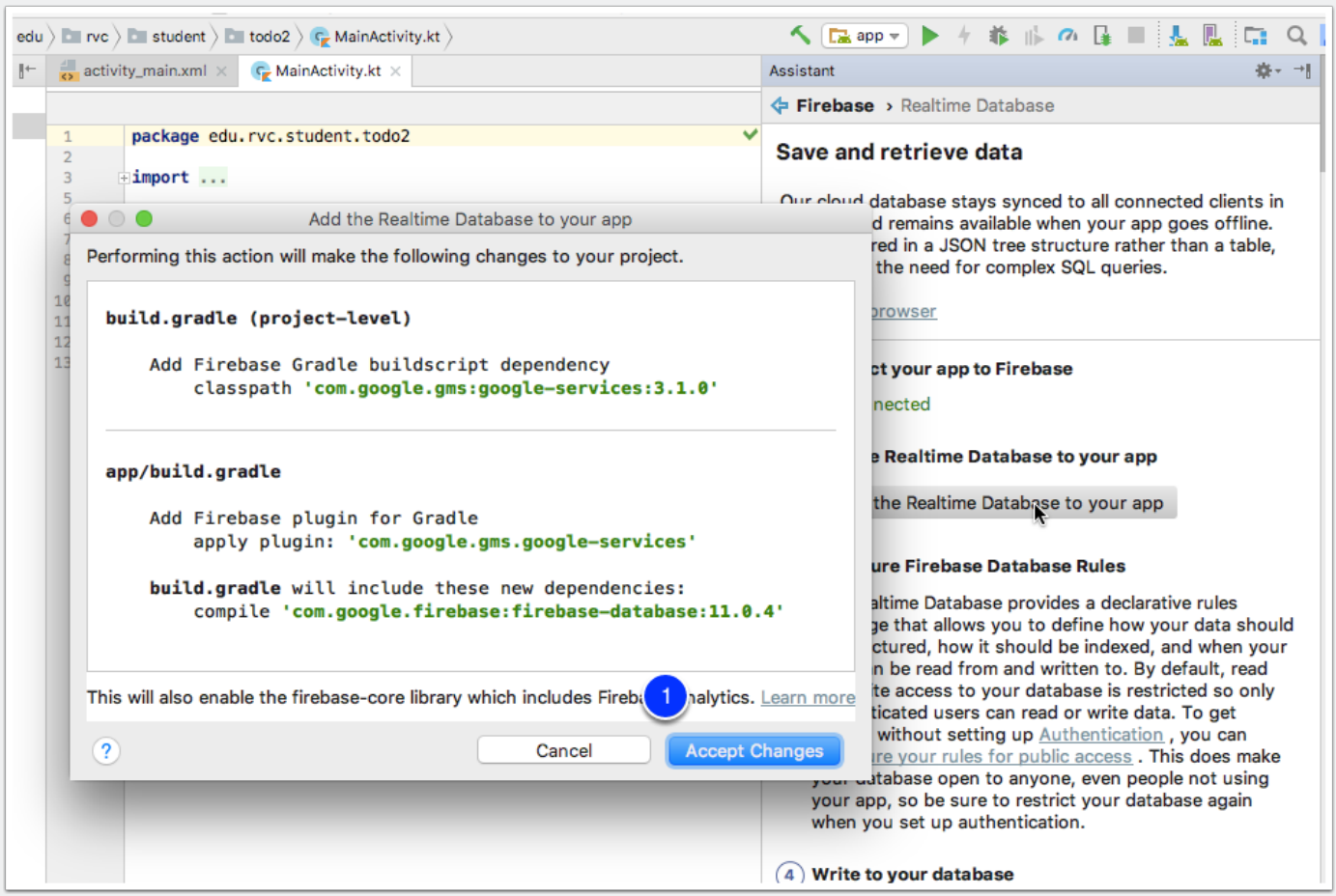
Connect to Firebase

1. Should see **Connected**
2. Click on **Add the Realtime Database to your app**



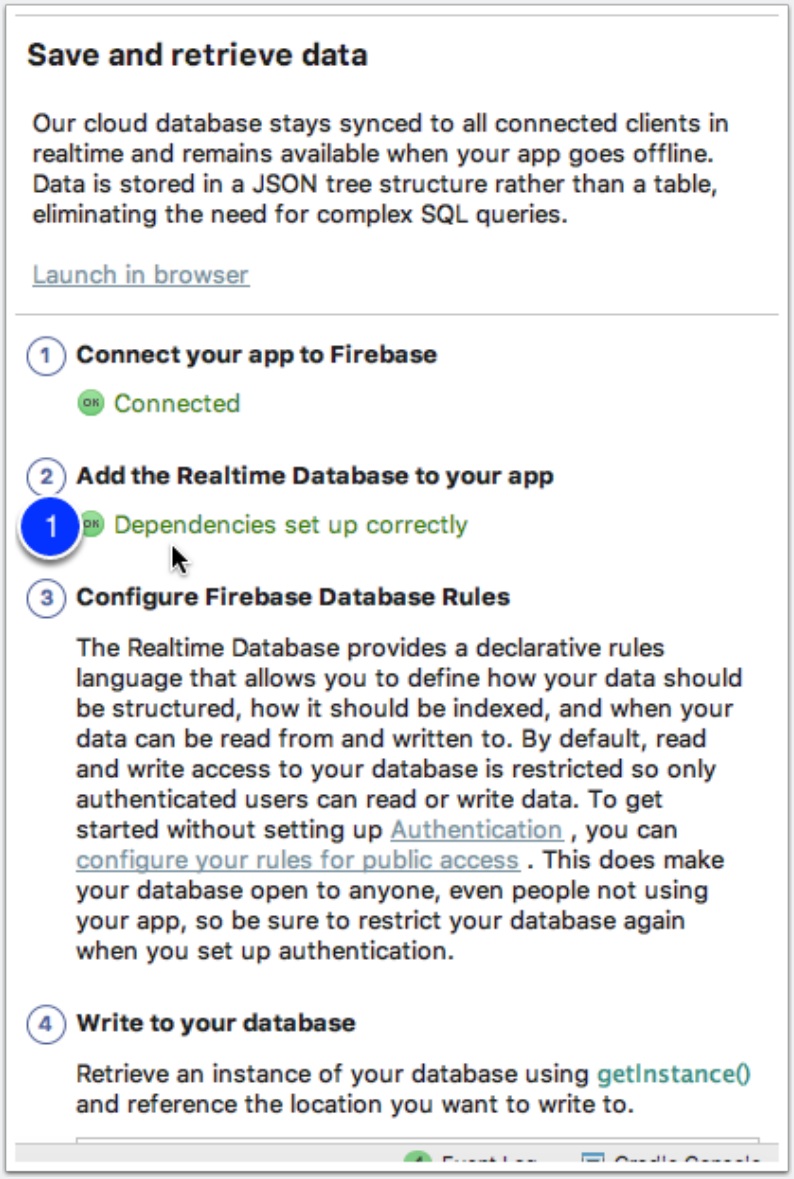
Add the Realtime Database to your app

1. Click **Accept Changes**
2. Allow to Update Gradle (takes a bit)



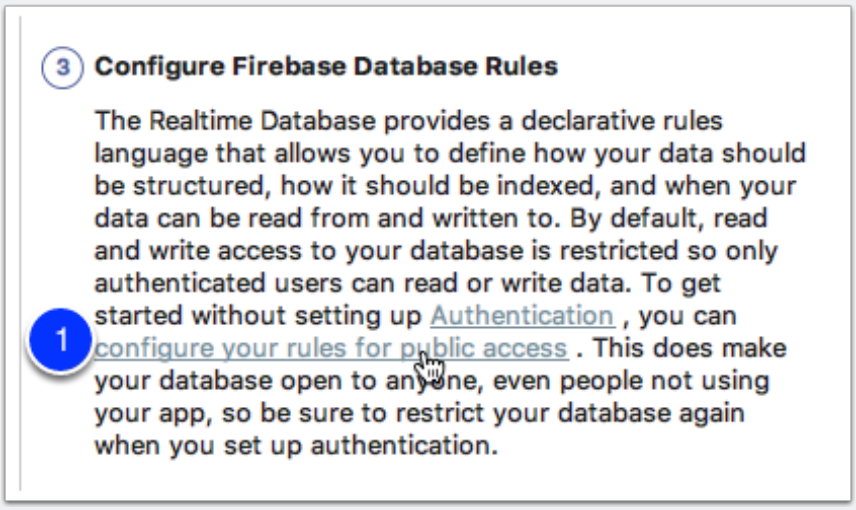
Connect to Firebase

Should see success (green icon) once Gradle is done



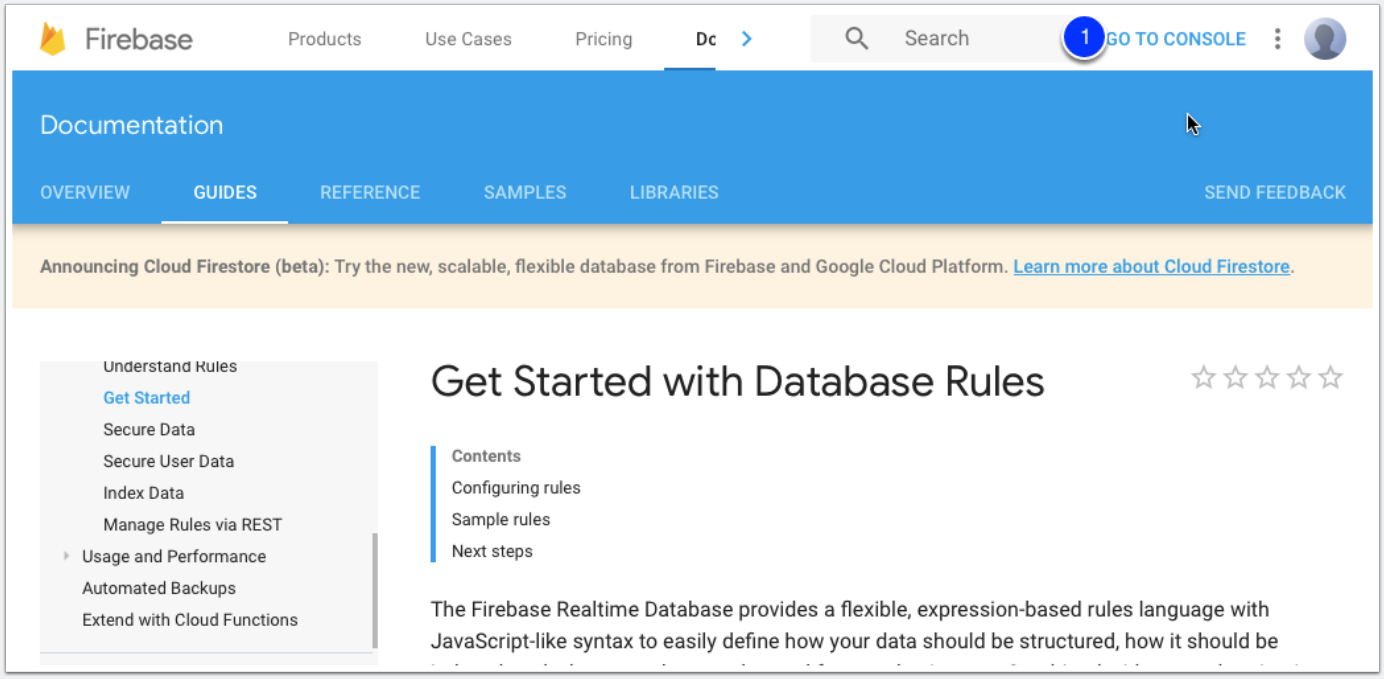
Connect to Firebase

1. Update Firebase Rules
2. Allow all to read and write
3. Click on **configure your rules for public access**



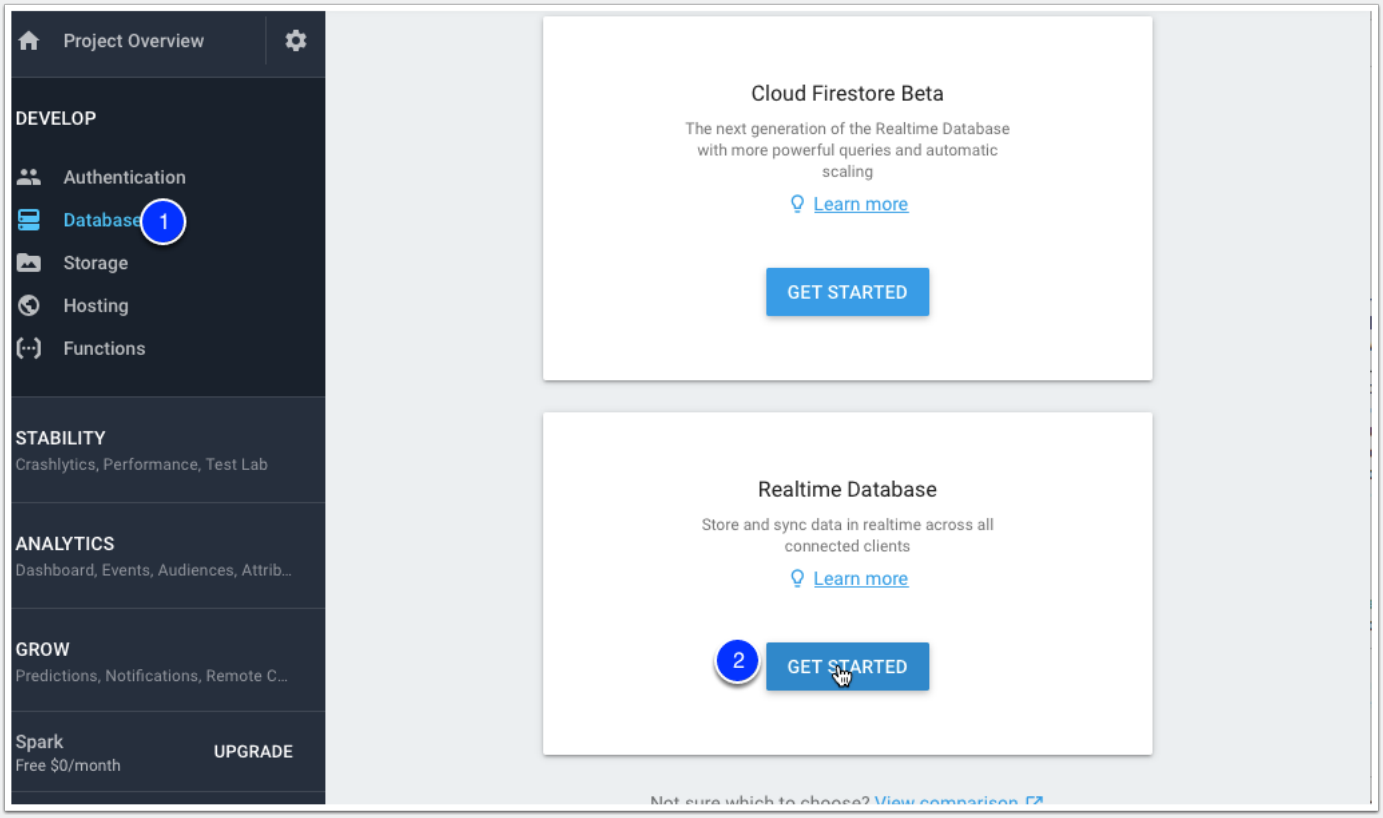
Connect to Firebase

Click on **GO TO CONSOLE**



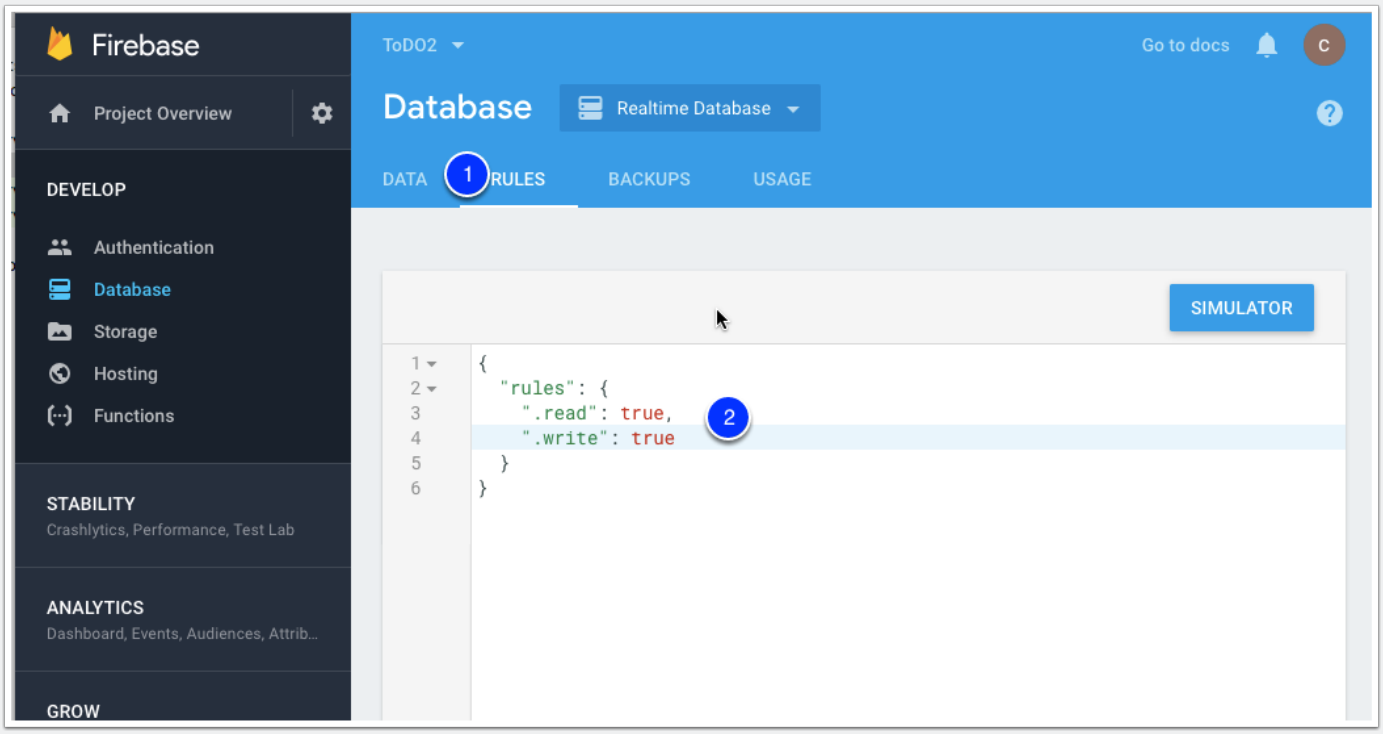
Connect to Firebase

1. Click on **Database**
2. Click on **Get Started** under Realtime Database



Connect to Firebase

1. Click on **RULES** tab
2. Make sure your rule looks like this
3. It allows all who use app to read and write to database



Connect to Firebase

1. Write a test message to database
2. Copy code under #4
3. Paste below line 15 in MainActivity.kt (It should convert to Kotlin)
4. Run App

```
1  package edu.rvc.student.todo2
2
3  import android.support.v7.app.AppCompatActivity
4  import android.os.Bundle
5  import com.google.firebase.database.DatabaseReference
6  import com.google.firebase.database.FirebaseDatabase
7
8
9
10 class MainActivity : AppCompatActivity() {
11
12     override fun onCreate(savedInstanceState: Bundle?) {
13         super.onCreate(savedInstanceState)
14         setContentView(R.layout.activity_main)
15
16         // Write a message to the database
17         val database = FirebaseDatabase.getInstance()
18         val myRef = database.getReference( p0: "message")
19
20         myRef.setValue("Hello, World!")
21     }
22 }
23
```

Firebase › Realtime Database

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.

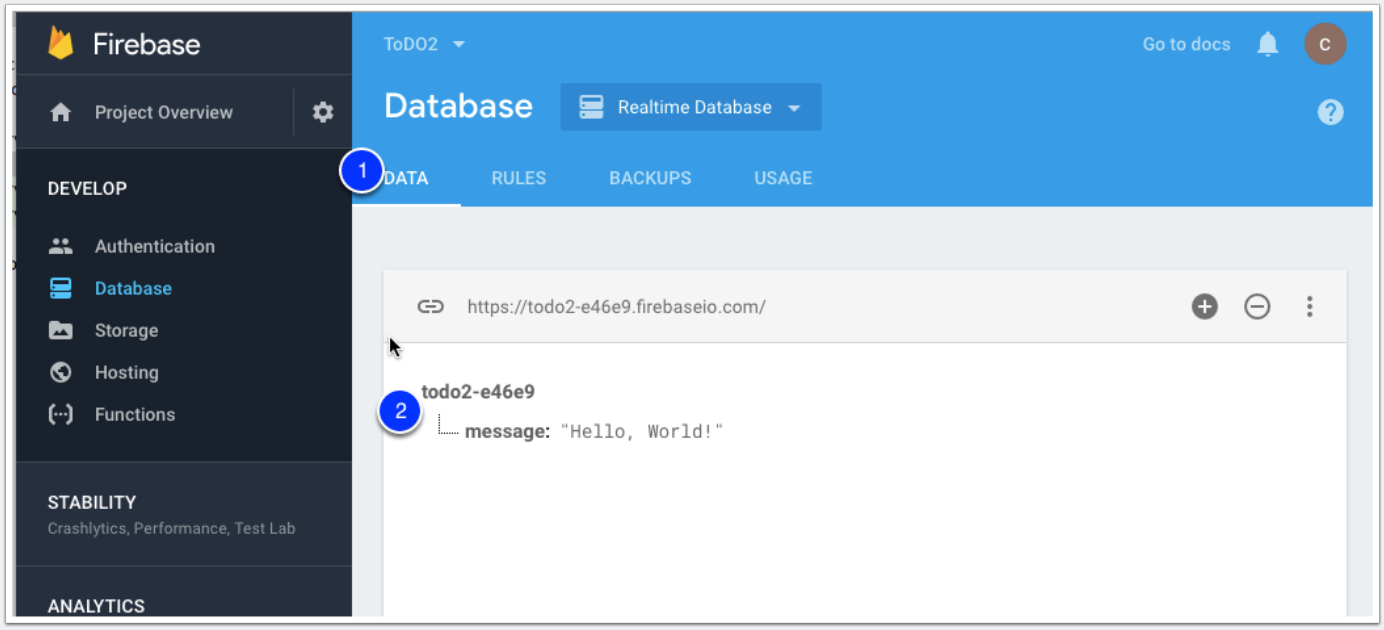
```
// Write a message to the database
FirebaseDatabase database = FirebaseDatabase.getIn
DatabaseReference myRef = database.getReference("m

myRef.setValue("Hello, World!");
```

You can save a range of data types to the database this way, including Java objects. When you save an object the responses from any getters will be saved as children of this location.

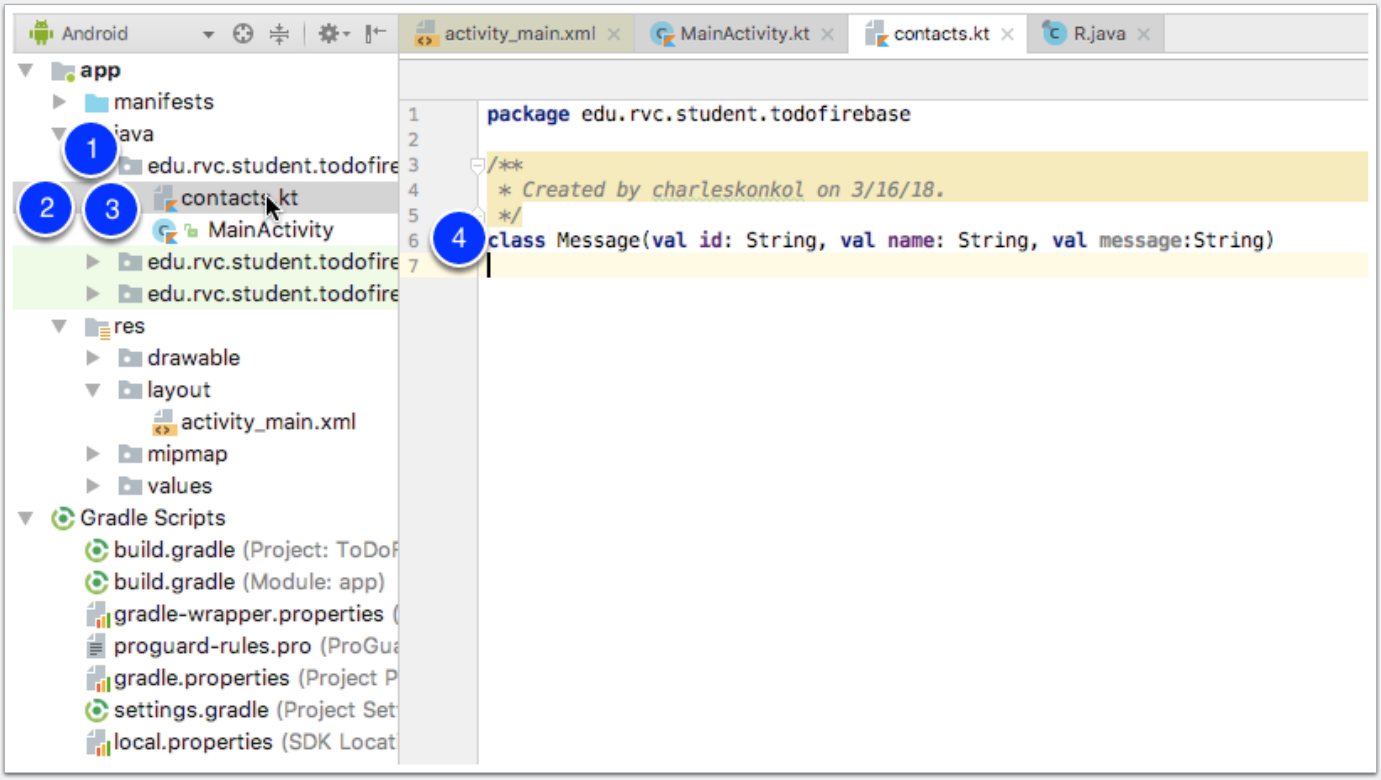
Connect to Firebase

1. Go Back to Firebase in your web browser
2. Click on **Data**
3. View **message: "Hello World!"** that was just written



contacts.kt - Add file > contacts.kt

1. Right-Click on edu.rvc.stud... under java folder and select
2. New > Kotlin File Class
3. Add file > contacts.kt
4. Add Class Message on line 6 below



MainActivity.kt - Add Code

Make sure these imports are added to MainActivity.kt

```
MainActivity | onCreate() | object : …alueEventListener | onDataCh
package edu.rvc.student.todofirebase

import android.content.Context
import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import android.util.Log
import android.view.inputmethod.InputMethodManager
import android.widget.Button
import android.widget.EditText
import android.widget.TextView
import android.widget.Toast
import com.google.firebase.database.FirebaseDatabase
import com.google.firebase.database.DatabaseError
import com.google.firebase.database.DataSnapshot
import com.google.firebase.database.ValueEventListener
import kotlinx.android.synthetic.main.activity_main.*
```

MainActivity.kt - Add Code

1. Remove the test code earlier
2. Add Remaning Code

```
MainActivity | onCreate() | object : …alueEventListener | onDataChange() | children.forEach{…} | if (mes
class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
        var task = findViewById<EditText>(R.id.txtTask)
        var names = findViewById<EditText>(R.id.txtMessage)
        var btnMessage = findViewById<Button>(R.id.btnMessage)
        var messages = findViewById<TextView>(R.id.txtNotes)
        var ref = FirebaseDatabase.getInstance().getReference( p0: "Message")
        //var messages = findViewById<TextView>(R.id.txtNotes)
        //val messages = findViewById<TextView>(R.id.txtNotes)
        //firebase database
        //var ref = FirebaseDatabase.getInstance().getReference("Message")
        btnMessage.setOnClickListener{
                // Write a message to the database

            txtTask.requestFocus()

        var messageid = ref.push().key

        var messageg = Message(messageid, task.text.toString(), names.text.toString())

            hideKeyboard()
            task.setText("")
            names.setText("")
            txtTask.requestFocus()
             ref.child(messageid).setValue(messageg).addOnCompleteListener {
            Toast.makeText( context: this,  text: "Task Added!",  duration: 3).show()

        }
    }
```

MainActivity.kt - Add Code

1. Add two functions **ref.addValueEventListener & hidekeyboard**

2. Test & confirm data is writing to database online
3. Submit to Github

```
//listen and show data changes
1 ref.addValueEventListener(object : ValueEventListener {
                override fun onDataChange(dataSnapshot: DataSnapshot) {
                    messages.text = ""
                    val children = dataSnapshot.children
                    children.forEach {
                        println("data: " + it.toString())
                        if (messages.text.toString() != "") {
messages.text = messages.text.toString() + "\n" + "Task: " + it.child( p0: "name").value.toString() + " " + "Desc: " + it.child( p0: "message").value.toString()
                        }else{
                            messages.text = "My Tasks"
messages.text = messages.text.toString() + "\n" + "Task: " + it.child( p0: "name").value.toString() + " " + "Desc: " + it.child( p0: "message").value.toString()
                        }
                    }
                }

                override fun onCancelled(error: DatabaseError) {
                    // Failed to read value
                    Log.w( tag: "Message",  msg: "Failed to read value.", error.toException())
                }
            })
    }
    // function to hide keyboard goes right before the last right bracket of Class MainActivity
//import android.content.Context
//import android.view.inputmethod.InputMethodManager
2 fun hideKeyboard() {
        try {
            val imm = getSystemService(Context.INPUT_METHOD_SERVICE) as InputMethodManager
            imm.hideSoftInputFromWindow(currentFocus!!.windowToken,  flags: 0)
        } catch (e: Exception) {
            // TODO: handle exception
        }

    }

}
```