STUDENT GUIDE:
VOLLEY WITH KOTLIN

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A SIMPLE EXAMPLE USING VOLLEY WITH KOTLIN

1. Create a new project
    a. I named mine **VolleyTestKotlin**
    b. Use the Empty Activity template
    c. Make sure the language is Kotlin

2. In the build.gradle (Module:app) you should add the following line to the dependencies near the bottom, in order to download/use Volley

```
dependencies {

    implementation 'androidx.core:core-ktx:1.7.0'
    implementation 'androidx.appcompat:appcompat:1.6.1'
    implementation 'com.google.android.material:material:1.8.0'
    implementation
'androidx.constraintlayout:constraintlayout:2.1.4'
    testImplementation 'junit:junit:4.13.2'
    androidTestImplementation 'androidx.test.ext:junit:1.1.5'
    androidTestImplementation 'androidx.test.espresso:espresso-
core:3.5.1'
    implementation 'com.android.volley:volley:1.2.1'
}
```

3. Make sure to Sync Now in the build.gradle file

4. Enable view binding
    a. In the **Module build.gradle** file, add the
    ```
    buildFeatures {
        viewBinding true
    }
    ```
    b. Select **Sync Now** in the upper right corner

5. Open res/ activity_main.xml layout

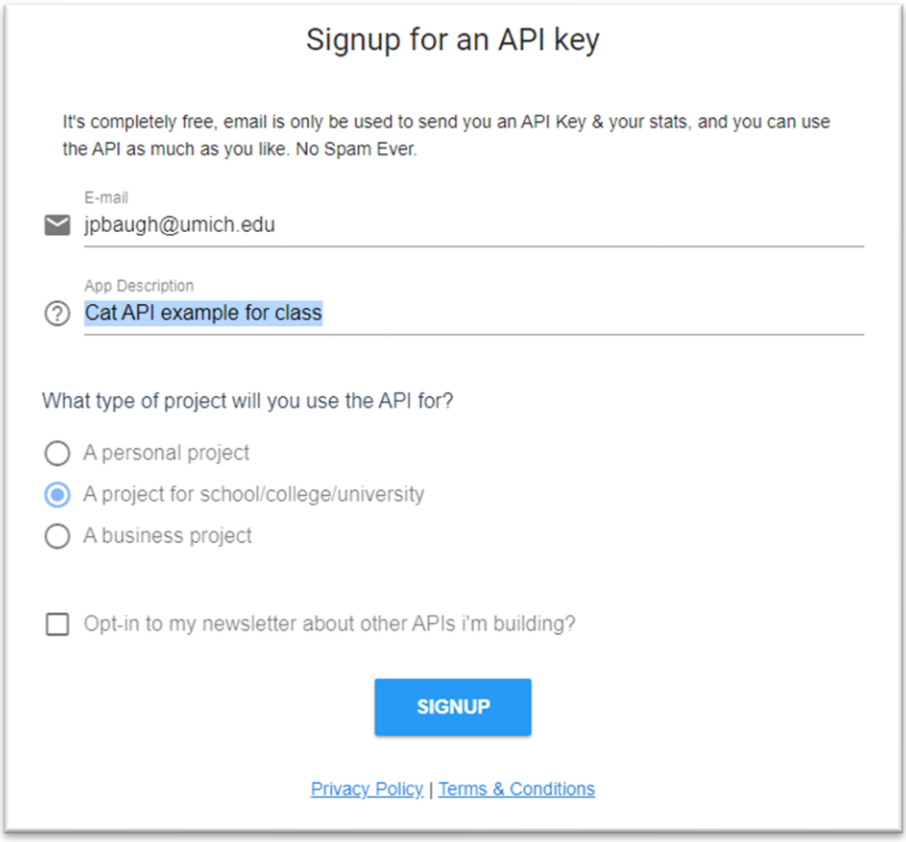
6. Drag a button into the ConstraintLayout
    a. Name it something like **btnGetCatData**
    b. Change the text to “Get Cat Data”
    c. Make sure it is constrained properly

7. In **MainActivity.kt**, code the following:

```
package com.profjpbaugh.myapplication

import androidx.appcompat.app.AppCompatActivity
```

```
import android.os.Bundle
import
com.profjpbaugh.myapplication.databinding.ActivityMainBinding

class MainActivity : AppCompatActivity() {

    private lateinit var binding : ActivityMainBinding


    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)

        binding = ActivityMainBinding.inflate(layoutInflater)

        setContentView(binding.root)

        //set button handler
        binding.btnGetCatData.setOnClickListener {
            printCatData()   //call this other function
        }

    }

    // method to interact with API
    fun printCatData() {

    }//end printCatData
}
```

8. Sign up for a Free Cat API key under **Pricing** if you haven't already



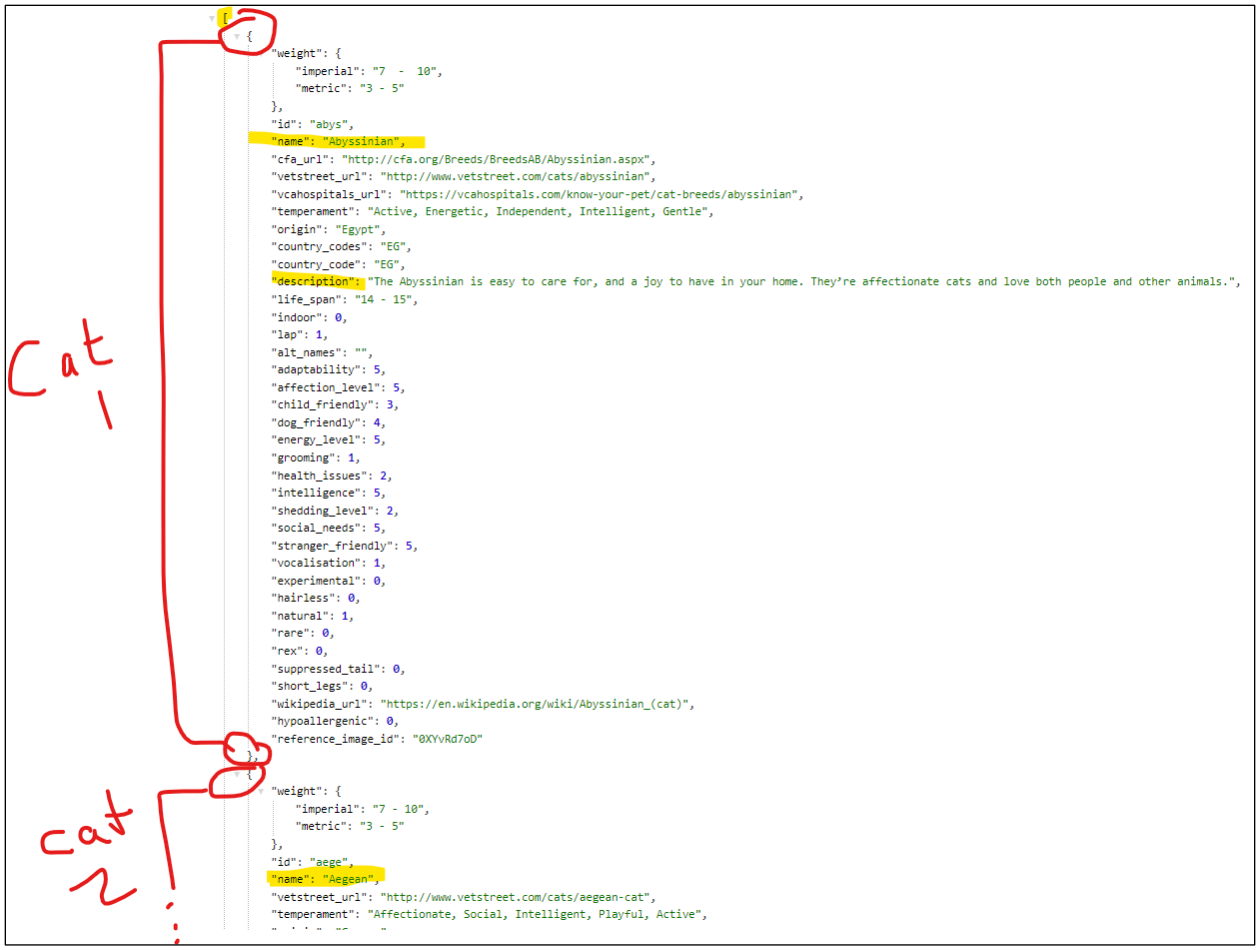
9. You can view different URL options under the **Documentation** on thecapapi.com if you go under **OpenAPI Spec Doc**

10. E.g., look at the breeds documentation
    a. https://developers.thecatapi.com/view-account/ylX4blBYT9FaoVd6OhvR?report=aZyiLrsCh#tag/Breeds

11. In a browser, go the the following API URL to view what the JSON for all the breeds looks like:

https://api.thecatapi.com/v1/breeds

12. Look at the JSON



In the JSON format, the [ ] (square brackets) means we're dealing with an array of data. Anything within { } (curly braces) is an object. Sometimes there are sub-objects (e.g., note that **weight** has its own set of curly braces because it contains properties since it's an object itself.)

We'll focus on the **name** and the **description** properties.

13. Under **Authentication** you'll notice they say what a query string (query parameter) call to the API looks like:
    a. https://api.thecatapi.com/v1/images/search?api_key=YOUR_API_KEY

14. We will use, for the breed information:

15. https://api.thecatapi.com/v1/breeds**?api_key=*your_api_key***
    a. Note the question mark acts as a delimiter between the URL and the query string, such as the api_key

16. In order to access the API, we must have our app request permission to use the Internet

a. Therefore, in the **AndroidMainifest.xml** (under **manifests** in your project), you must add the following:

```
<manifest
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">

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

17. Now, inside MainActivity, we will fill out the printCatData
    a. This is based on the documentation for Volley, which can be found at https://google.github.io/volley/simple.html

18. [refers to step 19, below] For various code below, such as **Request** and **StringReuest**, which are part of Volley, note that you will have to do an Alt+Enter, or enter the package imports manually near the top so that the compiler knows where they live
    a. These come from the Volley library you imported using Gradle near the beginning of this tutorial
    b. Also note **Log** in the following is part of Android, and logs to the console (it's similar to println()) – it needs imported as well

19. Add the code to MainActivity.kt, as indicated

```
// method to interact with API
    fun printCatData() {
   // make sure to replace the fake API key below with
   // your own
        var catUrl = "https://api.thecatapi.com/v1/breeds" +
             "?api_key=USE_YOUR_OWN_KEY_YOU_NAUGHTY_THIEF"


        val queue = Volley.newRequestQueue(this)

        // Request a string response from the provided URL.
        val stringRequest = StringRequest(
            Request.Method.GET, catUrl,
            Response.Listener<String> { response ->
                Log.i("MainActivity", response.toString())
            },
            Response.ErrorListener {
                Log.i("MainActivity", "That didn't work!")
            })
```

```
        // Add the request to the RequestQueue.
                queue.add(stringRequest)
            }//end printCatData
```

20. Run the app

21. Click the button

22. Notice the output in both the Run window and the Logcat window below in your app

    a. That's a great first step, but not quite what we want – we want to parse the JSON and display it in a more meaningful format
    b. You'll want to display it in various views (widgets) in your app, but we'll just use the console in this tutorial

23. Let's do that in the printCatData method
    a. Again, you'll need to import the packages for JSONArray and JSONObject
24. Code in MainActivity.kt, updated:

```
// method to interact with API
    fun printCatData() {
        var catUrl = "https://api.thecatapi.com/v1/breeds" +
                "?api_key=USE_YOUR_OWN_YA_SILLY_GOOSE"


        val queue = Volley.newRequestQueue(this)

        // Request a string response from the provided URL.
        val stringRequest = StringRequest(
            Request.Method.GET, catUrl,
            Response.Listener<String> { response ->
                var catsArray : JSONArray = JSONArray(response)

                //indices from 0 through catsArray.length()-1
                for(i in 0 until catsArray.length()) {
                    //${} is to interpolate the string /
                    // uses a string template
                    var theCat : JSONObject = catsArray.getJSONObject(i)

                    //now get the properties we want:  name and description
                    Log.i("MainActivity",
                          "Cat name: ${theCat.getString("name")}")
                    Log.i("MainActivity",
                    "Cat description: ${theCat.getString("description")}")
                }//end for
            },
```

```
            Response.ErrorListener {
                Log.i("MainActivity", "That didn't work!")
            })

// Add the request to the RequestQueue.
        queue.add(stringRequest)
    }//end printCatData
```

25. Run it
26. Observe the output under Run, or LogCat
27. Yaaay

ENTIRE MAINACTIVITY.KT FILE SOURCE CODE

For your reference, here's the code for all of MainActivity.kt

```
package com.profjpbaugh.myapplication

import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.util.Log
import com.android.volley.Request
import com.android.volley.Response
import com.android.volley.toolbox.StringRequest
import com.android.volley.toolbox.Volley
import com.profjpbaugh.myapplication.databinding.ActivityMainBinding
import org.json.JSONArray
import org.json.JSONObject

class MainActivity : AppCompatActivity() {

    private lateinit var binding : ActivityMainBinding


    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)

        binding = ActivityMainBinding.inflate(layoutInflater)

        setContentView(binding.root)

        //set button handler
        binding.btnGetCatData.setOnClickListener {
            printCatData()    //call this other function
        }

    }

    // method to interact with API
    fun printCatData() {
        var catUrl = "https://api.thecatapi.com/v1/breeds" +
                "?api_key=USE_YOURS_YOU_INSUFFERABLE_CLOWN"
```

```
        val queue = Volley.newRequestQueue(this)

        // Request a string response from the provided URL.
        val stringRequest = StringRequest(
            Request.Method.GET, catUrl,
            Response.Listener<String> { response ->
                var catsArray : JSONArray = JSONArray(response)

                //indices from 0 through catsArray.length()-1
                for(i in 0 until catsArray.length()) {
                    //${} is to interpolate the string /
                    // uses a string template
                    var theCat : JSONObject = catsArray.getJSONObject(i)

                    //now get the properties we want:  name and description
                    Log.i("MainActivity", "Cat name: ${theCat.getString("name")}")
                    Log.i("MainActivity", "Cat description:
${theCat.getString("description")}")
                }//end for
            },
            Response.ErrorListener {
                Log.i("MainActivity", "That didn't work!")
            })

// Add the request to the RequestQueue.
        queue.add(stringRequest)
    }//end printCatData
}
```