

**create students record with 4 members roll no, name, age, gender. use volley library to retrieve the records from network. (use Json array request):**

### **Code:**

#### **activity\_main.xml:**

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/tv1"
        android:layout_width="223dp"
        android:layout_height="0dp"
        android:layout_marginTop="72dp"
        android:layout_marginBottom="89dp"
        android:text="TextView"
        android:textColor="#37AE1C"
        android:textSize="20sp"
        app:layout_constraintBottom_toTopOf="@+id/btnret"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/btnret"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="256dp"
        android:text="Load Data"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/tv1" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

#### **MainActivity.java:**

```
package com.example.apieg;

import androidx.appcompat.app.AppCompatActivity;
import android.annotation.SuppressLint;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
```

```

import com.android.volley.Request;
import com.android.volley.RequestQueue;
import com.android.volley.Response;
import com.android.volley.VolleyError;
import com.android.volley.toolbox.StringRequest;
import com.android.volley.toolbox.Volley;

public class MainActivity extends AppCompatActivity {
    String url = "https://mocki.io/v1/edd0e5c4-5264-4cc8-abb6-de067770bcfe";

    Button btnret;
    TextView tv1;

    @SuppressWarnings("MissingInflatedId")
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        btnret = findViewById(R.id.btnret);
        tv1 = findViewById(R.id.tv1);

        btnret.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                retrieveDataVolley();
            }
        });
    }
    private void retrieveDataVolley(){

        StringRequest strreq;
        RequestQueue queue;
        queue = Volley.newRequestQueue(getApplicationContext());
        strreq = new StringRequest(Request.Method.GET, url,
            new Response.Listener<String>() {
                @Override
                public void onResponse(String response) {
                    tv1.setText(response);
                }
            },
            new Response.ErrorListener() {
                @Override
                public void onErrorResponse(VolleyError error) {
                    System.out.println(error.toString());
                }
            });
        queue.add(strreq);
    }
}

```

### AndroidManifest.xml:

```

<?xml version="1.0" encoding="utf-8"?>
<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
    android:allowBackup="true"
    android:dataExtractionRules="@xml/data_extraction_rules"
    android:fullBackupContent="@xml/backup_rules"
    android:icon="@mipmap/ic_launcher"
    android:label="@string/app_name"
    android:roundIcon="@mipmap/ic_launcher_round"
    android:supportRtl="true"
    android:theme="@style/Theme.Apiieg"
    tools:targetApi="31">
    <activity
        android:name=".MainActivity"
        android:exported="true">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />

            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>
</application>

</manifest>

```

## OUTPUT:

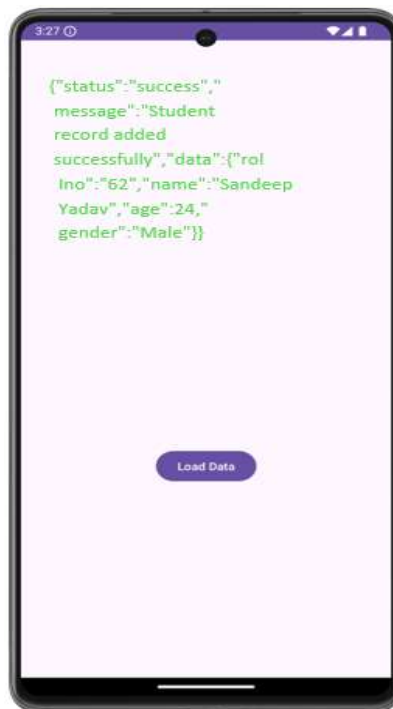
```

[
  {
    "Emp ID": "E001",
    "Name": "Sandeep
Yadav",

```

Success! Your API is available  
at  
<https://mocki.io/v1/6560936c-930c-4261-982e-ba45565fa074>

Create API



**B. create students record with 4 members roll no, name, age, gender. use okhttp library to retrieve records from the network and display the records:**

**activity\_main.xml:**

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/tv1"
        android:layout_width="0dp"
        android:layout_height="0dp"
        android:layout_marginStart="65dp"
        android:layout_marginTop="43dp"
        android:layout_marginEnd="65dp"
        android:layout_marginBottom="77dp"
        android:text="TextView"
        android:textColor="#37AE1C"
        android:textSize="14sp"
        app:layout_constraintBottom_toTopOf="@+id/btnret"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/btnret"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="190dp"
        android:text="Load Data"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/tv1" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

**MainActivity.java:**

```
package com.example.okhttp;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import android.annotation.SuppressLint;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
```

```

import android.widget.TextView;

import okhttp3.Call;
import okhttp3.Callback;
import okhttp3.OkHttpClient;
import okhttp3.Response;

import org.json.JSONArray;
import org.json.JSONException;
import org.json.JSONObject;

import java.io.IOException;

public class MainActivity extends AppCompatActivity {

    // Mock API URL
    String url = "https://mocki.io/v1/bd4f71cc-34eb-49d7-b9e2-d923cc78d296"; // Replace with
your Mock API URL

    Button btnret;
    TextView tv1;

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

        // Initialize the UI components
        btnret = findViewById(R.id.btnret);
        tv1 = findViewById(R.id.tv1);

        // Set click listener for the button to retrieve data using OkHttp
        btnret.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                retrieveDataOkHttp(); // Call OkHttp function to fetch student data
            }
        });
    }

    // Function to retrieve student data using OkHttp
    private void retrieveDataOkHttp(){
        // Create an OkHttpClient instance
        OkHttpClient client = new OkHttpClient();

        // Create a new request to the Mock API URL
        okhttp3.Request request = new okhttp3.Request.Builder().url(url).build();

        // Asynchronously send the request and handle the response
        client.newCall(request).enqueue(new Callback() {
            @Override
            public void onFailure(@NonNull Call call, @NonNull IOException e) {
                // Handle failure if request fails
                e.printStackTrace();
            }
        });
    }
}

```

```

    }

    @Override
    public void onResponse(@NonNull Call call, @NonNull Response response) throws
IOException {
        // Read the response body
        final String myResponse = response.body().string();

        // Declare the data variable as final
        final StringBuilder data = new StringBuilder(); // Use StringBuilder for better
performance in concatenation

        try {
            // Parse the response JSON into an array of student records
            JSONObject jsonResponse = new JSONObject(myResponse);
            JSONArray studentArray = jsonResponse.getJSONArray("data");

            // Loop through each student record and extract relevant data
            for (int i = 0; i < studentArray.length(); i++) {
                JSONObject student = studentArray.getJSONObject(i);
                String rollno = student.getString("rollno");
                String name = student.getString("name");
                int age = student.getInt("age");
                String gender = student.getString("gender");

                // Format data and append to the StringBuilder
                data.append("Roll No: ").append(rollno)
                    .append("\nName: ").append(name)
                    .append("\nAge: ").append(age)
                    .append("\nGender: ").append(gender)
                    .append("\n\n");
            }
        } catch (JSONException e) {
            e.printStackTrace();
        }

        // Update the UI on the main thread (as OkHttp runs on a background thread)
        runOnUiThread(new Runnable() {
            @Override
            public void run() {
                tv1.setText(data.toString()); // Set the formatted student data to the TextView
            }
        });
    }
}
});}}

```

## AndroidManifest.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<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
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Okhttp"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

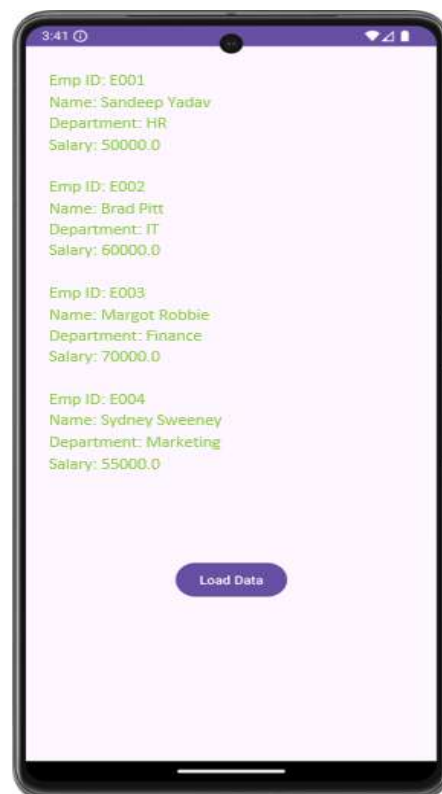
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>
</manifest>
```

## OUTPUT:

```
[
  {
    "Emp ID": "E001",
    "Name": "Sandeep
Yadav",
```

Success! Your API is available  
at  
<https://mocki.io/v1/6560936c-930c-4261-982e-ba45565fa074>

Create API



**C. create employee record with 4 members empid, name, dept, salary. use retrofit library to retrieve the records from the network and display records in list view.:**

**activity\_main.xml:**

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <!-- ListView to display employee data -->
    <ListView
        android:id="@+id/reda"
        android:layout_width="415dp"
        android:layout_height="518dp"
        android:layout_marginTop="40dp"
        app:layout_constraintTop_toBottomOf="@+id/btn"
        tools:layout_editor_absoluteX="-2dp" />

    <!-- Button to trigger data loading -->
    <Button
        android:id="@+id/btn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Load Data"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.177" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

**Code inside MainActivity.java:**

```
package com.example.retrofit;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.ListView;
import android.widget.Toast;
import java.util.List;

import retrofit2.Call;
import retrofit2.Callback;
```



```

import retrofit2.Response;
import retrofit2.Retrofit;
import retrofit2.converter.gson.GsonConverterFactory;

public class MainActivity extends AppCompatActivity {

    Button btn;
    ListView reda;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        btn = findViewById(R.id.btn);
        reda = findViewById(R.id.reda);

        // Set click listener to load data
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                loadData(); // Load employee data
            }
        });
    }

    private void loadData() {
        // Create Retrofit instance
        Retrofit retrofit = new Retrofit.Builder()
            .baseUrl(Api.Base_URL)
            .addConverterFactory(GsonConverterFactory.create()) // Use GsonConverterFactory for
JSON parsing
            .build();

        Api api = retrofit.create(Api.class); // Create API instance

        // Make the API call to fetch employee data wrapped in ApiResponse
        Call<ApiResponse> call = api.getEmployee();
        call.enqueue(new Callback<ApiResponse>() {
            @Override
            public void onResponse(Call<ApiResponse> call, Response<ApiResponse> response) {
                if (response.isSuccessful() && response.body() != null) {
                    ApiResponse apiResponse = response.body(); // Get the full response object
                    List<Employee> employees = apiResponse.getData(); // Extract the employee data

                    // Prepare the data for ListView
                    String[] data = new String[employees.size()];
                    for (int i = 0; i < employees.size(); i++) {
                        Employee emp = employees.get(i);
                        data[i] = "Emp ID: " + emp.getEmpid() + "\n" +
                            "Name: " + emp.getName() + "\n" +
                            "Department: " + emp.getDept() + "\n" +
                            "Salary: " + emp.getSalary() + "\n\n";
                    }

                    // Set the data in ListView

```

```

        reda.setAdapter(new ArrayAdapter<String>(getApplicationContext(),
android.R.layout.simple_list_item_1, data));
    } else {
        Toast.makeText(getApplicationContext(), "Failed to fetch data",
Toast.LENGTH_LONG).show();
    }
}

@Override
public void onFailure(Call<ApiResponse> call, Throwable t) {
    Toast.makeText(getApplicationContext(), t.getMessage(),
Toast.LENGTH_LONG).show();
}
});
}
}

```

### Code inside Employee.java:

```

package com.example.retrofit;

public class Employee {
    private String empid;
    private String name;
    private String dept;
    private double salary;

    // Constructor
    public Employee(String empid, String name, String dept, double salary) {
        this.empid = empid;
        this.name = name;
        this.dept = dept;
        this.salary = salary;
    }

    // Getters and Setters
    public String getEmpid() {
        return empid;
    }

    public void setEmpid(String empid) {
        this.empid = empid;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public String getDept() {
        return dept;
    }
}

```

```
public void setDept(String dept) {
    this.dept = dept;
}

public double getSalary() {
    return salary;
}

public void setSalary(double salary) {
    this.salary = salary;
}
}
```

### Api.java:

```
package com.example.retrofit;

import retrofit2.Call;
import retrofit2.http.GET;

public interface Api {

    String Base_URL = "https://mocki.io/v1/";

    @GET("b16e84ed-63d5-4e6e-965b-1a7c77efbe0e") // Your API endpoint
    Call<ApiResponse> getEmployee(); // Now returns ApiResponse instead of List<Employee>
}
```

### ApiResponse.java:

```
package com.example.retrofit;

import java.util.List;

public class ApiResponse {
    private String status;
    private String message;
    private List<Employee> data; // List of Employee objects

    // Getter and Setter methods for status, message, and data
    public String getStatus() {
        return status;
    }

    public void setStatus(String status) {
        this.status = status;
    }

    public String getMessage() {
        return message;
    }

    public void setMessage(String message) {
```

```

        this.message = message;
    }

    public List<Employee> getData() {
        return data;
    }

    public void setData(List<Employee> data) {
        this.data = data;
    }
}

```

### **AndroidManifest.xml:**

```

<?xml version="1.0" encoding="utf-8"?>
<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
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Retrofit"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>

```

## OUTPUT:

```
[
  {
    "Emp ID": "E001",
    "Name": "Sandeep
Yadav",
```

Success! Your API is available  
at  
<https://mocki.io/v1/6560936c-930c-4261-982e-ba45565fa074>

Create API

