**Practical No : 20**

**Aim : Program to send and receive Data from Server**

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**Date:**

**Code :**

**MainActivity.java**

package com.example.datasend;  
  
import android.os.AsyncTask;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.TextView;  
import androidx.appcompat.app.AppCompatActivity;  
import java.io.BufferedReader;  
import java.io.InputStreamReader;  
import java.io.PrintWriter;  
import java.net.Socket;  
  
public class MainActivity extends AppCompatActivity {  
  
 private TextView tvMessages;  
 private EditText etMessage;  
 private Button btnSend;  
 private Socket socket;  
 private PrintWriter output;  
 private BufferedReader input;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 tvMessages = findViewById(R.id.*tvMessages*);  
 etMessage = findViewById(R.id.*etMessage*);  
 btnSend = findViewById(R.id.*btnSend*);  
  
 btnSend.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 String message = etMessage.getText().toString();  
 new SendMessageTask().execute(message);  
 }  
 });  
  
 new ConnectTask().execute();  
 }  
  
 private class ConnectTask extends AsyncTask<Void, Void, Void> {  
 @Override  
 protected Void doInBackground(Void... voids) {  
 try {  
 socket = new Socket("10.0.2.2", 8080);  
 output = new PrintWriter(socket.getOutputStream(), true);  
 input = new BufferedReader(new InputStreamReader(socket.getInputStream()));  
 runOnUiThread(new Runnable() {  
 @Override  
 public void run() {  
 tvMessages.setText("Connected to server");  
 }  
 });  
 } catch (Exception e) {  
 e.printStackTrace();  
 }  
 return null;  
 }  
 }  
  
 private class SendMessageTask extends AsyncTask<String, Void, String> {  
 @Override  
 protected String doInBackground(String... strings) {  
 String message = strings[0];  
 output.println(message);  
 try {  
 return input.readLine();  
 } catch (Exception e) {  
 e.printStackTrace();  
 return null;  
 }  
 }  
  
 @Override  
 protected void onPostExecute(String response) {  
 if (response != null) {  
 tvMessages.append("\nServer: " + response);  
 }  
 }  
 }  
}

**activity\_main.xml**

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <TextView  
 android:id="@+id/tvMessages"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Messages"  
 android:layout\_marginTop="16dp"/>  
  
 <EditText  
 android:id="@+id/etMessage"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@id/tvMessages"  
 android:hint="Enter Message"/>  
  
 <Button  
 android:id="@+id/btnSend"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@id/etMessage"  
 android:text="SEND"/>  
</RelativeLayout>

**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"/>  
  
  
 <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.Datasend"  
 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>

**SimpleServer.java ( Server Side)**

import java.io.BufferedReader;  
import java.io.InputStreamReader;  
import java.io.PrintWriter;  
import java.net.ServerSocket;  
import java.net.Socket;  
  
public class SimpleServer {  
 public static void main(String[] args) {  
 try (ServerSocket serverSocket = new ServerSocket(8080)) {  
 System.*out*.println("Server is listening on port 8080");  
 while (true) {  
 Socket socket = serverSocket.accept();  
 new ClientHandler(socket).start();  
 }  
 } catch (Exception e) {  
 e.printStackTrace();  
 }  
 }  
}  
  
class ClientHandler extends Thread {  
 private Socket socket;  
  
 public ClientHandler(Socket socket) {  
 this.socket = socket;  
 }  
  
 @Override  
 public void run() {  
 try (PrintWriter out = new PrintWriter(socket.getOutputStream(), true);  
 BufferedReader in = new BufferedReader(new InputStreamReader(socket.getInputStream()))) {  
 String message;  
 while ((message = in.readLine()) != null) {  
 System.*out*.println("Received: " + message);  
 out.println("Echo: " + message);  
 }  
 } catch (Exception e) {  
 e.printStackTrace();  
 }  
 }  
}

**Output :**



