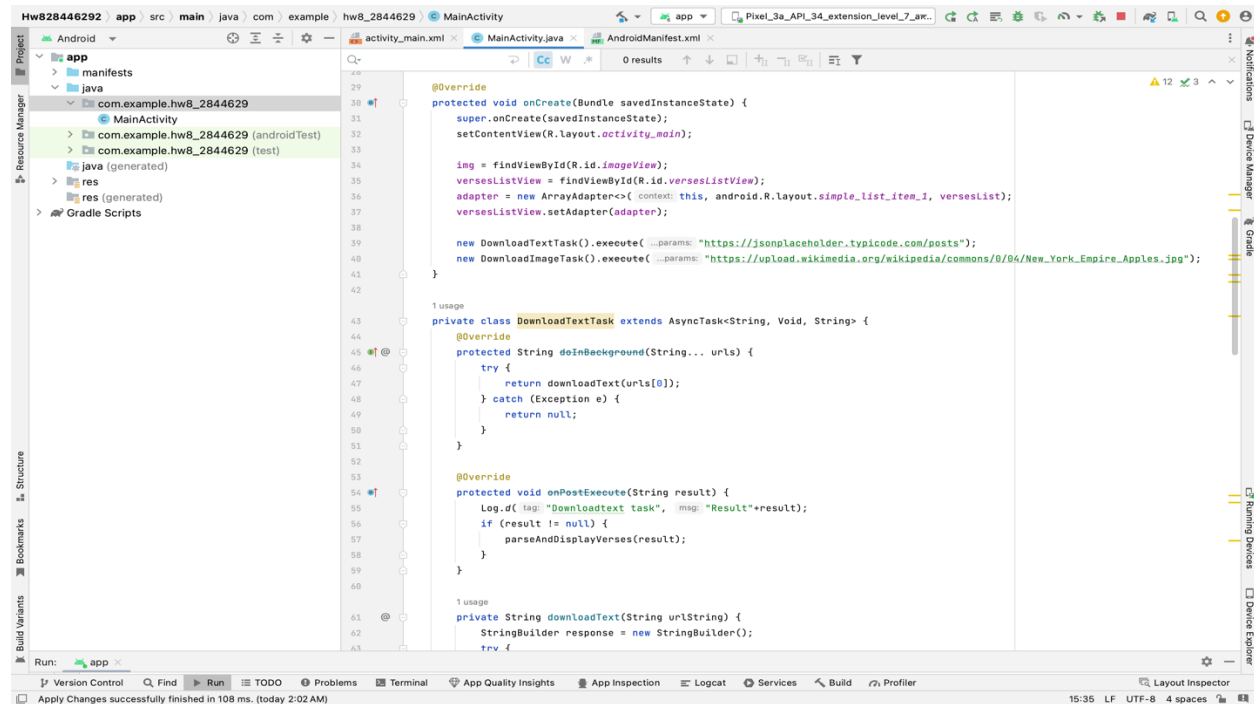


Modify the JSON app: instead of displaying the list of verses in a sequence of toasts, store the verses in an array and display them in a ListView nicely as part of the layout for the main activity.

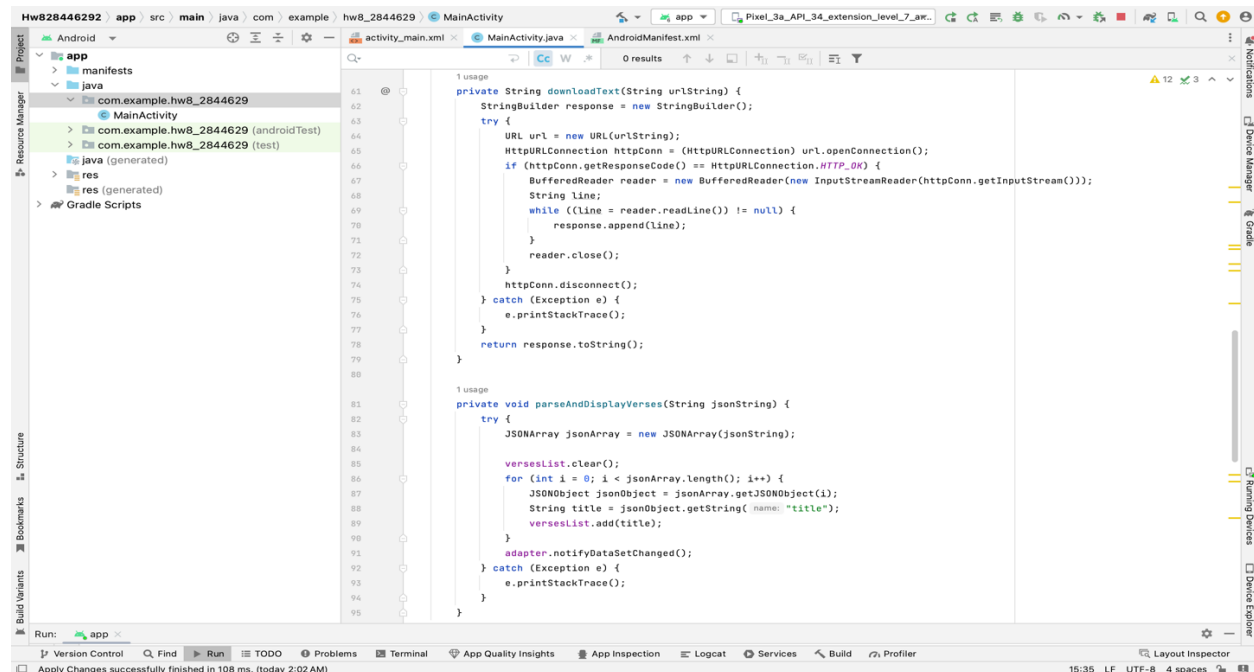
MainActivity.java : The 'DownloadTextTask' and 'DownloadImageTask' methods in the JSON app's 'MainActivity' are critical. The former retrieves JSON data from a web API, parses it, and populates a 'ListView', similar to how the prior app displayed contact information. The latter retrieves an image from a URL and changes a 'ImageView', similar to how contact images are shown. Both tasks run asynchronously through 'AsyncTask' to ensure a responsive user interface, with error handling and logging incorporated for smooth operation and debugging.



```

29
30
31 @Override
32 protected void onCreate(Bundle savedInstanceState) {
33     super.onCreate(savedInstanceState);
34     setContentView(R.layout.activity_main);
35
36     img = findViewById(R.id.imageView);
37     versesListView = findViewById(R.id.versesListView);
38     adapter = new ArrayAdapter<Context> (this, android.R.layout.simple_list_item_1, versesList);
39     versesListView.setAdapter(adapter);
40
41     new DownloadTextTask().execute(...params: "https://jsonplaceholder.typicode.com/posts");
42     new DownloadImageTask().execute(...params: "https://upload.wikimedia.org/wikipedia/commons/0/06/New_York_Empire_Apples.jpg");
43 }
44
45 1 usage
46 private class DownloadTextTask extends AsyncTask<String, Void, String> {
47     @Override
48     protected String doInBackground(String... urls) {
49         try {
50             return downloadText(urls[0]);
51         } catch (Exception e) {
52             return null;
53         }
54     }
55
56     @Override
57     protected void onPostExecute(String result) {
58         Log.d("tag", "DownloadText Task", msg: "Result"+result);
59         if (result != null) {
60             parseAndDisplayVerses(result);
61         }
62     }
63
64     1 usage
65     private String downloadText(String urlString) {
66         StringBuilder response = new StringBuilder();
67         try {
68

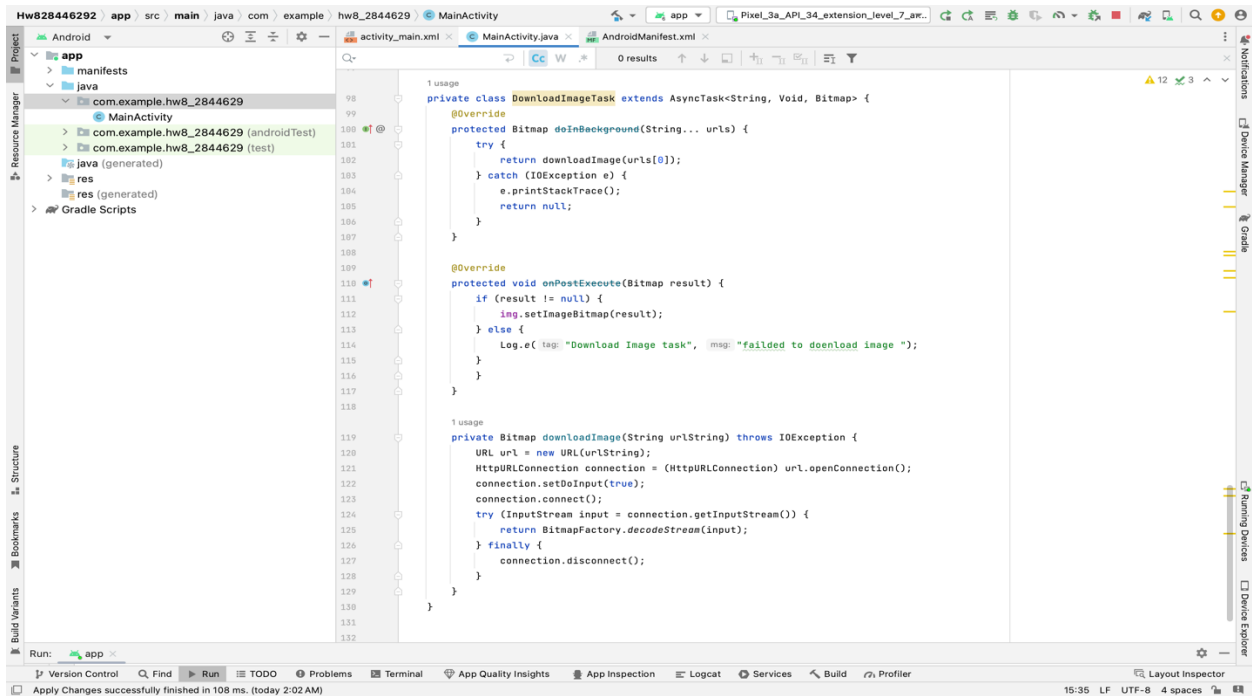
```



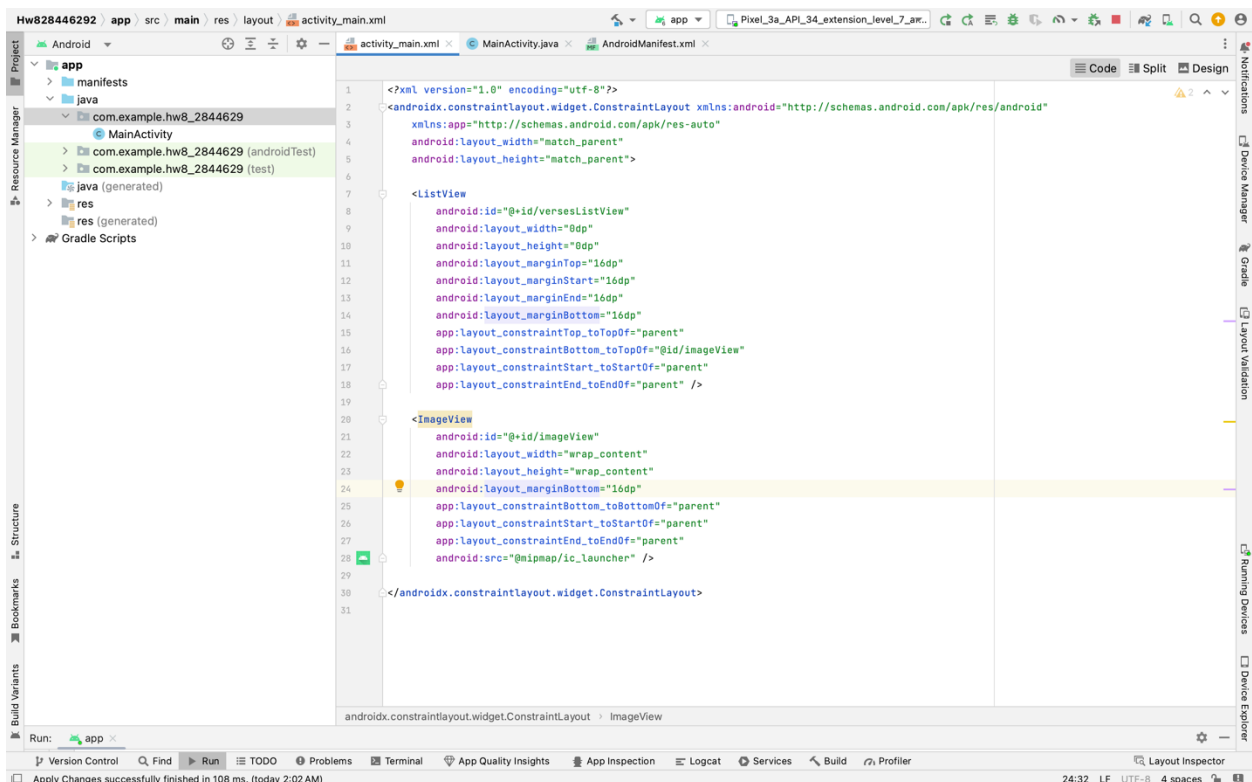
```

69         URL url = new URL(urlString);
70         HttpURLConnection httpConn = (HttpURLConnection) url.openConnection();
71         if (httpConn.getResponseCode() == HttpURLConnection.HTTP_OK) {
72             BufferedReader reader = new BufferedReader(new InputStreamReader(httpConn.getInputStream()));
73             String line;
74             while ((line = reader.readLine()) != null) {
75                 response.append(line);
76             }
77             reader.close();
78             httpConn.disconnect();
79         } catch (Exception e) {
80             e.printStackTrace();
81         }
82         return response.toString();
83     }
84
85     1 usage
86     private void parseAndDisplayVerses(String jsonString) {
87         try {
88             JSONArray jsonArray = new JSONArray(jsonString);
89             versesList.clear();
90             for (int i = 0; i < jsonArray.length(); i++) {
91                 JSONObject jsonObject = jsonArray.getJSONObject(i);
92                 String title = jsonObject.getString("name");
93                 versesList.add(title);
94             }
95             adapter.notifyDataSetChanged();
96         } catch (Exception e) {
97             e.printStackTrace();
98         }
99     }
100

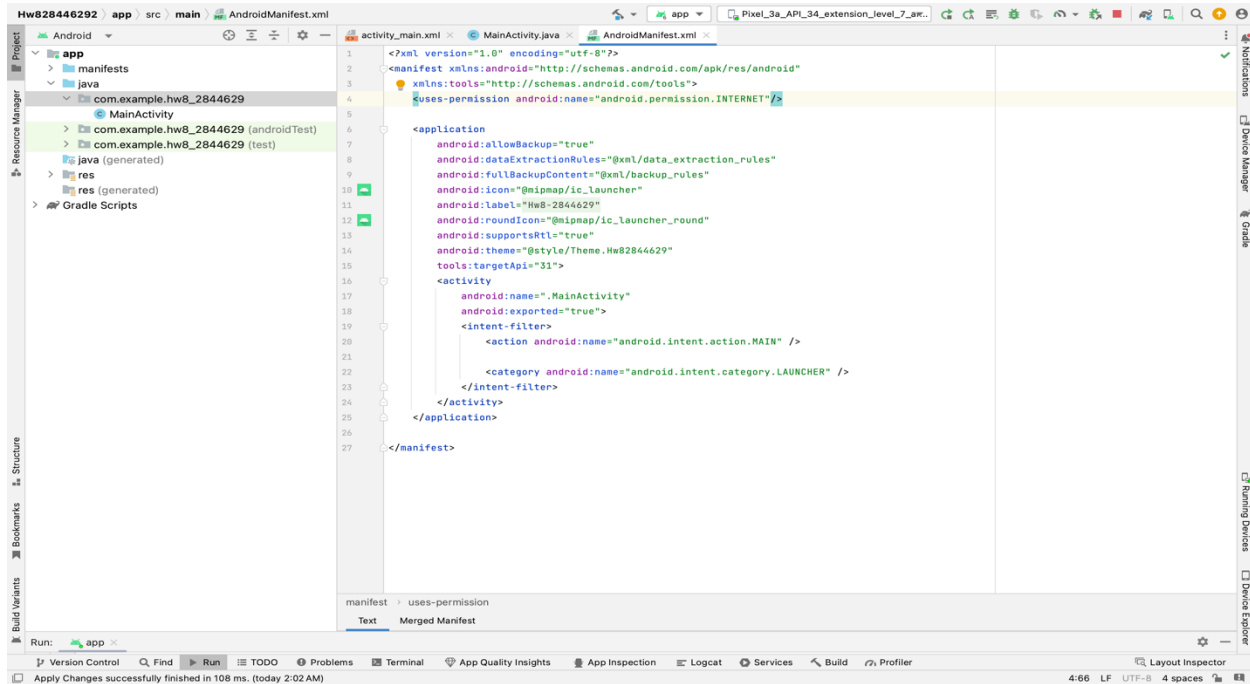
```



Main\_activity.xml : A 'ListView' and a 'ImageView' are contained within a 'ConstraintLayout' in this XML layout. The 'ListView', which occupies the majority of the screen, displays a list of things, while the 'ImageView' at the bottom displays an image, both nicely organized in the app's main interface.



Android manifest : I added one additional thing in the android manifest “<uses-permission android:name=“android.permission.INTERNET”/>” as the app uses online resource to download the content like text and image



Below is the screenshot of the app running :

