QUESTION (65% of the overall marks)

Tues 29.4.2022 : 12am -> 4 hours

- Remember that no two people write the same code so don't make life hard for me.

  Read the plagiarism statement before you submit your files.

- All communication with me during the Exam must be through the chat associated with todays meeting.

  NO PRIVATE CHATS.

- Attach a short "readme.txt" file outlining what sections you have completed and any problems you encountered.
  Include the Build & Running API #'s.

  Please specify whether you are using a phone or a virtual device (type & API# required)

  Take a recording of your app working or screen shots and attach it to the project.

- ZIP your AS project with readme.txt/recoding and any other files you produced.

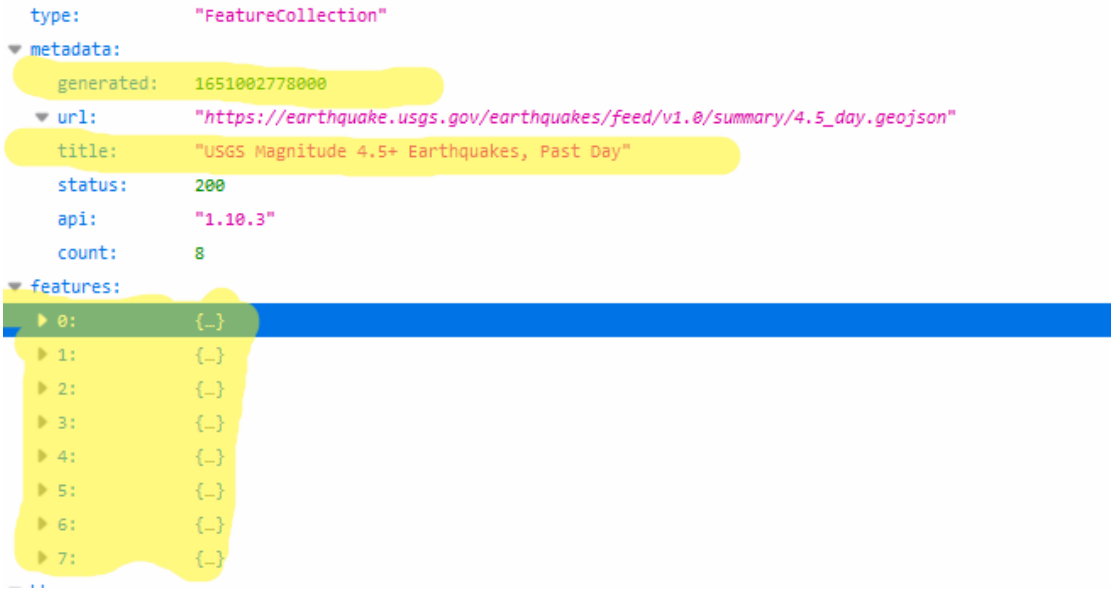
- Upload the ZIP file to Moodle… no email please.

Q1. The Earthquake Notification Service (ENS) is a free service that allow you to access earthquake data in different formats from its web site.

The URL below returns a JSON object that contain the details of all the earthquakes over 4.5 from the previous day.
Each entry in the “features” array contains one earthquake entry.

https://earthquake.usgs.gov/earthquakes/feed/v1.0/summary/4.5_day.geojson

The details of the JSON object are as follows:



```
type: "FeatureCollection"
metadata:
  generated: 1651002778000
  url: "https://earthquake.usgs.gov/earthquakes/feed/v1.0/summary/4.5_day.geojson"
  title: "USGS Magnitude 4.5+ Earthquakes, Past Day"
  status: 200
  api: "1.10.3"
  count: 8
features:
  0:
    type: "Feature"
    properties:
      mag: 4.9
      place: "2 km SSW of Paphos, Cyprus"
      time: 1651000293900
      updated: 1651002661756
      tz: null
      url: "https://earthquake.usgs.gov/earthquakes/eventpage/us6000hght"
      detail: "https://earthquake.usgs.gov/earthquakes/feed/v1.0/detail/us6000hght.geojson"
      felt: 17
      cdi: 4.5
      mmi: null
      alert: null
      status: "reviewed"
      tsunami: 0
      sig: 377
      net: "us"
      code: "6000hght"
      ids: ",us6000hght,"
      sources: ",us,"
      types: ",dyfi,origin,phase-data,"
      nst: null
      dmin: 0.783
      rms: 0.76
      gap: 57
      magType: "mb"
      type: "earthquake"
      title: "M 4.9 - 2 km SSW of Paphos, Cyprus"
```

a) Create a new project **MAD22 => Very Important**.

b) Write an Android App that will download the above JSON object using *Volley* and display the highlighted data, "**mag**", "**place**" and "**time**" of each earthquake (6 entries) using the UI **RecyclerViewer.**

The data is supplied to the UI using **ViewModel/LiveData** and a **ROOM Database.**

The time is specified in ticks and can be converted to a Date/Time format with the code supplied below.

The "**metadata**" key value is a JSON object that contains a "**title**" key and "**generated**" key. Concatenate the value of both these keys to create a title of the **RecyclerView**.

The data (mag,place,time) are referenced through the "**features**" key which is a JSON array object. Each array entry has a "**properties**" key which contains a JSON object with the required data.

You should analysis the JSON object yourself either by looking at the diagrams above or posting the URL into POSTman/WEB browser.

<u>What you need to do:</u>

Download the JSON, parse it and store the extracted data in a ROOM Database.

Tag the Database with the **LiveDate** observable data holder class, this will update the **ViewModel** which will trigger the **RecyclerView** into action.

Code:

1) *The following code converts a time value specified in ticks to a Date/Time string.*

```
Date date = new Date(ticks);
Format format = new SimpleDateFormat("yyyy MM dd HH:mm:ss");
String dateTime = format.format(date);
```