MONASH University

FIT2081 Mobile Application Development

WEEK 7

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Semester 1, 2023
Monash University Malaysia

Announcement for Week 7

- Please complete your pre-reading quiz and submit by Monday 4pm. You can find the pre-reading quiz link at moodle “assessment” section.

- You will have to complete and submit the workshop quiz which will make available after the forum by Wednesday 11.55pm.

- Please complete your lab tasks before joining your lab session. Your lab solution must be submitted to moodle by Friday 11.55pm.

Learning Outcomes for Week 7

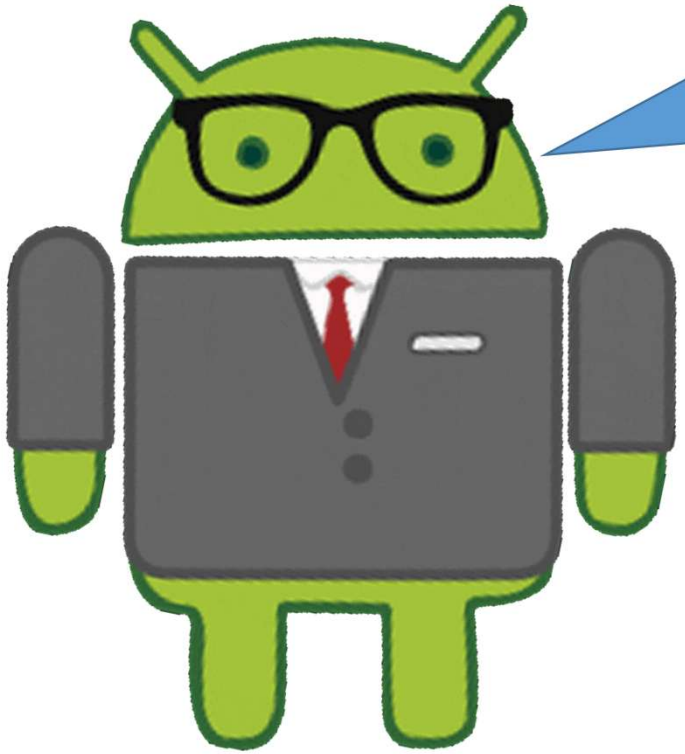
Databases

- Room Database
- Entities, Repository, ViewModel and LiveData
- SQL and Query Statements

Activities and Checklist for week 7

Activity	Notes	Checked?
Study the slide "FIT2081_Week7_Malaysia" & All the reading material in the moodle	Useful to complete your lab tasks.	
Complete the pre-reading quiz	Access it from the "assessment section" in moodle. Submit by Monday 4pm.	
Attend Forum	Online, for topics wrap-up.	
Complete Workshop quiz	Workshop quiz questions will be uploaded after the Forum on Monday. Submit by Wednesday 11.55pm.	
Complete lab task	Please refer to the complete section in week 7 moodle	
Attend tutorial	OPTIONAL – if you have issue regarding the lab tasks	
Attend Lab	COMPULSORY – You have to complete the lab tasks before coming to the lab. Submit your lab tasks (including the extra task) on Friday 11.55pm	

Tutorial time!



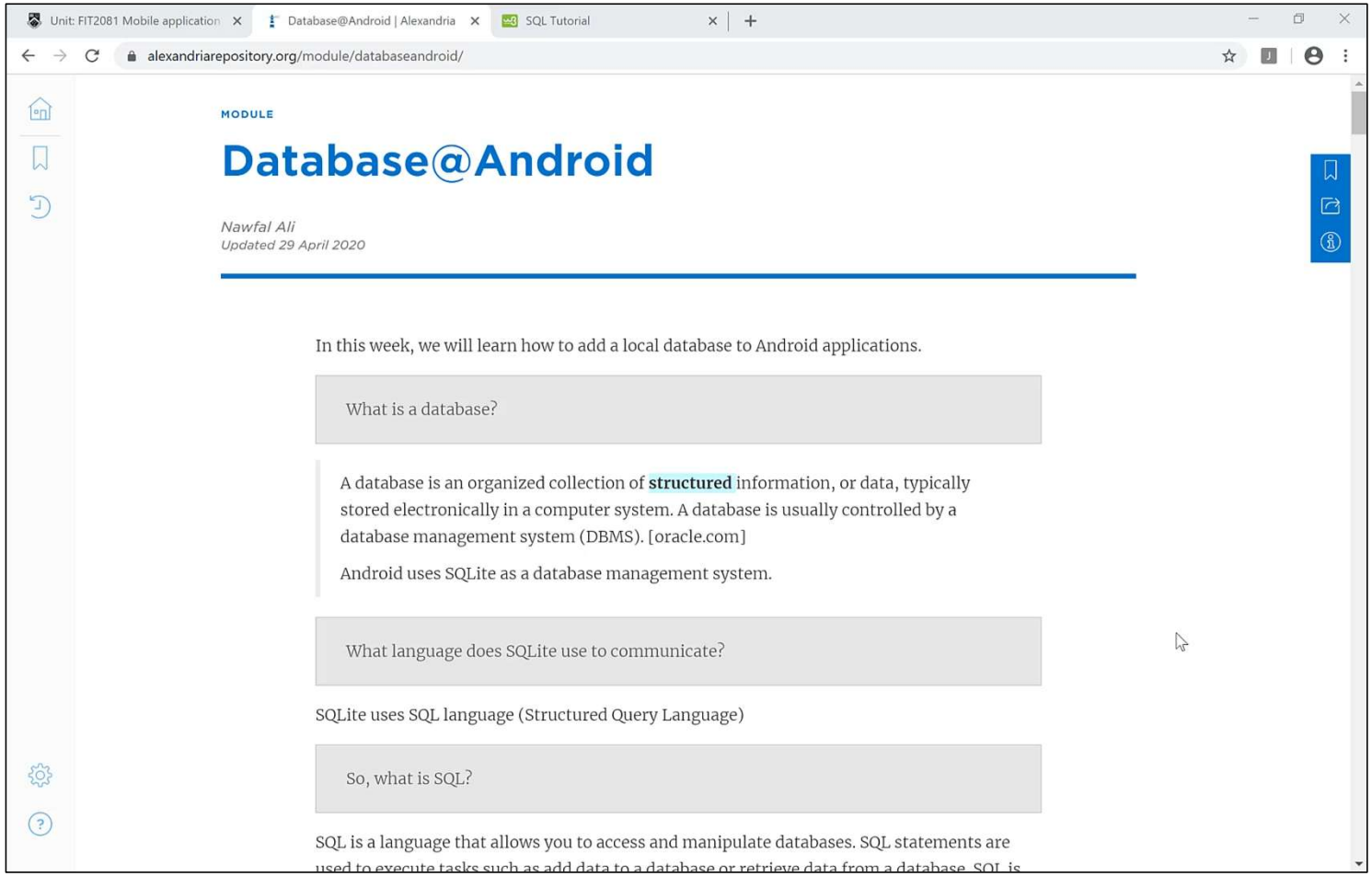
Gif retrieved from https://giphy.com

Before that, please download and understand the code of "PassArrayList_Malaysia" from supplementary material week 6. We will use this app to learn how to implement database for week 7.

*** But no worries on GSON, you are not using it for the lab tasks

Video 1: Database and SQL Syntax

1) Please play the video (12 minutes 36 seconds)

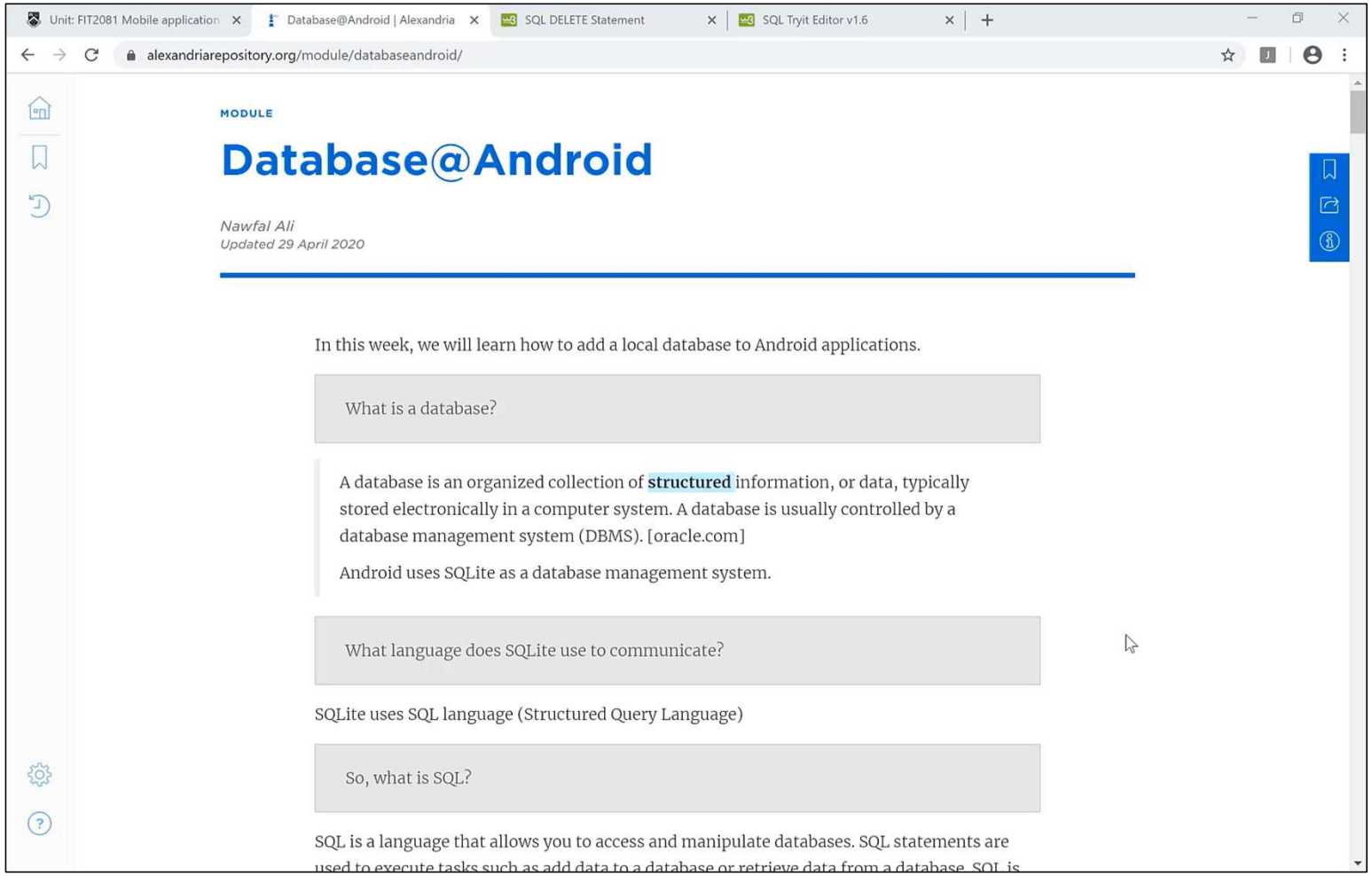


Do not worry about the format of the document (2020 version), the content is the same in 2023.

Test yourself with SQL from: https://www.w3schools.com/sql/default.asp

Video 2: Database setup in android studio

1) Please play the video (39 minutes 06 Seconds)



7:30 – Build Entity Java class

14:00 – Build database Java class

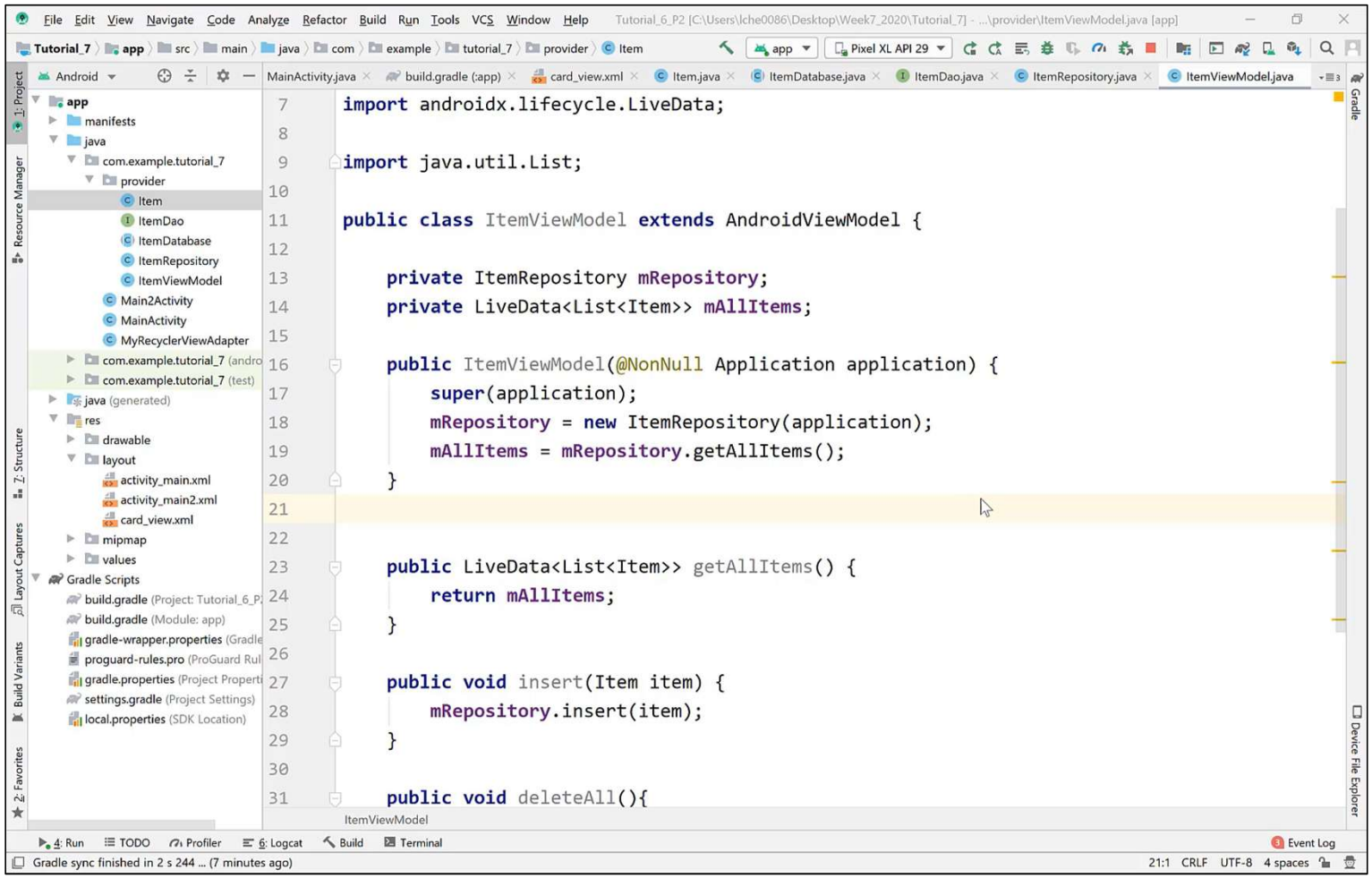
20:27 – Build Dao Interface

26:02 – Build Repository Java class

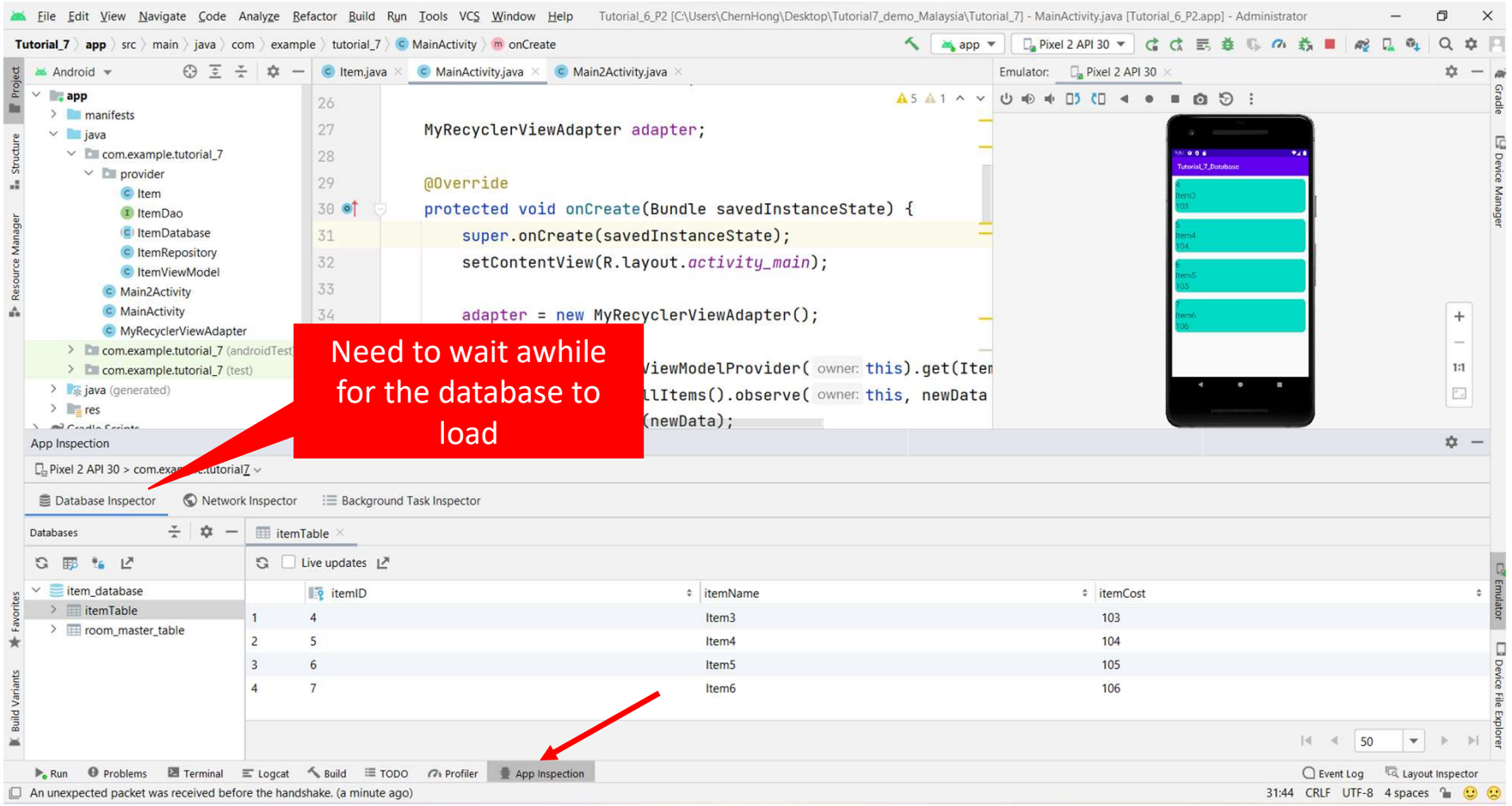
33.38 – Build ViewModel Java class

Video 3: Store and retrieve data from android activities

1) Please play the video (22 minutes 35 Seconds)



You may view or modify your database with the built-in Database Inspector:



Lab time!

Lab Instructions

Task 1:

Add the following features to the Book Library application you implemented in week 6.

- The application must save every new Book (all attributes) in an SQLite database.
  - ID
  - Title
  - ISBN
  - Author
  - Description
  - Price
- A room database must be used to implement the interfaces.
- The database must contain all the attributes and a primary key

Hints: Create an instance of the ViewModel whenever it is necessary to manipulate your database (read, insert or delete)

```
1  private CustomerViewModel mCustomerViewModel;
2
3  mCustomerViewModel = new ViewModelProvider(this).get(CustomerViewModel.class);
4        mCustomerViewModel.getAllCustomers().observe(this, newData -> {
5           adapter.setCustomers(newData);
6           adapter.notifyDataSetChanged();
7           tv.setText(newData.size() + "");
8        });
```

Lab Instructions

Task 2:

Update the recycler view that shows all the books by:

- place it in a fragment
- retrieve its data from the Room database you implemented in Task1
- automatically update its list if a new book is added to the DB
- re-use the fragment (and its RecyclerView) in a second activity. The activity must be reachable via a link in the navigation view.

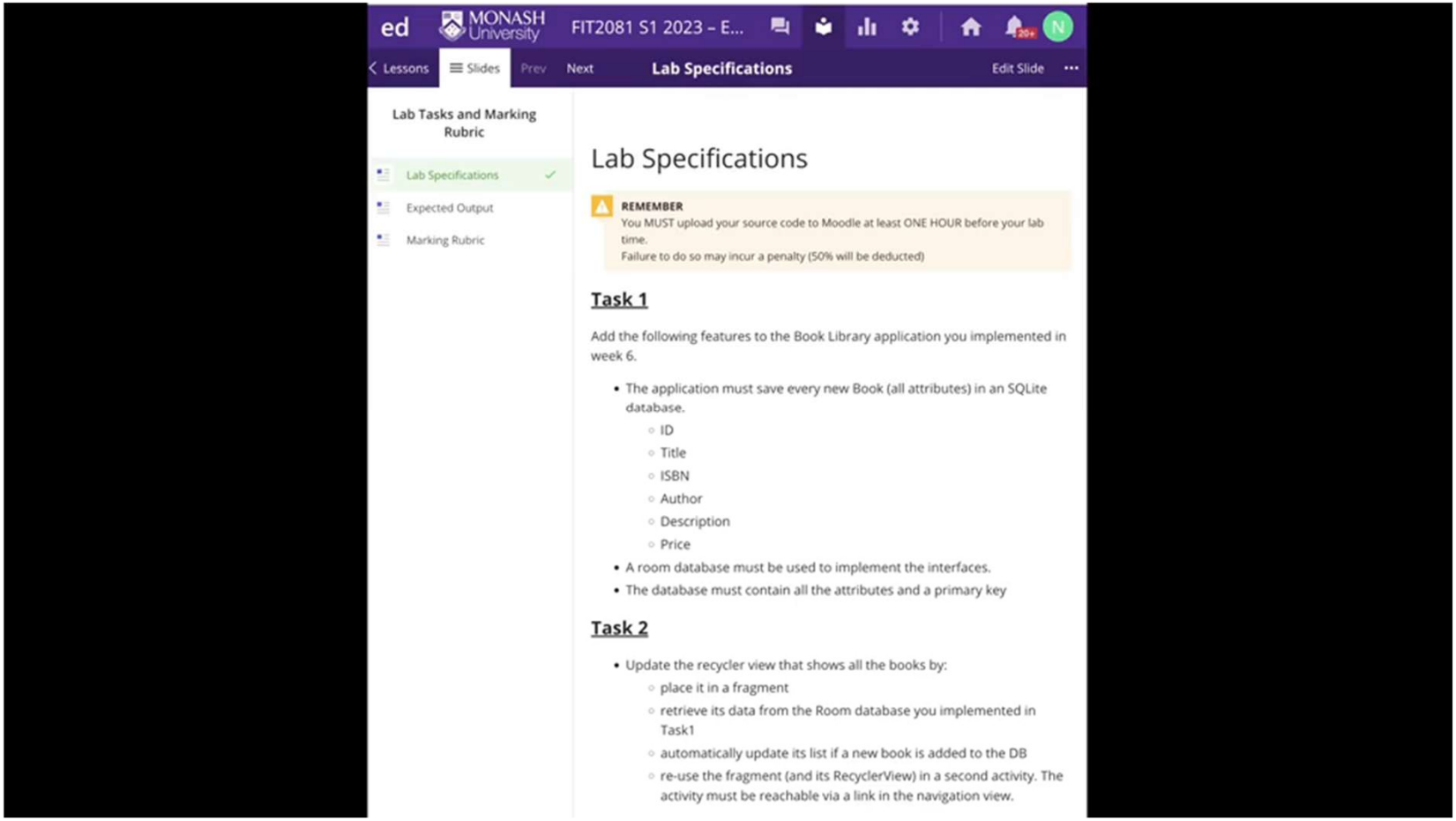
Hints:

Just create an intent to navigate to the second activity and call the same fragment used in the main activity (refer to week 6 on how to call the fragment)

Not necessary to create a ViewModel in the second activity.

Lab Instructions

Expected Output



***Please join your tutorial class if you have any queries regarding the lab tasks.

Thank you!