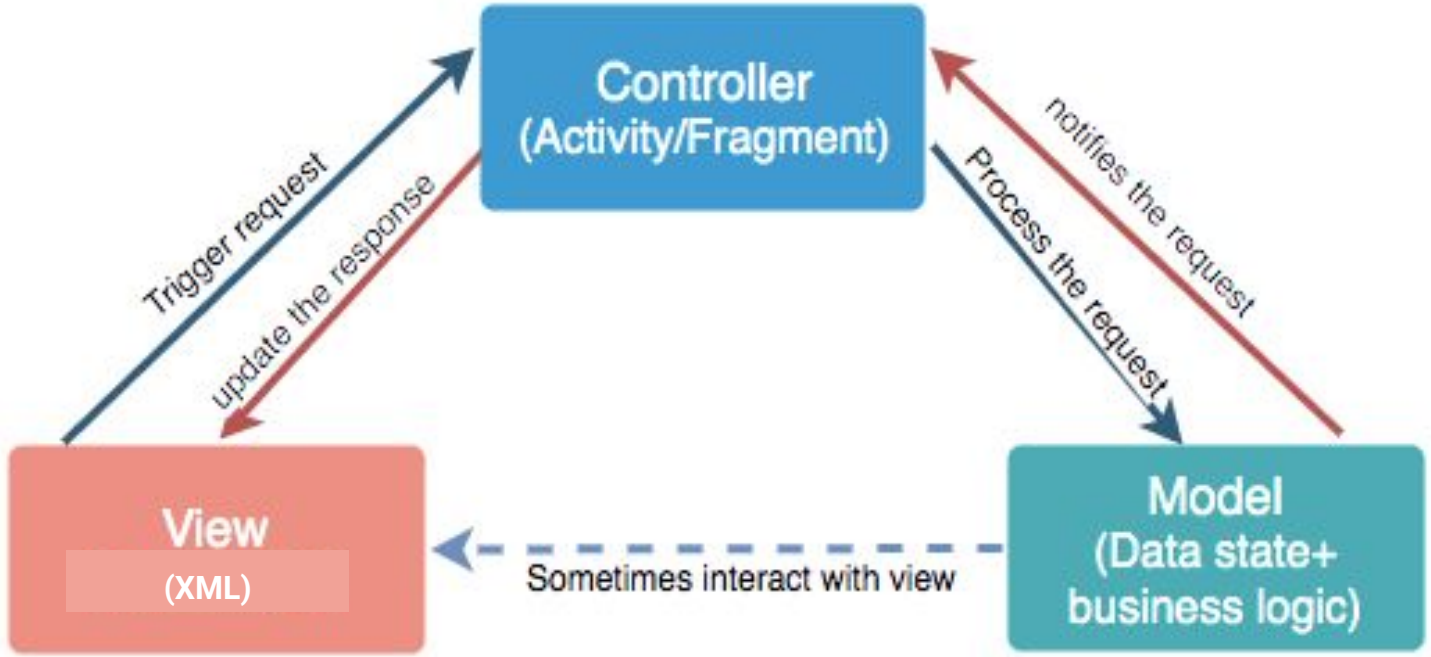
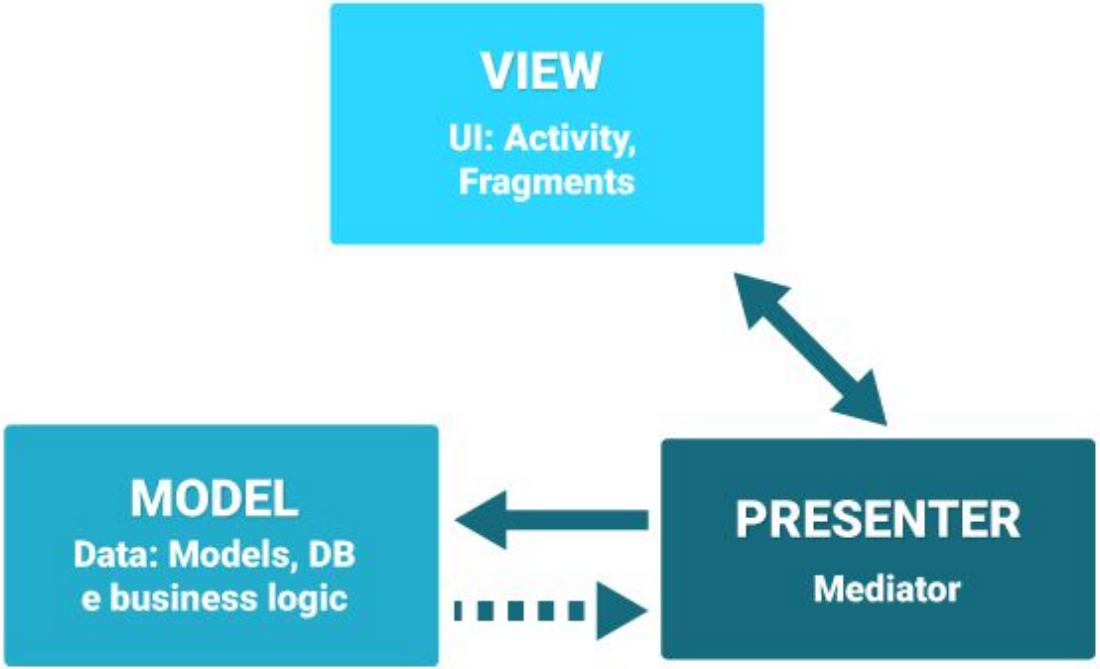
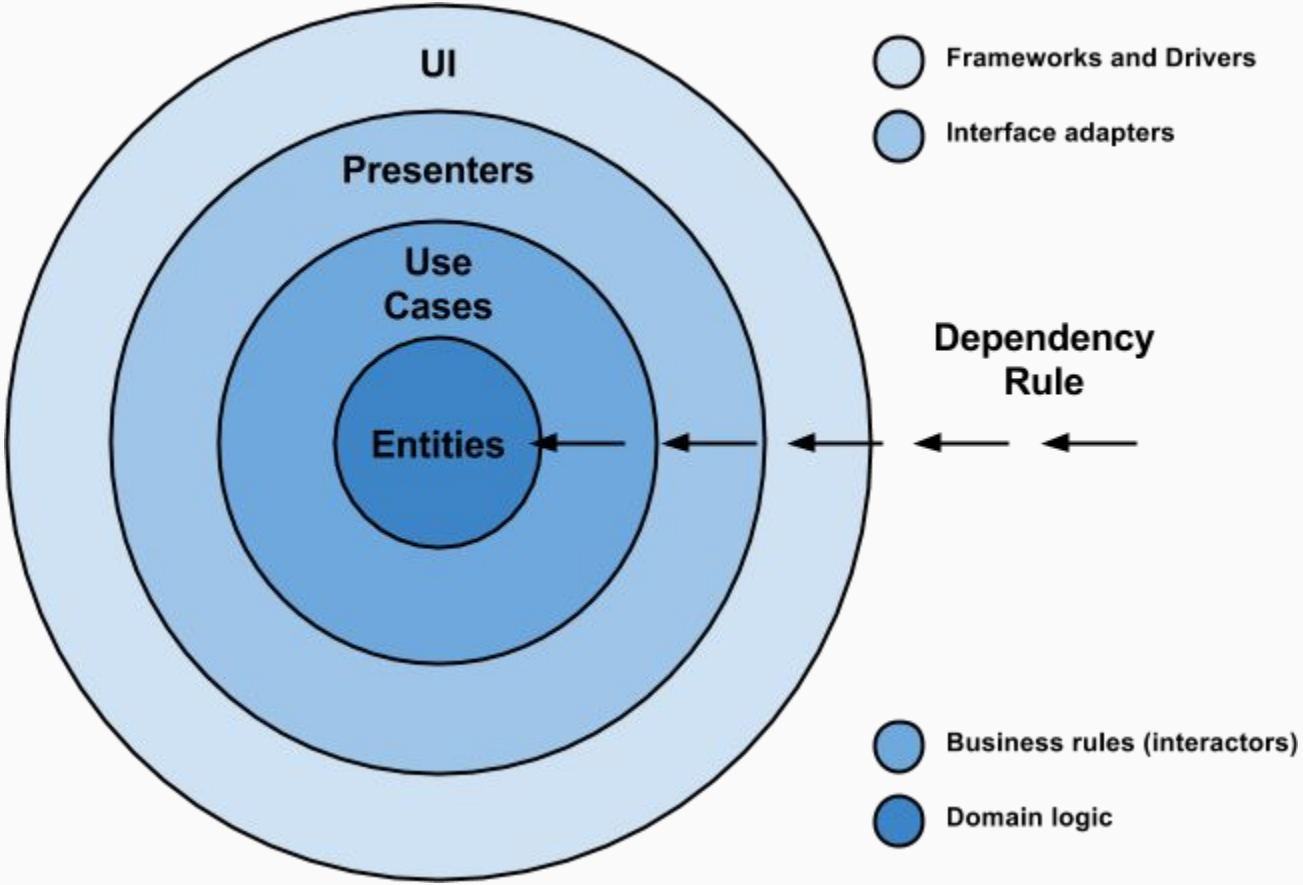
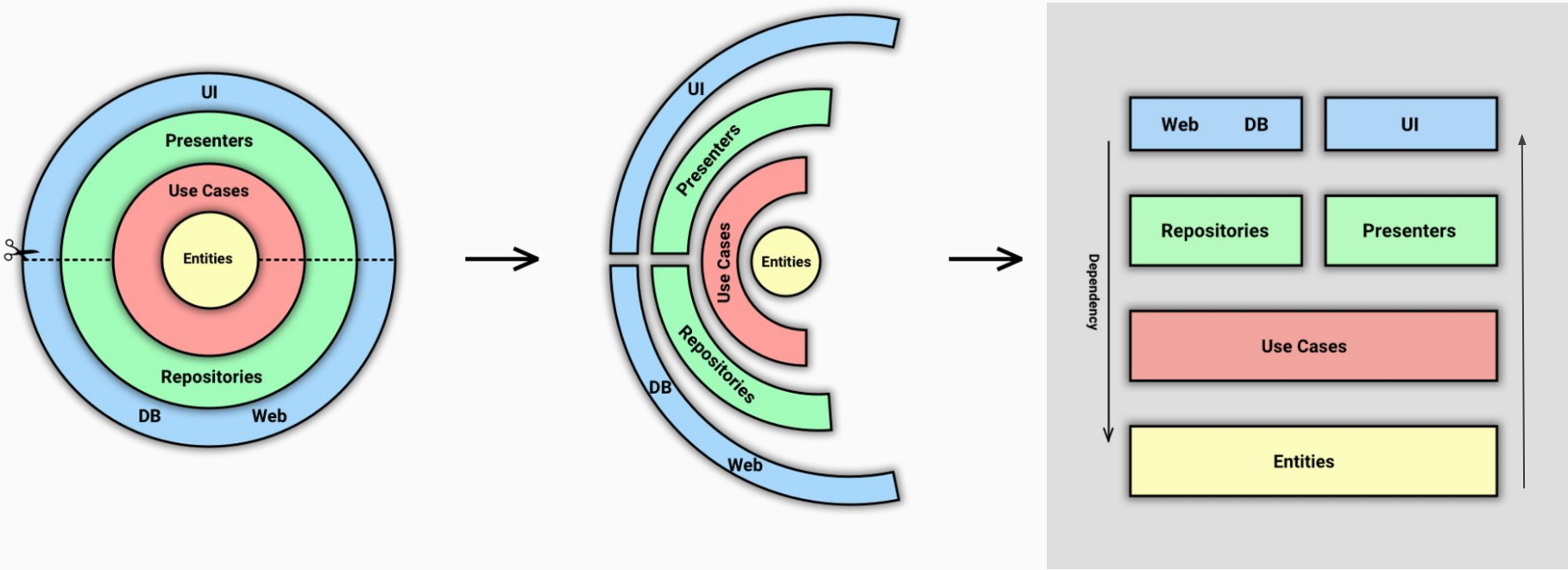
Architecture


Controller
(Activity/Fragment)
Trigger request
update the response
notifies the request
Process the request
View
(XML)
Sometimes interact with view
Model
(Data state+
business logic)

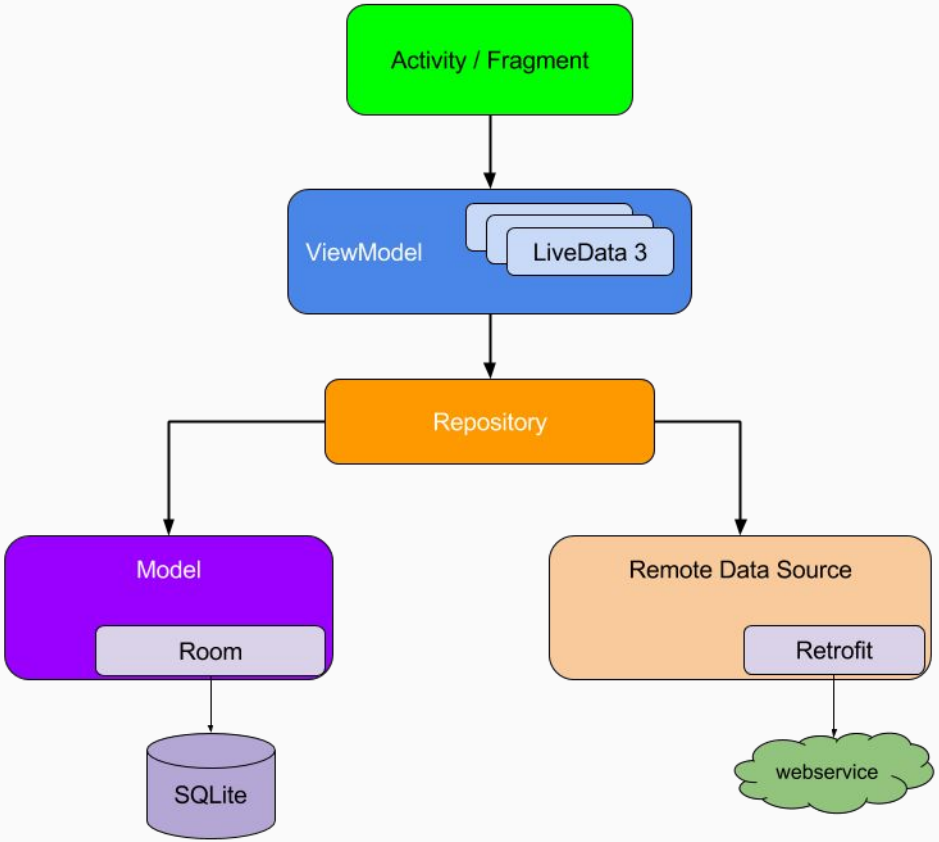
Model View Presenter



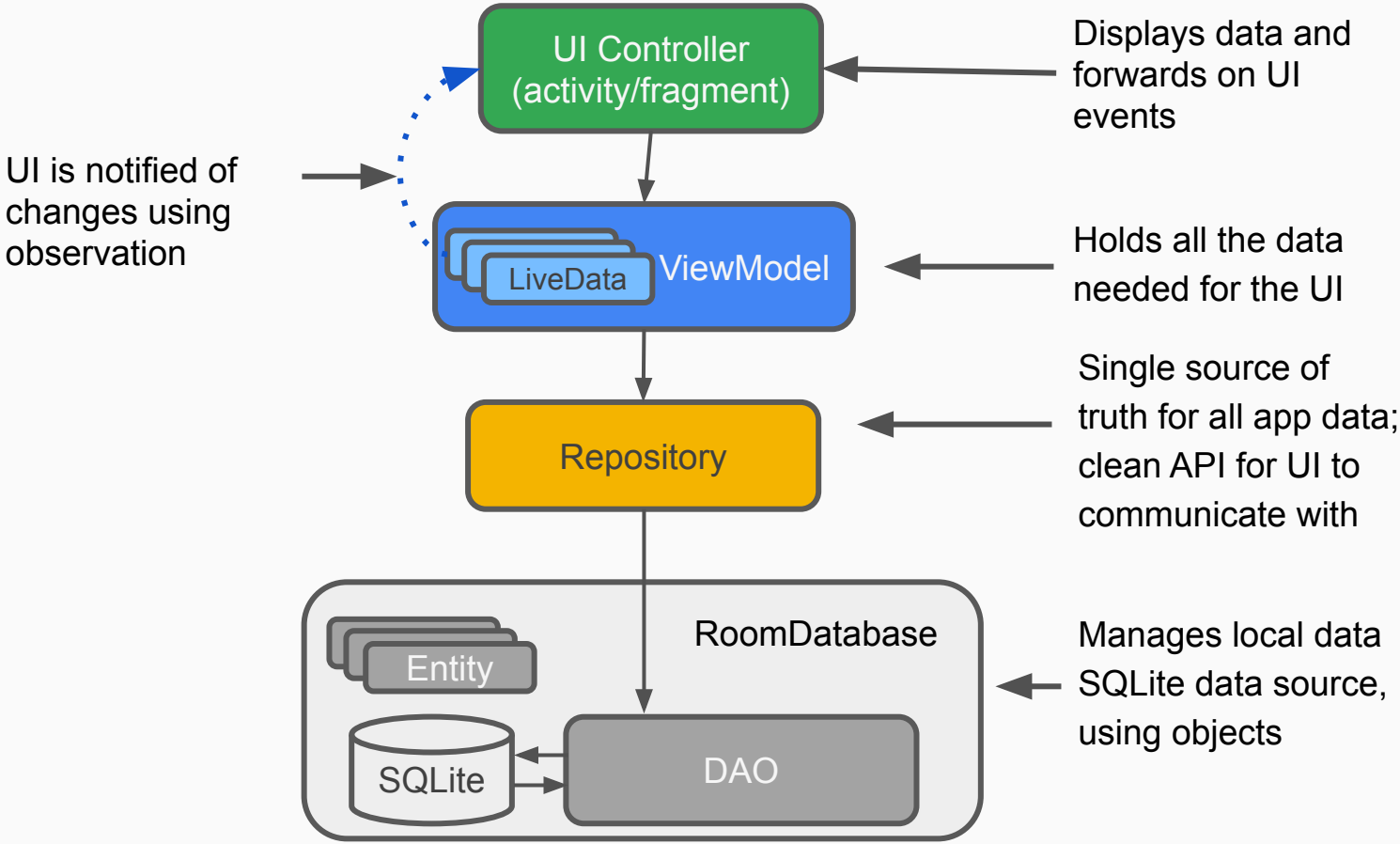

UI
Presenters
Use Cases
Entities
Dependency Rule
Frameworks and Drivers
Interface adapters
Business rules (interactors)
Domain logic


UI
Presenters
Use Cases
Entities
Repositories
DB
Web
UI
Presenters
Use Cases
Entities
Repositories
DB
Web
Web
DB
UI
Repositories
Presenters
Use Cases
Entities
Dependency

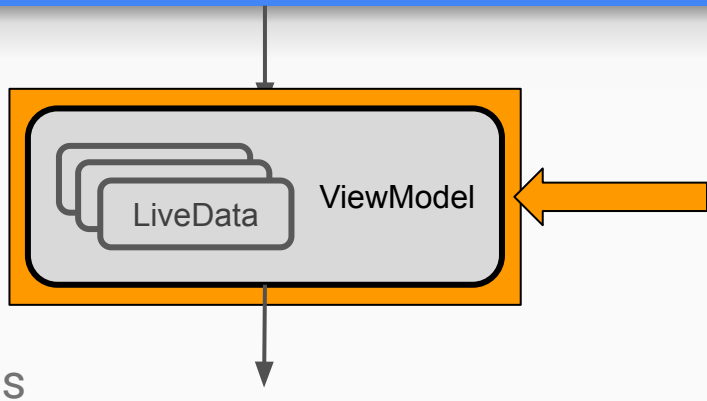
Architecture Components



Recommended: MVVM + Clean Archi + Android Architecture Components

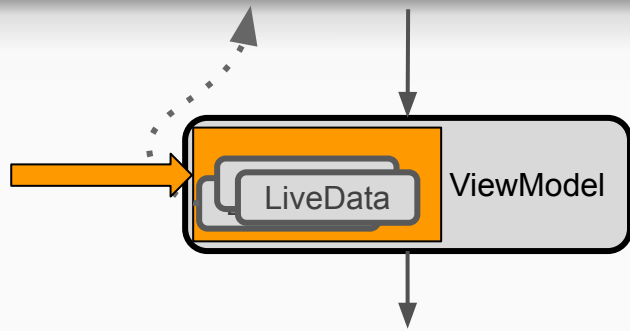

UI Controller
(activity/fragment)
Displays data and forwards on UI events
UI is notified of changes using observation
LiveData
ViewModel
Holds all the data needed for the UI
Repository
Single source of truth for all app data; clean API for UI to communicate with
RoomDatabase
Entity
SQLite
DAO
Manages local data SQLite data source, using objects

ViewModel



- Fournis le données à l'UI
- Survis aux configuration changes
- Pas au redémarrage d'app
- Peut aussi partager des données entre Fragments
- Fait partie lifecycle library
- Ne pas passer de Context (si besoin, étendre AndroidViewModel)
- Analogie: Serveur

LiveData

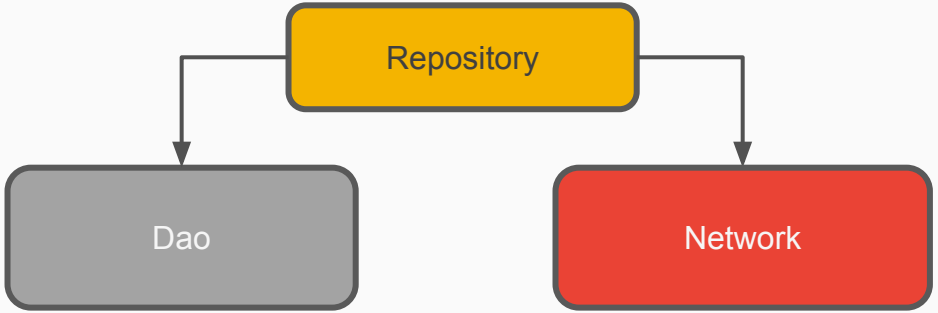


- Classe encapsulant de la donnée observable
- Permet de garder l'UI à jour dynamiquement
- Notifies observer when data changes
- lifecycle aware
- Généralement, c'est un composant ayant un lifecycle qui observe et met à jour l'UI en conséquence

```
// In fragment or Activity:
viewModel.score.observe(this, Observer{ score ->
        score_tv.text = score
})
```

Repository

- Pas un Architecture Components mais une bonne pratique
- Récupère la donnée en tâche de fond
- Peut choisir la source, les synchroniser, …
- Analogie: Cuisine



ViewModel example using repository

```
class WordViewModel : ViewModel(){
     private val repository = WordRepository(application)
     private var _words = MutableLiveData<Int>()
     val words: LiveData<List<Word>>
       get() = _words
     fun fetchWords() { viewModelScope.launch { _words.postValue(repository.getAll())}}
}

class WordRepository(application: Application) {
    val db = WordRoomDatabase.getDatabase(application)
    suspend fun getAll(): List<Word> { return db.wordDao().getAllWords()}
}

// in fragment or Activity:
viewModel.words.observe(this, Observer{ words ->
       // Update list
})
```