INTRODUCTION TO MVVM

WITH KOTLIN AND ANDROID ARCHITECTURE COMPONENTS

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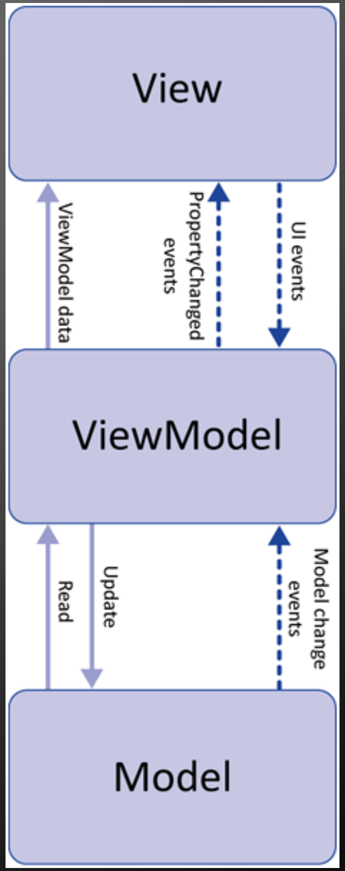
AGENDA

- Introduction to MVVM
- Architecture Components
  - View Model
  - Livedata
- Demo

INTRODUCTION TO MVVM

- Model-View-ViewModel
  - View receives user interaction and pass it on to ViewModel
  - ViewModel provides view with relevant data
  - ViewModel takes data from Model
- Model actually abstracts data source
- Data source is responsible for supplying data to ViewModel from Network or Cache



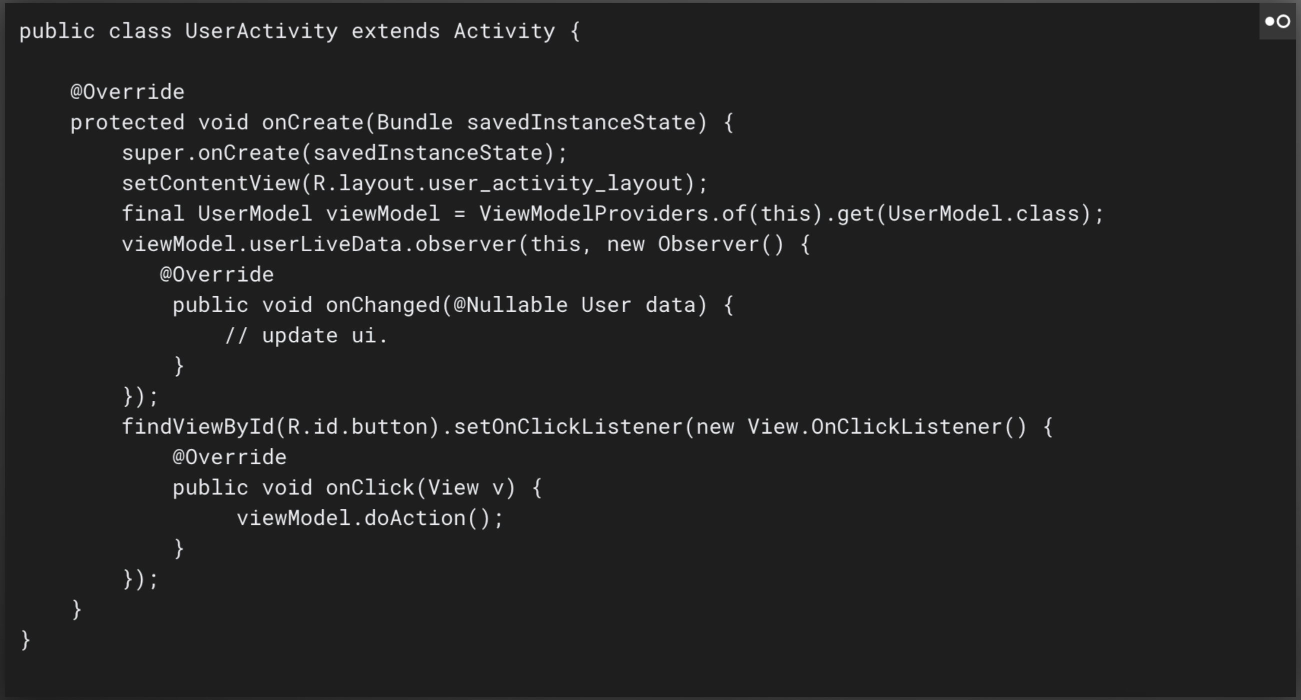
MVVM VS MVP

- Both are similar in terms of abstraction of view and data
- MVVM pattern is more geared towards event driven programming
- In MVP Presenter tells View what to do
- In MVVM, ViewModel(Producer) exposes stream of data and View(Consumer) knows what to do with it.
  - This way ViewModel does not have to keep a reference of view.
  - Producer is not worried about how data is consumed

ARCHITECTURE COMPONENTS- VIEWMODEL

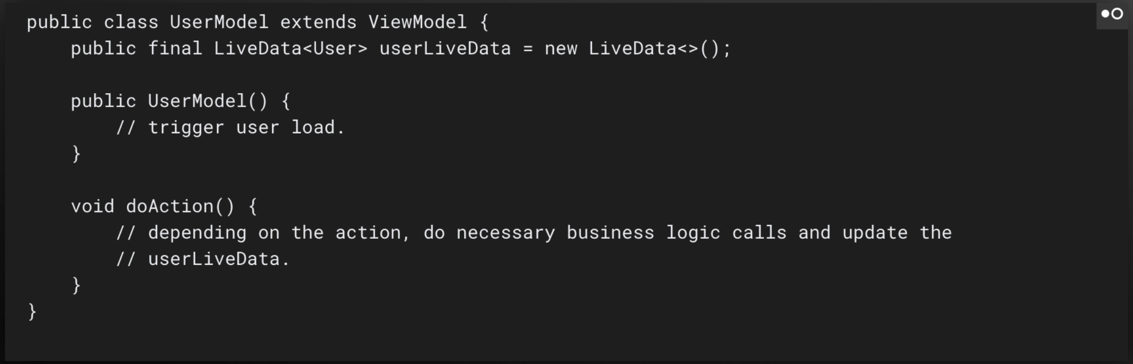
- android.arch.lifecycle.ViewModel
  - Lifecycle Aware
  - Always created in association of scope i.e. Activity or Fragment
  - Doesn’t get destroyed with configuration changes
  - Can be shared between Fragments and Activities

ARCHITECTURE COMPONENTS- VIEWMODEL



```
public class UserActivity extends Activity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.user_activity_layout);
        final UserModel viewModel = ViewModelProviders.of(this).get(UserModel.class);
        viewModel.userLiveData.observer(this, new Observer() {
           @Override
            public void onChanged(@Nullable User data) {
                // update ui.
            }
        });
        findViewById(R.id.button).setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                 viewModel.doAction();
            }
        });
    }
}
```



```
public class UserModel extends ViewModel {
    public final LiveData<User> userLiveData = new LiveData<>();

    public UserModel() {
        // trigger user load.
    }

    void doAction() {
        // depending on the action, do necessary business logic calls and update the
        // userLiveData.
    }
}
```

Source: https://developer.android.com/reference/android/arch/lifecycle/ViewModel

ARCHITECTURE COMPONENTS- LIVEDATA

- android.arch.lifecycle.LiveData<T>
  - Data Holder class with a twist
  - Its an Observable
  - Lifecycle aware, Clean up themselves automatically

ARCHITECTURE COMPONENTS- LIVEDATA

- Benefits over RxJava Observables
  - Ensures your UI matches your data stateL
  - No memory leaks
  - No crashes due to stopped activities
  - No more manual lifecycle handling
  - Always up to date data
  - Proper configuration changes
  - Sharing resources

DEMO

FURTHER READINGS/REFERENCES

- MVVM
  - https://medium.com/upday-devs/android-architecture-patterns-part-3-model-view-viewmodel-e7eeee76b73b
  - http://upday.github.io/blog/mvvm_rx_common_mistakes/
- ViewModel
  - https://developer.android.com/reference/android/arch/lifecycle/ViewModel
- LiveData
  - https://developer.android.com/reference/android/arch/lifecycle/LiveData