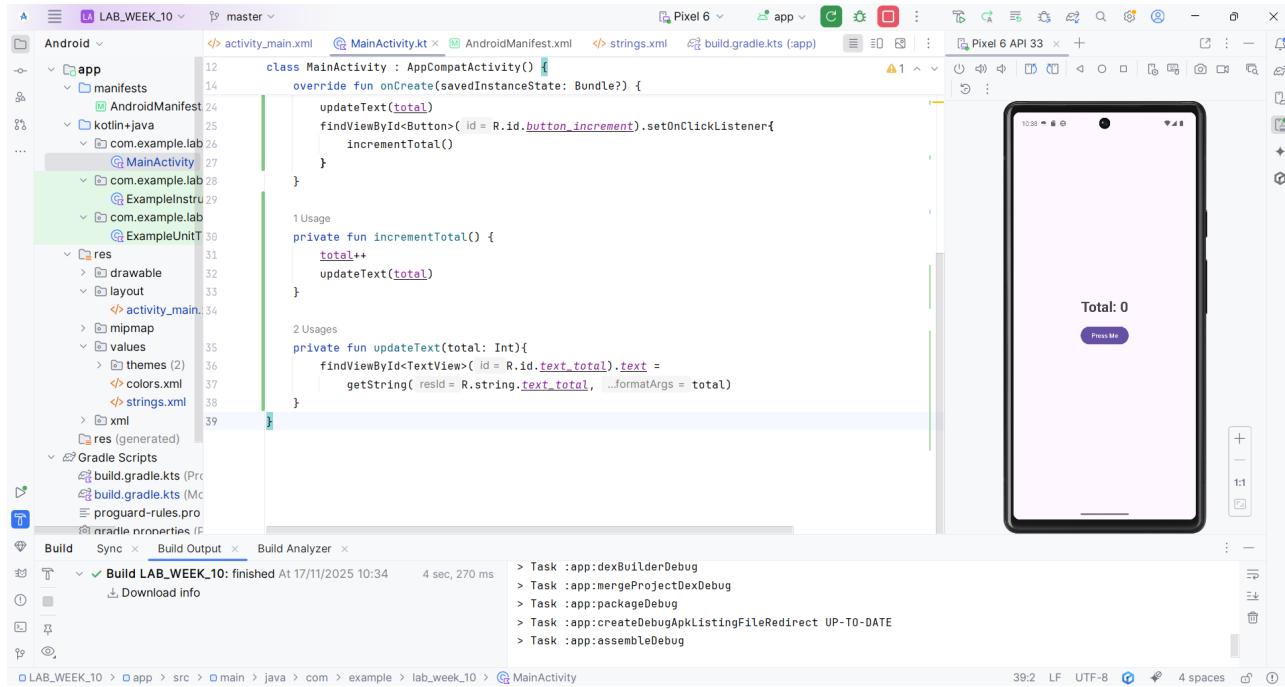


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Mobile App Programming Week 10
Link GitHub: www.github.com/akunjone/LAB_WEEK_10

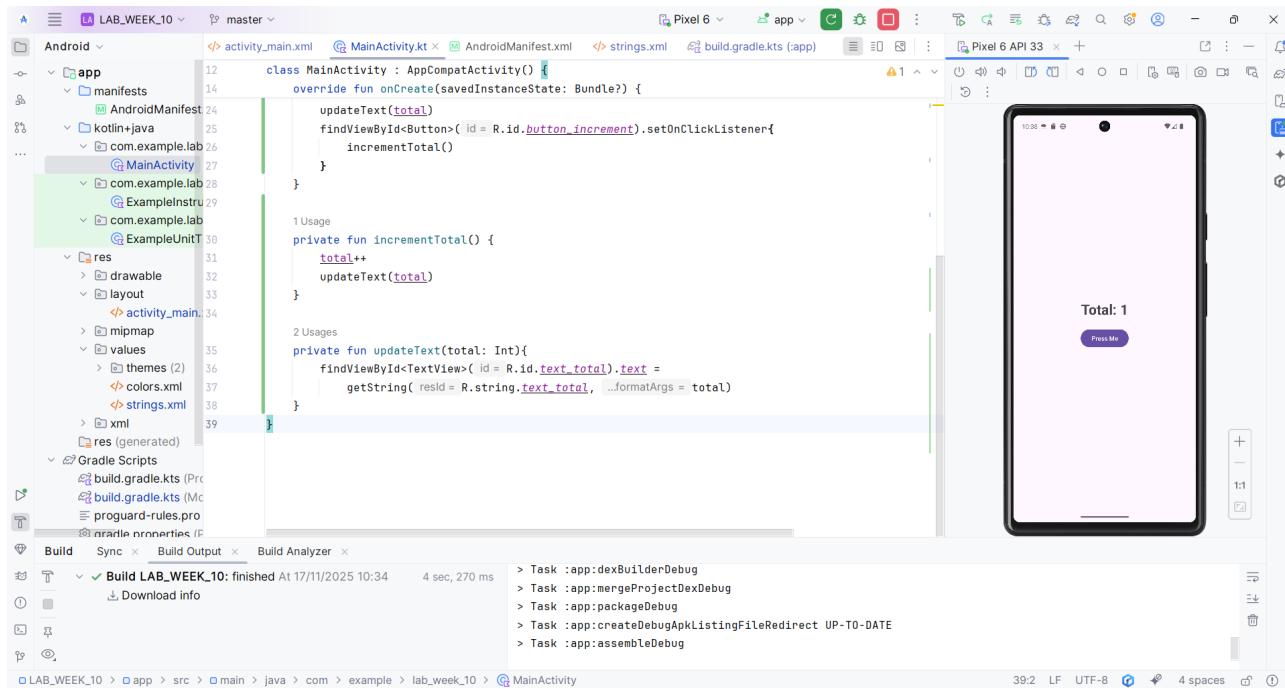
Part 1 - Building App with ViewModel and LiveData

Output 1:

Pertama kali:



Setelah increment:



Setelah rotate, balik ke 0 lagi:

```

class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        updateText(total)
        findViewById<Button>(R.id.button_increment).setOnClickListener{
            incrementTotal()
        }
    }

    1 Usage
    private fun incrementTotal() {
        total++
        updateText(total)
    }

    2 Usages
    private fun updateText(total: Int){
        findViewById<TextView>(R.id.text_total).text =
            getString(R.string.text_total, total)
    }
}

```

Kita menggunakan ViewModel untuk mengatasi masalah ini.
Setelah menggunakan ViewModel:

```

class MainActivity : AppCompatActivity() {
    // total++
    // updateText(total)
    //

    1 Usage
    private fun updateText(total: Int){
        findViewById<TextView>(R.id.text_total).text =
            getString(R.string.text_total, total)
    }

    1 Usage
    private fun prepareViewModel(){
        viewModel.total.observe(this) { total: Int ->
            updateText(total)
        }
        findViewById<Button>(R.id.button_increment).setOnClickListener{
            viewModel.incrementTotal()
        }
    }
}

```

Setelah diincrement:

The screenshot shows the Android Studio interface with the project 'LAB_WEEK_10' open. The code editor displays `MainActivity.kt` which contains logic for updating a text view and observing a ViewModel. The emulator on the right shows a simple UI with a text view displaying 'Total: 1' and a button labeled 'Press Me'. The status bar at the bottom indicates the file path: `LAB_WEEK_10 > app > src > main > java > com > example > lab_week_10 > MainActivity > onCreate`.

```
class MainActivity : AppCompatActivity() {
    // ...
    private fun updateText(total: Int) {
        findViewById<TextView>(R.id.text_total).text =
            getString(R.string.text_total, total)
    }

    private fun prepareViewModel() {
        viewModel.total.observe(this) { total: Int ->
            updateText(total)
        }
        findViewById<Button>(R.id.button_increment).setOnClickListener {
            viewModel.incrementTotal()
        }
    }
}
```

Setelah dirotate:

The screenshot shows the Android Studio interface with the project 'LAB_WEEK_10' open. The code editor displays `MainActivity.kt` with the same logic as before. The emulator on the right shows the UI rotated 90 degrees counter-clockwise, with the text view still displaying 'Total: 1' and the button labeled 'Press Me'. The status bar at the bottom indicates the file path: `LAB_WEEK_10 > app > src > main > java > com > example > lab_week_10 > MainActivity > onCreate`.

```
class MainActivity : AppCompatActivity() {
    // ...
    private fun updateText(total: Int) {
        findViewById<TextView>(R.id.text_total).text =
            getString(R.string.text_total, total)
    }

    private fun prepareViewModel() {
        viewModel.total.observe(this) { total: Int ->
            updateText(total)
        }
        findViewById<Button>(R.id.button_increment).setOnClickListener {
            viewModel.incrementTotal()
        }
    }
}
```

Output 2:

Sebelum menggunakan LiveData:

MainActivity.kt

```

1 package com.example.lab_week_10
2
3 import android.os.Bundle
4 import androidx.fragment.app.Fragment
5 import android.view.LayoutInflater
6 import android.view.View
7 import android.view.ViewGroup
8 import android.widget.TextView
9 import androidx.lifecycle.LifecycleOwner
10 import androidx.lifecycle.ViewModel
11 import androidx.lifecycle.ViewModelProvider
12 import com.example.lab_week_10.viewmodel.TotalViewModel
13
14 // TODO: Rename parameter arguments, choose names that match
15 // the fragment initialization parameters, e.g. ARG_ITEM_NUMBER
16 private const val ARG_PARAM1 = "param1"
17 private const val ARG_PARAM2 = "param2"
18
19 /**
20 * A simple [Fragment] subclass.
21 * Use the [FirstFragment.newInstance] factory method to
22 * create an instance of this fragment.
23 */
24
25 class FirstFragment : Fragment() {
26
27     ...
28
29     ...
30
31     ...
32
33     ...
34
35     ...
36
37     ...
38
39     ...
40
41     ...
42
43 }
```

FirstFragment.kt

```

15 package com.example.lab_week_10
16
17 import android.view.View
18 import androidx.lifecycle.ViewModel
19
20 class FirstFragment : Fragment() {
21
22     ...
23
24     ...
25
26     ...
27
28     ...
29
29
30     ...
31
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41
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43 }
```

Problems

- Unused import directive :9
- Unused import directive :10
- Property "ARG_PARAM1" is never used :16
- Property "ARG_PARAM2" is never used :17
- Parameter "param1" is never used :20

LAB_WEEK_10 > app > src > main > java > com > example > lab_week_10 > FirstFragment > viewModel

Setelah menggunakan LiveData:

MainActivity.kt

```

15 package com.example.lab_week_10
16
17 import android.os.Bundle
18 import androidx.appcompat.app.AppCompatActivity
19 import androidx.core.view.WindowInsetsCompat
20 import androidx.core.view.WindowInsetsListener
21 import androidx.core.view.setPadding
22 import androidx.fragment.app.Fragment
23 import androidx.lifecycle.ViewModel
24 import androidx.lifecycle.ViewModelProvider
25 import com.example.lab_week_10.viewmodel.TotalViewModel
26 import com.example.lab_week_10.viewmodel.TotalView
27 import com.example.lab_week_10.viewmodel.TotalView
28 import com.example.lab_week_10.viewmodel.TotalView
29 import com.example.lab_week_10.viewmodel.TotalView
30 import com.example.lab_week_10.viewmodel.TotalView
31 import com.example.lab_week_10.viewmodel.TotalView
32 import com.example.lab_week_10.viewmodel.TotalView
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35 import com.example.lab_week_10.viewmodel.TotalView
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37 import com.example.lab_week_10.viewmodel.TotalView
38 import com.example.lab_week_10.viewmodel.TotalView
39 import com.example.lab_week_10.viewmodel.TotalView
40 import com.example.lab_week_10.viewmodel.TotalView
41 import com.example.lab_week_10.viewmodel.TotalView
42 import com.example.lab_week_10.viewmodel.TotalView
43
44 class MainActivity : AppCompatActivity() {
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46     ...
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```

The screenshot shows the Android Studio interface with the project structure on the left and the code editor on the right. The code editor displays the `MainActivity.kt` file, which contains logic for updating a database and handling activity pauses. The emulator window on the right shows the application running on a Pixel 5 device with API 30, displaying the text "Total: 2" and a "Press Me" button.

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18     class MainActivity : AppCompatActivity() {
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```

ketika diklik back, kemudian masuk lagi:

This screenshot is nearly identical to the first one, showing the same code in `MainActivity.kt` and the same "Total: 2" display on the Pixel 5 emulator. The only difference is the timestamp in the bottom right corner of the emulator screen, which has changed from 12:17 to 12:18.