



Jetpack Compose



План

1. Формат проведения (**мы тут**)
2. Что такое Jetpack Compose
3. Что такое я
4. Что может Jetpack Compose
5. Hello world на Jetpack Compose
6. Верстаем на Jetpack Compose
7. Как работает Compose
8. MVVM на Jetpack Compose

Вопросы :)



План

1. Формат проведения
2. Что такое Jetpack Compose **(мы тут)**
3. Что такое я
4. Что может Jetpack Compose
5. Hello world на Jetpack Compose
6. Верстаем на Jetpack Compose
7. Как работает Compose
8. MVVM на Jetpack Compose

Jetpack Compose is Android's modern toolkit for building native UI

Jetpack Compose is Android's

modern

toolkit for building native UI



compose layout



Все

Картинки

Карты

Видео

Новости

Ещё

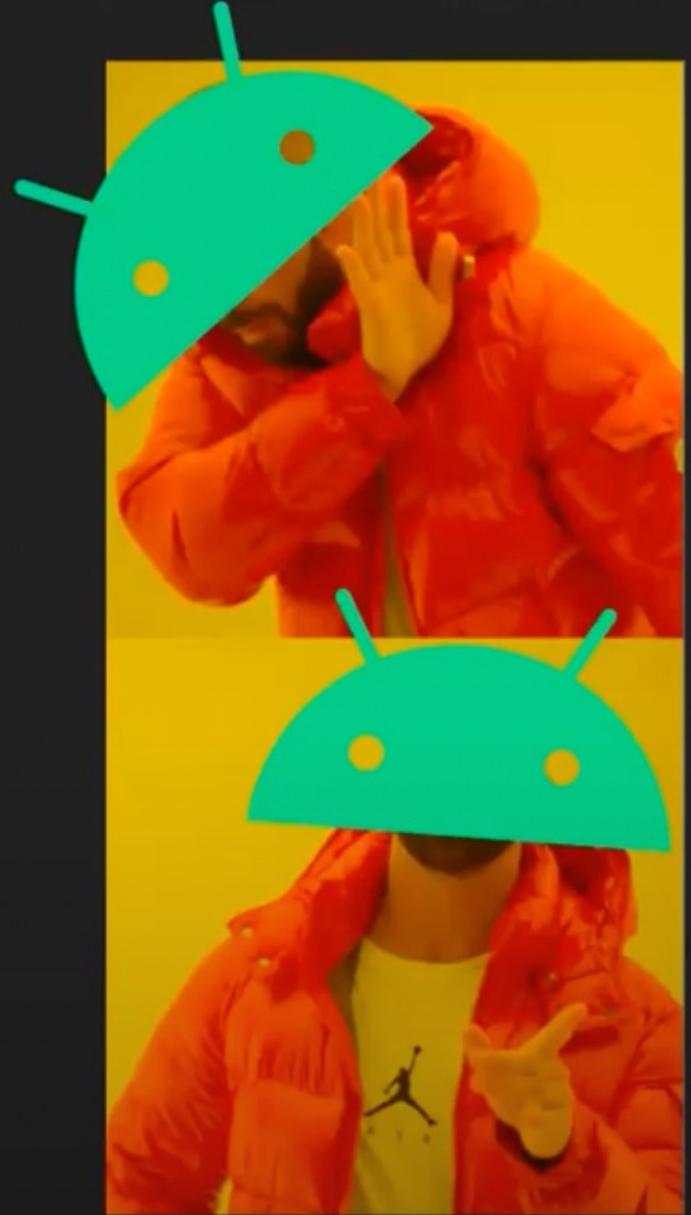
Результатов: примерно 20 700 000 (0,53 сек.)

Совет. По этому запросу вы можете найти сайты **на русском языке**. Указать предпочтительные языки для результатов поиска можно в разделе **Настройки**.

Реклама · <https://developer.android.com/jetpack/compose> ▾

Jetpack Compose Layouts - Build Native UI

Declarative UI



```
val imageView = ImageView(context, attrs, styleRes)
imageView.setImageResource(R.drawable.my_img)
val textView = TextView(context, attrs, styleRes)
textView.text = "Hello"
val linearLayout = LinearLayout(context, attrs)
linearLayout.addView(textView)
linearLayout.addView(imageView)

Column {
    Text(text = "Hello")
    Image(painter = painterResource(R.drawable.my_img))
}
```

Imperative UI

```
val imageView = ImageView(context, attrs, styleRes)
imageView.setImageResource(R.drawable.my_img)
val textView = TextView(context, attrs, styleRes)
textView.text = "Hello"
val linearLayout = LinearLayout(context, attrs)
linearLayout.addView(textView)
linearLayout.addView(imageView)
```

Imperative UI

```
val imageView = ImageView(context, attrs, styleRes)
imageView.setImageResource(R.drawable.my_img)
val textView = TextView(context, attrs, styleRes)
textView.text = "Hello"
val linearLayout = LinearLayout(context, attrs)
linearLayout.addView(textView)
linearLayout.addView(imageView)
```

Imperative UI

```
val imageView = ImageView(context, attrs, styleRes)
imageView.setImageResource(R.drawable.my_img)
val textView = TextView(context, attrs, styleRes)
textView.text = "Hello"
val linearLayout = LinearLayout(context, attrs)
linearLayout.addView(textView)
linearLayout.addView(imageView)
```

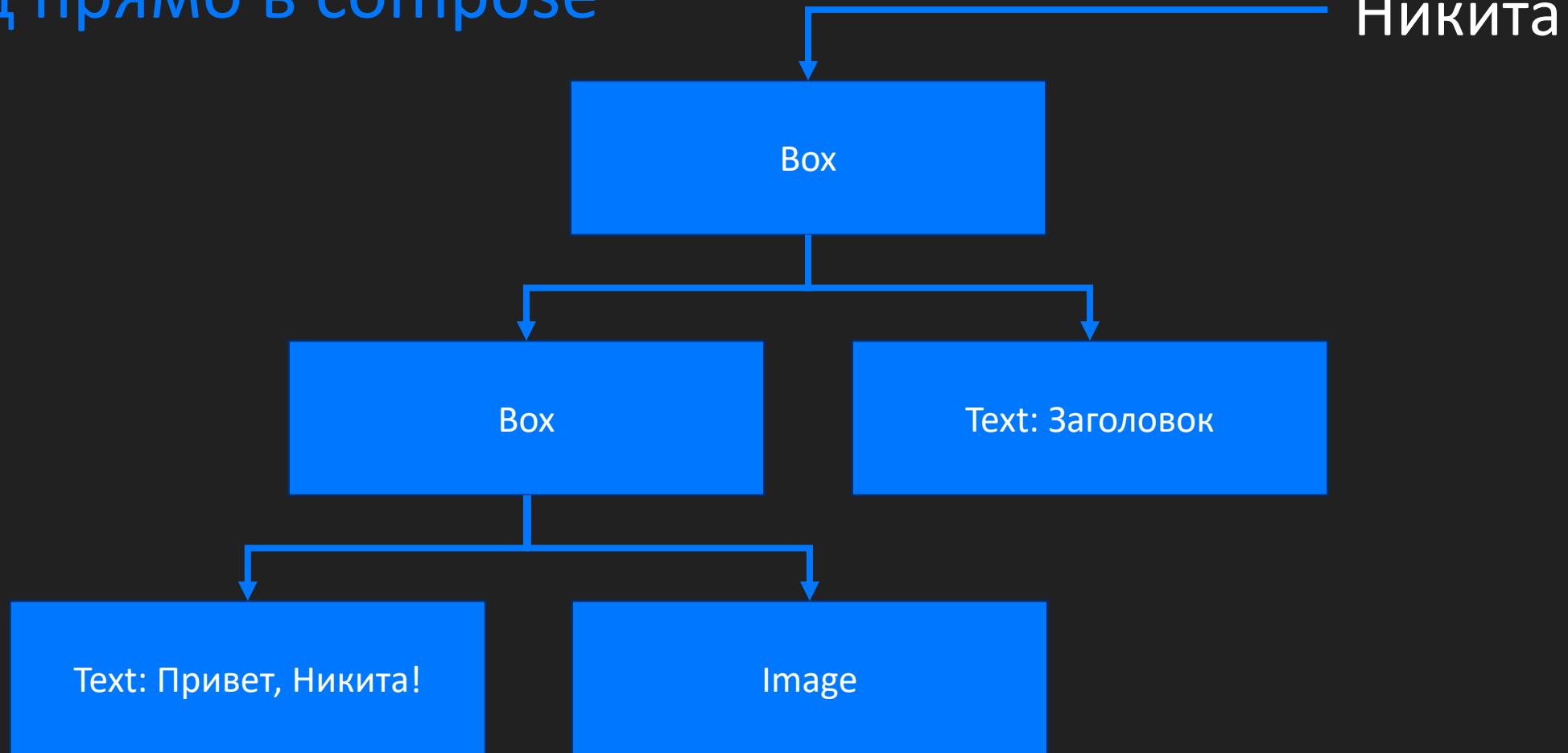
Declarative UI

```
Column {  
    Text(text = "Hello")  
    Image(painter = painterResource(R.drawable.my_img))  
}
```

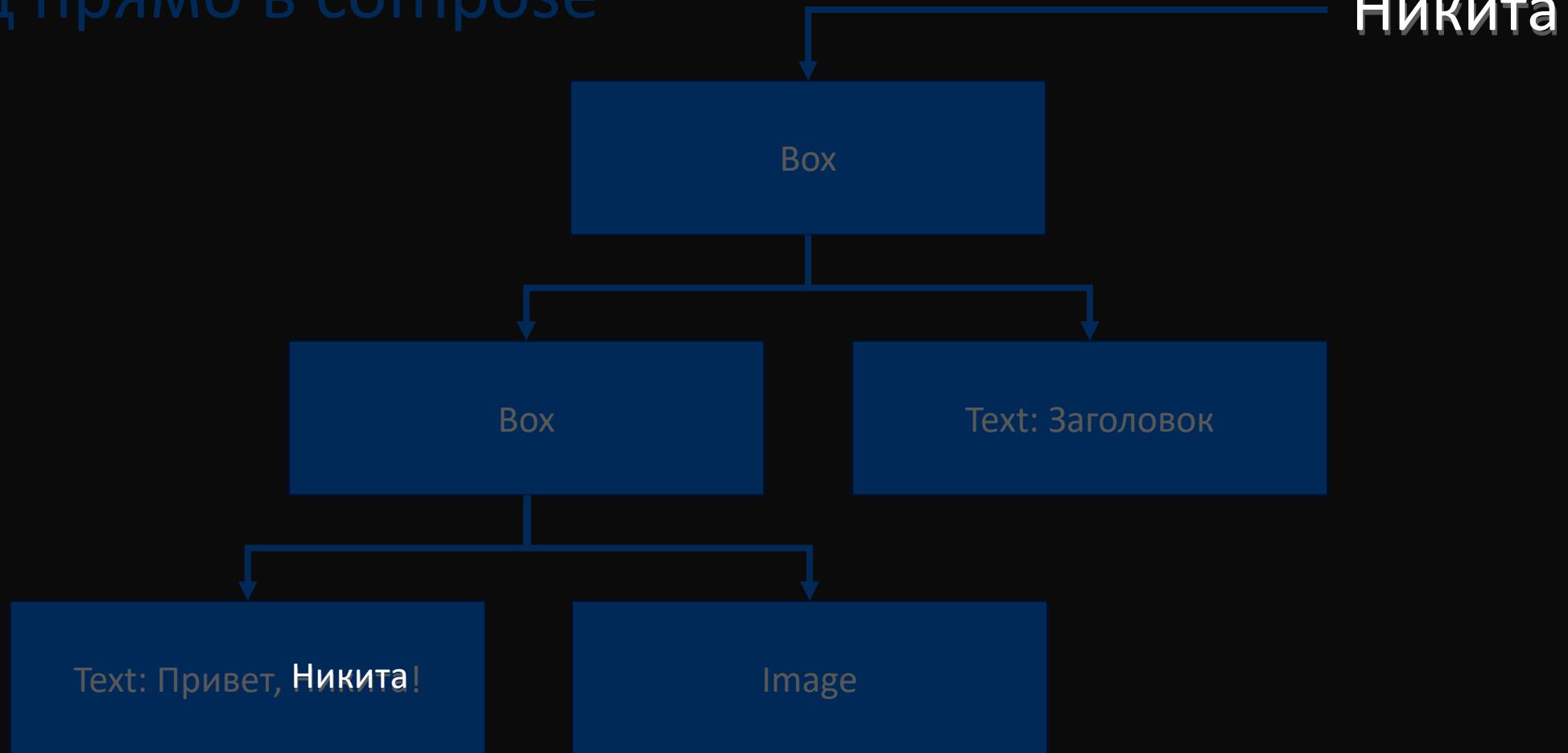
Код прямо в compose

```
@Composable
fun MyScreen(isActive: Boolean) {
    Box { this: BoxScope
        if (isActive) {
            Text(text: "Лампочка горит")
        } else {
            Text(text: "Лампочка не горит")
        }
    }
}
```

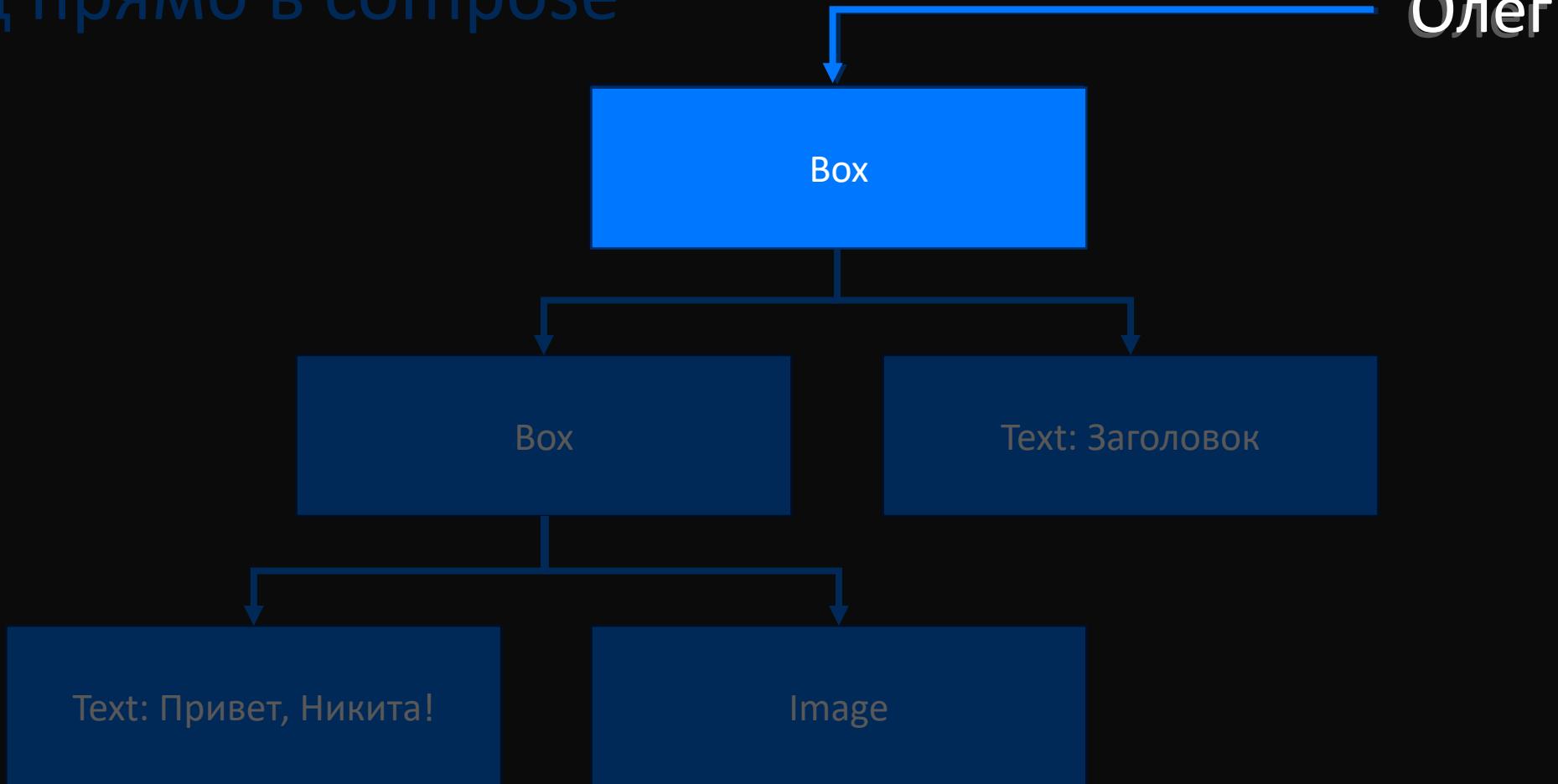
Код прямо в compose



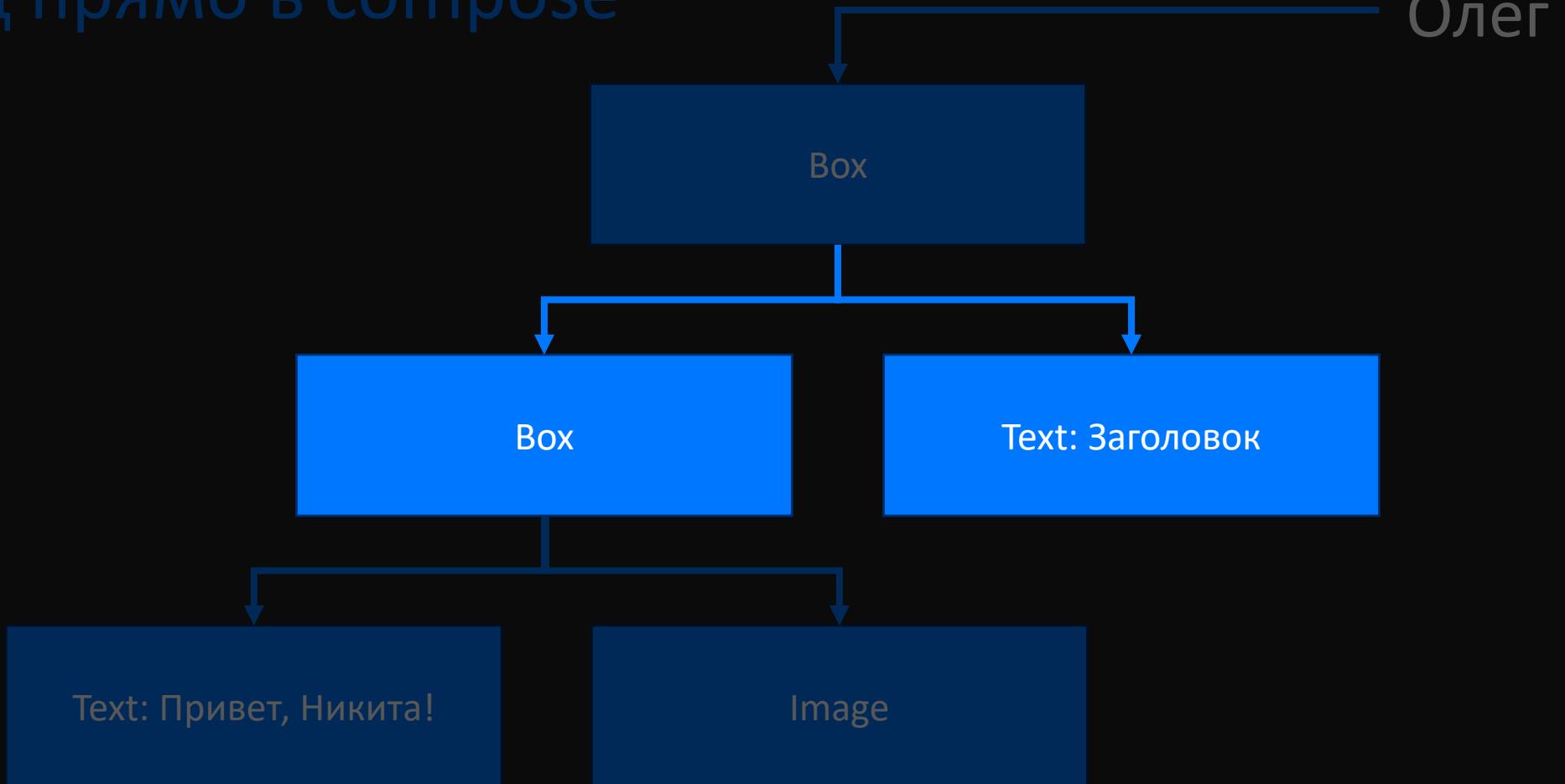
Код прямо в compose



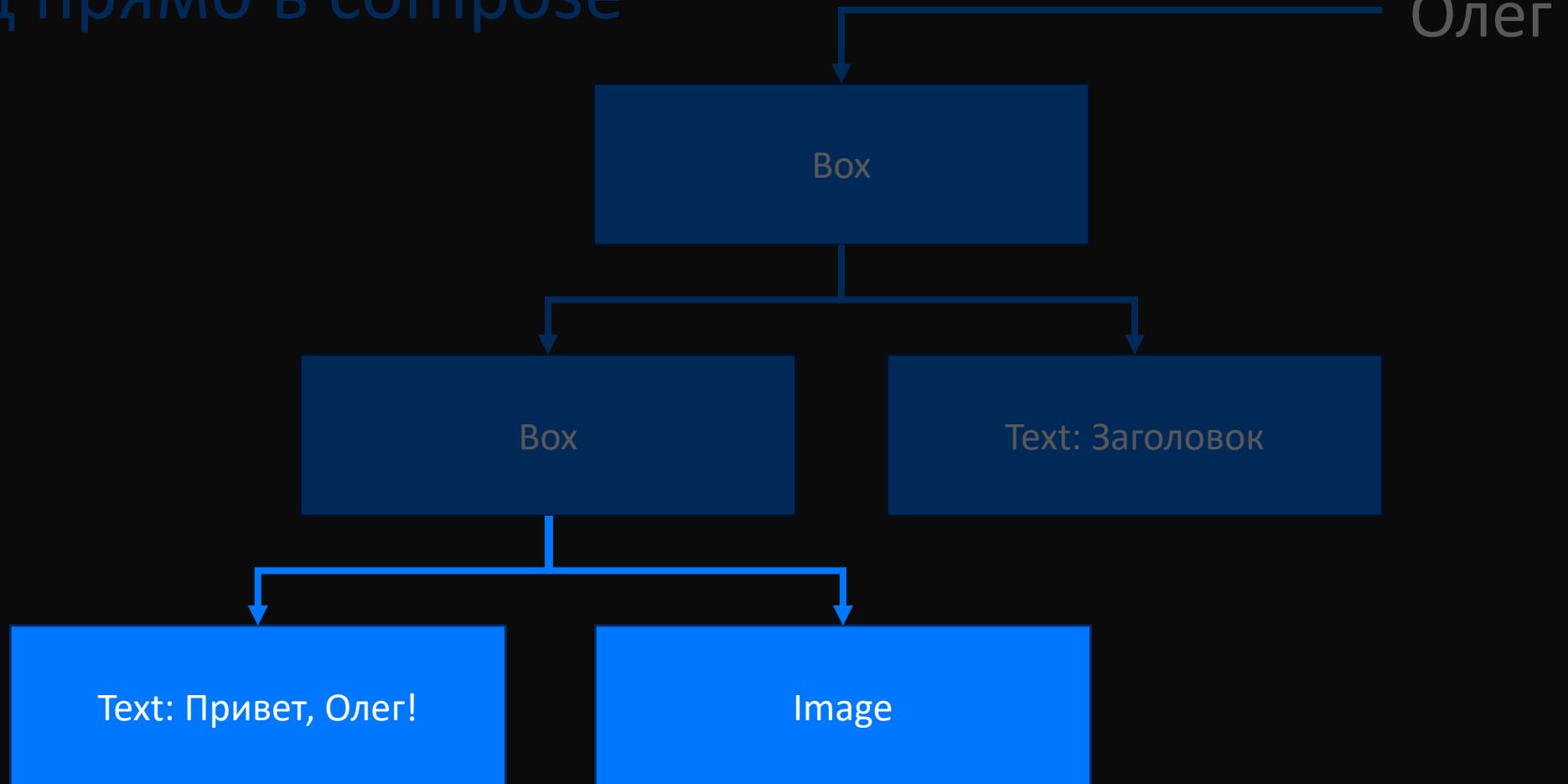
Код прямо в compose



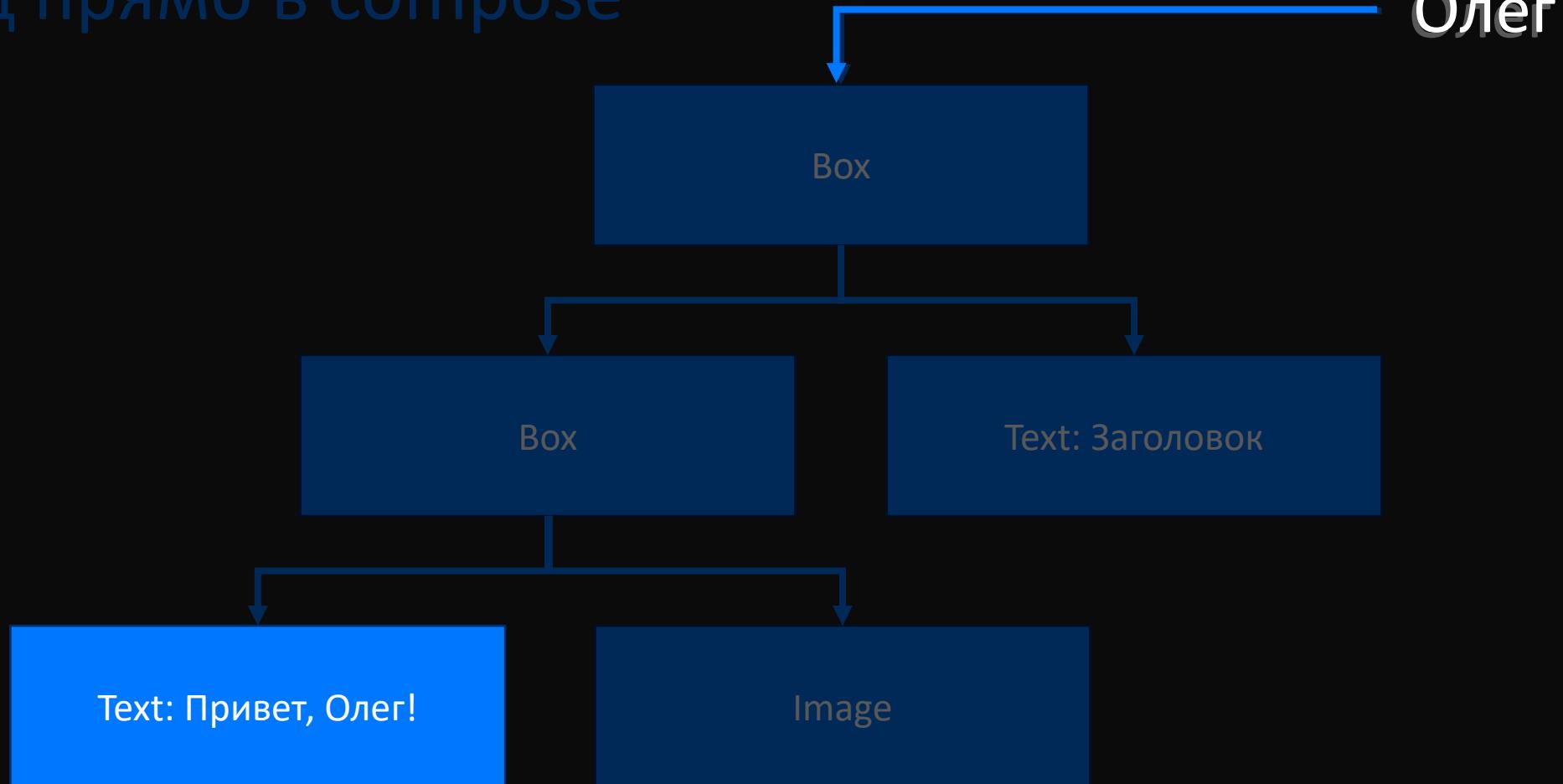
Код прямо в compose



Код прямо в compose



Код прямо в compose



Код прямо в compose

```
@Composable @ExplicitGroupsComposable
inline fun <T, reified E : Applier<*>> ReusableComposeNode(
    noinline factory: () -> T,
    update: @DisallowComposableCalls Updater<T>.() -> Unit,
    noinline skippableUpdate: @Composable SkippableUpdater<T>.() -> Unit,
    content: @Composable () -> Unit
) {
    if (currentComposer.applier !is E) invalidApplier()
    currentComposer.startReusableNode()
    if (currentComposer.inserting) {
        currentComposer.createNode(factory)
    } else {
        currentComposer.useNode()
    }
    Updater<T>(currentComposer).update()
    SkippableUpdater<T>(currentComposer).skippableUpdate()
    currentComposer.startReplaceableGroup( key: 0x7ab4aae9)
    content()
    currentComposer.endReplaceableGroup()
    currentComposer.endNode()
}
```

Код прямо в compose

```
@Composable @ExplicitGroupsComposable
inline fun <T, reified E : Applier<*>> ReusableComposeNode(
    noinline factory: () -> T,
    update: @DisallowComposableCalls Updater<T>.() -> Unit,
    noinline skippableUpdate: @Composable SkippableUpdater<T>.() -> Unit,
    content: @Composable () -> Unit
) {
    if (currentComposer.applier !is E) invalidApplier()
    currentComposer.startReusableNode()
    if (currentComposer.inserting) {
        currentComposer.createNode(factory)
    } else {
        currentComposer.useNode()
    }
    Updater<T>(currentComposer).update()
    SkippableUpdater<T>(currentComposer).skippableUpdate()
    currentComposer.startReplaceableGroup( key: 0x7ab4aae9)
    content()
    currentComposer.endReplaceableGroup()
    currentComposer.endNode()
}
```

Код прямо в compose

```
@Composable @ExplicitGroupsComposable
inline fun <T, reified E : Applier<*>> ReusableComposeNode(
    noinline factory: () -> T,
    update: @DisallowComposableCalls Updater<T>.() -> Unit,
    noinline skippableUpdate: @Composable SkippableUpdater<T>.() -> Unit,
    content: @Composable () -> Unit
) {
    if (currentComposer.applier !is E) invalidApplier()
    currentComposer.startReusableNode()
    if (currentComposer.inserting) {
        currentComposer.createNode(factory)
    } else {
        currentComposer.useNode()
    }
    Updater<T>(currentComposer).update()
    SkippableUpdater<T>(currentComposer).skippableUpdate()
    currentComposer.startReplaceableGroup( key: 0x7ab4aae9)
    content()
    currentComposer.endReplaceableGroup()
    currentComposer.endNode()
}
```



Вопросы :)



План

1. Формат проведения
2. Что такое Jetpack Compose
3. Что такое я **(мы тут)**
4. Что может Jetpack Compose
5. Hello world на Jetpack Compose
6. Верстаем на Jetpack Compose
7. Как работает Compose
8. MVVM на Jetpack Compose

Куликов Никита

Head of Mobile in
Flipper Devices
ex-Snapchat, ex-VK,
ex-Yandex



UK Global Talent Visa Holder

UK GLOBAL TALENT
VISA

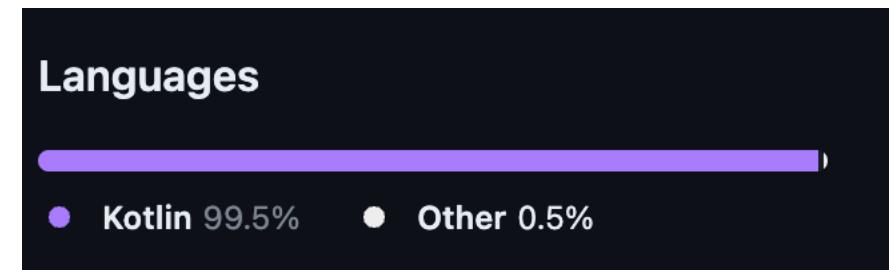
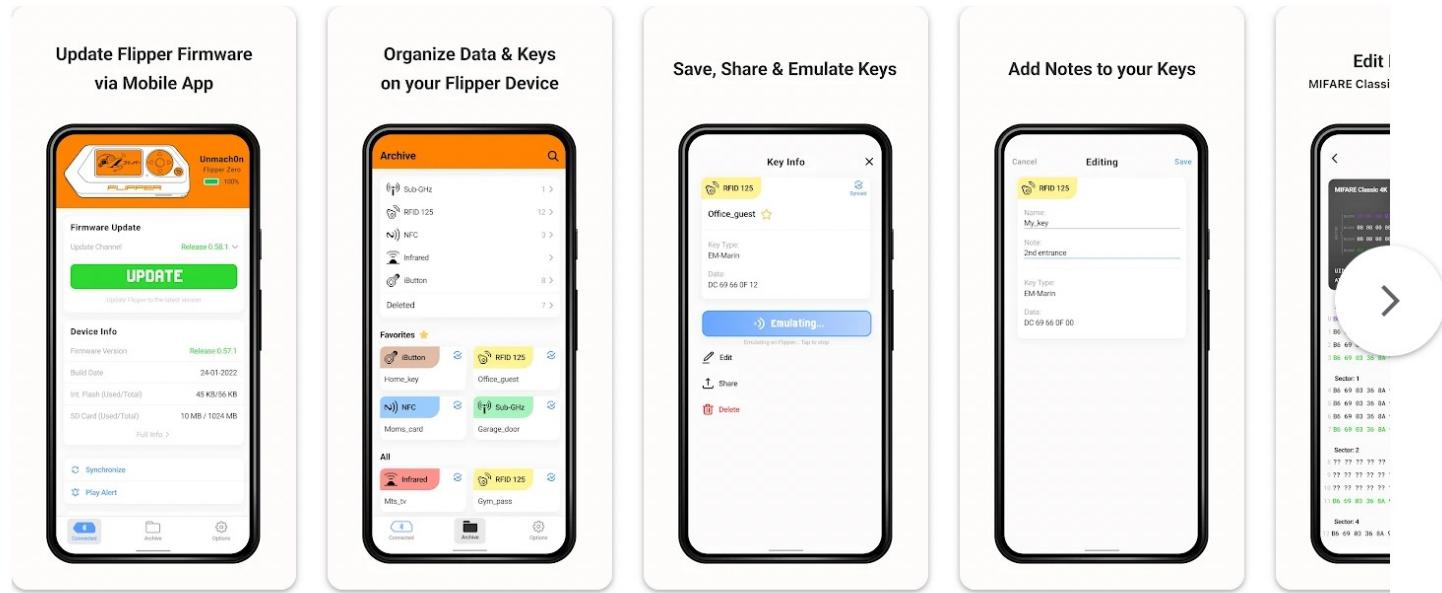
Place of Issue: UKVI 01
Number of entries: MULT
Type: D - GLOBAL TALENT MIGRANT
Name: KULIKOV NIKITA

Global Talent Restricted Work No Sport
Observe:
No Public Funds

VDCI

Flipper Mobile App

Flipper Devices Inc.



<https://github.com/Flipper-Zero/Flipper-Android-App>



Вопросы :)



План

1. Формат проведения
2. Что такое Jetpack Compose
3. Что такое я
4. Что может Jetpack Compose (**мы тут**)
5. Hello world на Jetpack Compose
6. Верстаем на Jetpack Compose
7. Как работает Compose
8. MVVM на Jetpack Compose

View Interop

```
@Composable
fun ViewInterop() {
    AndroidView(
        { context ->
            TextView(context)
        }
    )
}
```

```
/* Full width divider with padding for PostList */
/*
 * This file was generated by Jetpack Compose.
 * Manual changes to this file will be lost.
 */

@Composable
private fun PostListDivider() {
    Divider(
        modifier = Modifier.padding(horizontal = 14.dp),
        color = MaterialTheme.colors.onSurface.copy(alpha = 0.08f)
    )
}

@Preview( name: "Home screen body")
@Composable
fun PreviewHomeScreenBody() {
    ThemedPreview {
        val posts = loadFakePosts()
        PostList(posts, {}, setOf(), {})
    }
}

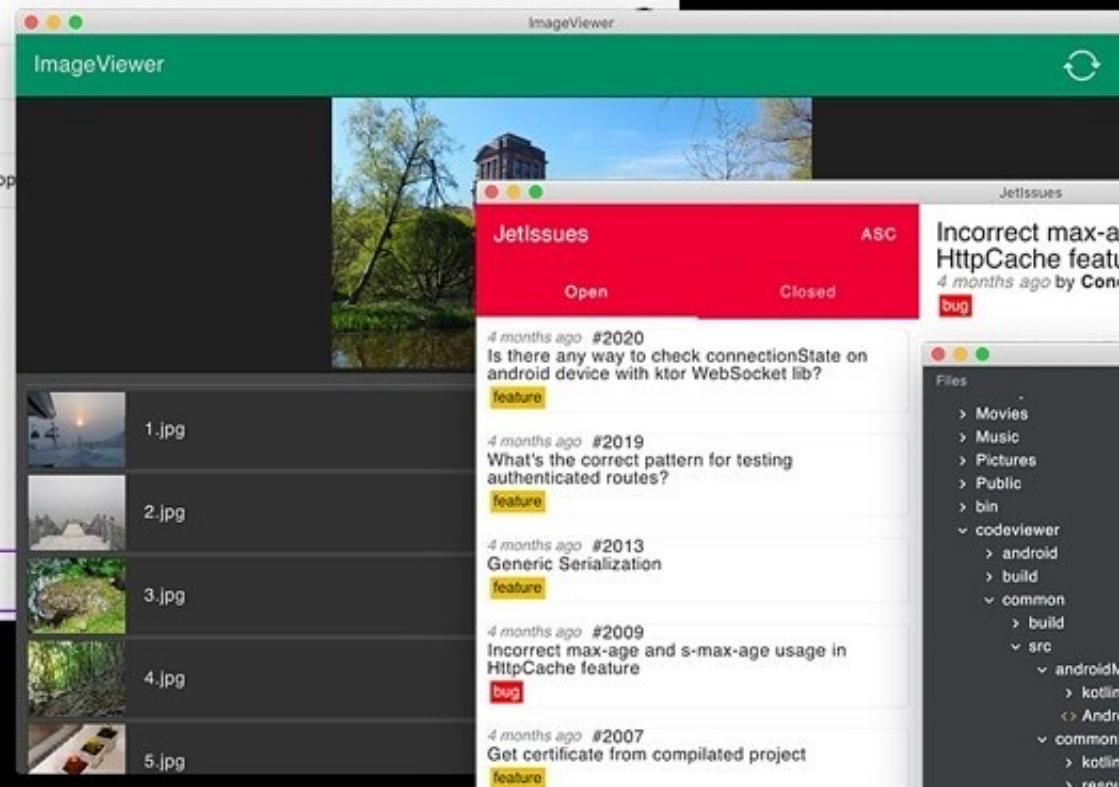
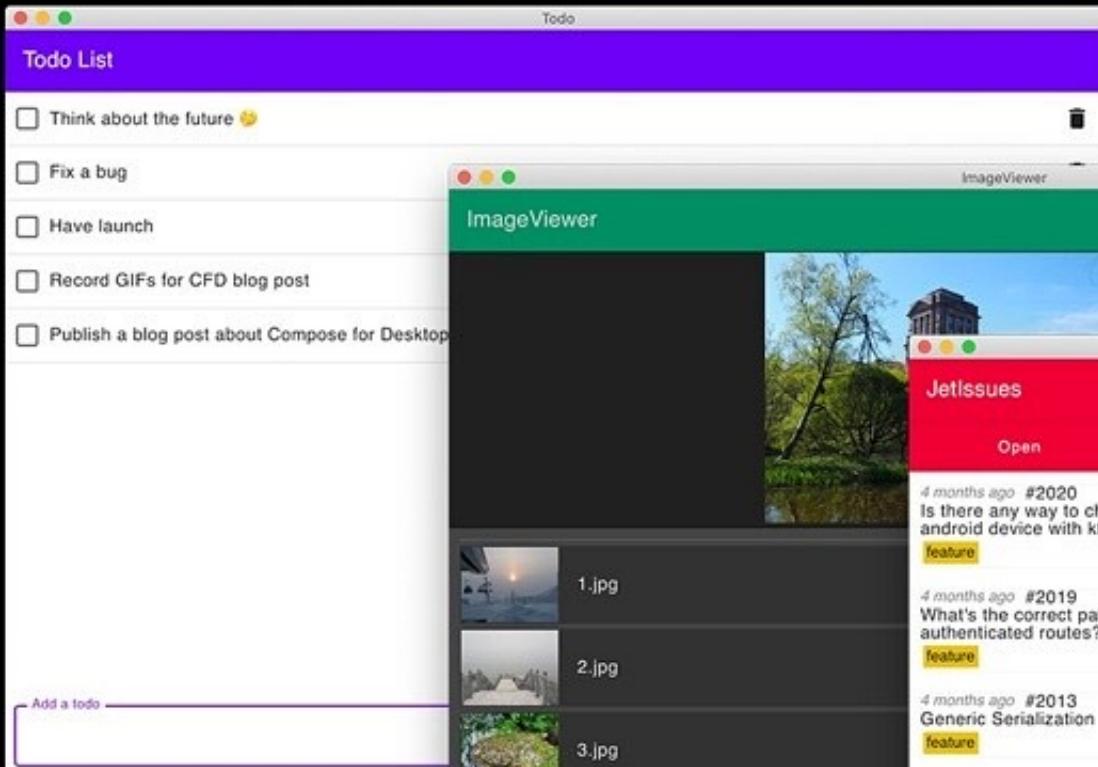
@Preview( name: "Home screen, open drawer")
@Composable
private fun PreviewDrawerOpen() {
    ThemedPreview {
        val scaffoldState = rememberScaffoldState(
            drawerState = rememberDrawerState(DrawerValue.Open)
        )
        HomeScreen(
            postsRepository = BlockingFakePostsRepository(LocalContext.current),
            scaffoldState = scaffoldState,
            navigateTo = {}
        )
    }
}

@Preview( name: "Home screen dark theme")
@Composable
fun PreviewHomeScreenBodyDark() {
    ThemedPreview(darkTheme = true) {
        val posts = loadFakePosts()
        PostList(posts, {}, setOf(), {})
    }
}
```

The screenshot shows the Android Studio interface with four preview panes open, each displaying a different configuration of a mobile application. The application features a top navigation bar with 'jetnews' and 'Home' items, a main content area with 'Top stories for you' and a list of articles, and a bottom navigation bar with 'Interests'. The preview panes are titled:

- Home screen body
- Home screen, open drawer
- Home screen dark ...
- Home screen, open drawer dar...

The left side of the interface shows the Java code for the application, which includes preview functions for each configuration. The right side shows the preview panes with their respective configurations applied.



```
1  @Composable
2  private fun ResizablePanel(
3      modifier: Modifier,
4      state: PanelState,
5      content: @Composable () -> Unit,
6  ) {
7      val alpha = animate(if (state.isExpanded) 1f else 0f, Spring)
8
9      Box(modifier) {
10          Box(Modifier.fillMaxSize().drawLayer(alpha = alpha)) {
11              content()
12          }
13
14          Icon(
15              if (state.isExpanded) Icons.Default.ArrowBack else
16                  tint = AmbientContentColor.current,
17              modifier = Modifier
18                  .padding(top = 4.dp)
19                  .width(24.dp)
20                  .clickable {
21                      state.isExpanded = !state.isExpanded
22                  }
23                  .padding(4.dp)
24                  .align(Alignment.TopEnd)
25          )
26      }
27  }
```

Код прямо в Compose

```
@Composable
fun MyScreen(isActive: Boolean) {
    Box { this: BoxScope
        if (isActive) {
            Text(text: "Лампочка горит")
        } else {
            Text(text: "Лампочка не горит")
        }
    }
}
```

Compose MVVM

```
@Composable
]fun MVVMComposable() {
    val testViewModel = viewModel<TestViewModel>()
    val input by testViewModel.stateFlow.collectAsState()
    Text(text: "Hello, $input")
}
```

Вопросы :)



План

1. Формат проведения
2. Что такое Jetpack Compose
3. Что такое я
4. Что может Jetpack Compose
5. Hello world на Jetpack Compose (**мы тут**)
6. Верстаем на Jetpack Compose
7. Как работает Compose
8. MVVM на Jetpack Compose

Activity

```
class MainActivity : Activity() {  
    override fun onCreate(savedInstanceState: Bundle?) {  
        super.onCreate(savedInstanceState)  
        setContentView(R.layout.activity_main)  
    }  
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
|<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
|    android:layout_width="match_parent"
|    android:layout_height="match_parent"
|    android:orientation="vertical">
|
|        <TextView
|            android:layout_width="wrap_content"
|            android:layout_height="wrap_content"
|            android:text="Hello, World"/>
|
|</FrameLayout>
```

Compose

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">

    <androidx.compose.ui.platform.ComposeView
        android:layout_width="match_parent"
        android:layout_height="match_parent"/>
</FrameLayout>
```

Activity

```
class MainActivity : Activity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
        val composeView = findViewById<ComposeView>(R.id.compose_content)
        composeView.setContent {
            Text(text: "Hello, World!")
        }
    }
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.compose.ui.platform.ComposeView
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/compose_content"
    android:layout_width="match_parent"
    android:layout_height="match_parent" />
```

Activity

```
class MainActivity : ComponentActivity() {  
    override fun onCreate(savedInstanceState: Bundle?) {  
        super.onCreate(savedInstanceState)  
        setContent {  
            Text(text: "Hello, World!")  
        }  
    }  
}
```

```
public fun ComponentActivity.setContent(  
    parent: CompositionContext? = null,  
    content: @Composable () -> Unit  
) {  
    val existingComposeView = window.decorView View  
        .findViewById<ViewGroup>(android.R.id.content) ViewGroup?  
        .getChildAt( index: 0) as? ComposeView  
  
    if (existingComposeView != null) with(existingComposeView) { this: ComposeView  
        setParentCompositionContext(parent)  
        setContent(content)  
    } else ComposeView( context: this).apply {  
        // Set content and parent **before** setContentView  
        // to have ComposeView create the composition on attach  
        setParentCompositionContext(parent)  
        setContent(content)  
        // Set the view tree owners before setting the content view so that the inflation process  
        // and attach listeners will see them already present  
        setOwners()  
        setContentView( view: this, DefaultActivityContentLayoutParams)  
    }  
}
```



Hello World!



Hello, World!

Вопросы :)



План

1. Формат проведения
2. Что такое Jetpack Compose
3. Что такое я
4. Что может Jetpack Compose
5. Hello world на Jetpack Compose
6. Верстаем на Jetpack Compose (**мы тут**)
7. Как работает Compose
8. MVVM на Jetpack Compose

Практика: tooling

Практика: containers

Modifier

Modifiers allow you to decorate or augment a composable.

Modifiers let you do these sorts of things:

- Change the composable's **size**, layout, **behavior**, and **appearance**
- Add information, like accessibility labels
- Process **user input**
- Add high-level interactions, like making an element **clickable**, **scrollable**, **draggable**, or **zoomable**

Вопросы :)



План

1. Формат проведения
2. Что такое Jetpack Compose
3. Что такое я
4. Что может Jetpack Compose
5. Hello world на Jetpack Compose
6. Верстаем на Jetpack Compose
7. Как работает Compose (**мы тут**)
8. MVVM на Jetpack Compose

```
@Composable fun
```

```
Composer, State<T>
```

```
LayoutNode
```

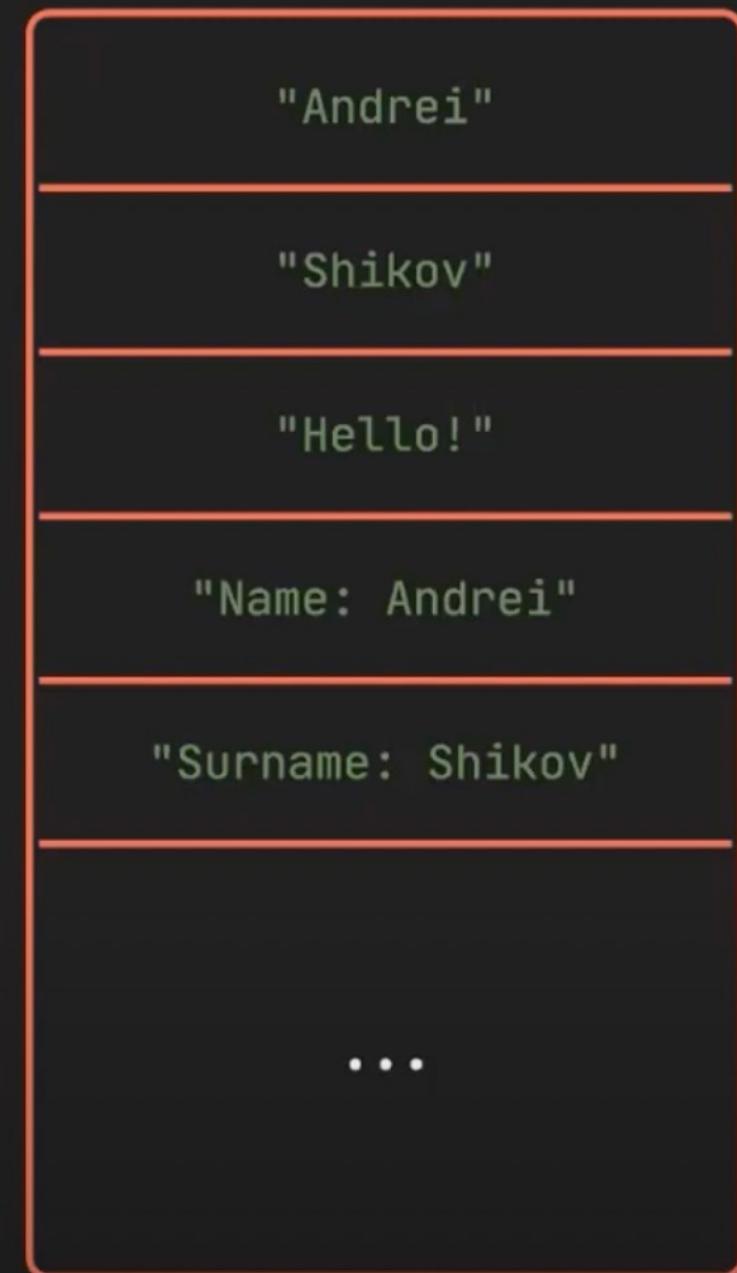
```
BasicText, Button
```

```
...
```



```
@Composable fun Greeting(firstName: String, secondName: String) {  
    Column {  
        Text("Hello!")  
        Text("Name: $firstName")  
        Text("Surname: $secondName")  
    }  
}
```

```
@Composable fun Greeting(  
    firstName: String,  
    secondName: String,  
    $composer: Composer  
) {  
    val p1Changed = $composer.changed(firstName)  
    val p2Changed = $composer.changed(secondName)  
    Column {  
        if (!$composer.skipping || p1Changed || p2Changed) {  
            Text("Hello!", $composer)  
            Text("Name: $firstName", $composer)  
            Text("Surname: $secondName", $composer)  
        }  
    }  
}
```



Вопросы :)



```
@Composable fun Greeting(  
    firstName: String,  
    secondName: String,  
    $composer: Composer  
) {  
    $composer.startGroup(GreetingsHash)  
    /* ... */  
    Column {  
        $composer.startGroup(ColumnHash)  
        if (!$composer.skipping || p1Changed ...) {  
            ...  
        } else {  
            composer.skipToGroupEnd()  
        }  
        $composer.endGroup()  
    }  
    $composer.endGroup()  
}
```

"Andrei"

"Shikov"

"Hello!"

"Name: Andrei"

"Surname: Shikov"

...

```
@Composable fun Greeting(  
    firstName: String,  
    secondName: String,  
    $composer: Composer  
) {  
  
    $composer.startGroup(GreetingsHash)  
    /* ... */  
    Column {  
        $composer.startGroup(ColumnHash)  
        if (!$composer.skipping || p1Changed ...) {  
            ...  
        } else {  
            composer.skipToGroupEnd()  
        }  
        $composer.endGroup()  
    }  
    $composer.endGroup()  
}
```

GreetingsHash

"Andrei"

"Shikov"

ColumnHash

TextHash

"Hello!"

TextHash

"Name: Andrei"

...

```
@Composable
fun Greeting(firstName: String, secondName: String, $composer: Composer?, $changed: Int) {
    $composer = $composer.startRestartGroup(-1339617867)
    sourceInformation($composer, "C(Greeting)7@291L134:Test.kt")
    val $dirty = $changed
    if ($changed and 0b1110 === 0) {
        $dirty = $dirty or if ($composer.changed(firstName)) 0b0100 else 0b0010
    }
    if ($changed and 0b01110000 === 0) {
        $dirty = $dirty or if ($composer.changed(secondName)) 0b00100000 else 0b00010000
    }
    if ($dirty and 0b01011011 === 0b00010010 || !$composer.skipping) {
        Column({ $composer: Composer?, $changed: Int →
            $composer.startReplaceableGroup(352554648)
            sourceInformation($composer, "C8@320L14,9@355L15,10@391L16:Test.kt")
            if ($changed and 0b1011 === 0b0010 || !$composer.skipping) {
                Text("Hello!", $composer, 0b0110)
                Text("Name $firstName", $composer, 0b1110 and $dirty)
                Text("Surname: $secondName", $composer, 0b1110 and $dirty shr 3)
            } else {
                $composer.skipToGroupEnd()
            }
            $composer.endReplaceableGroup()
        }, $composer, 0)
    } else {
        $composer.skipToGroupEnd()
    }
    $composer.endRestartGroup()?.updateScope { $composer: Composer?, $force: Int →
        Greeting(firstName, secondName, $composer, $changed or 0b0001)
    }
}
```

```
@Composable
fun Greeting(firstName: String, secondName: String, $composer: Composer?, $changed: Int) {
    $composer = $composer.startRestartGroup(-1339617867)
    sourceInformation($composer, "C(Greeting)7@291L134:Test.kt")
    val $dirty = $changed
    if ($changed and 0b1110 === 0) {
        $dirty = $dirty or if ($composer.changed(firstName)) 0b0100 else 0b0010
    }
    if ($changed and 0b01110000 === 0) {
        $dirty = $dirty or if ($composer.changed(secondName)) 0b00100000 else 0b00010000
    }
    if ($dirty and 0b01011011 === 0b00010010 || !$composer.skipping) {
        Column({ $composer: Composer?, $changed: Int →
            $composer.startReplaceableGroup(352554648)
            sourceInformation($composer, "C8@320L14,9@355L15,10@391L16:Test.kt")
            if ($changed and 0b1011 === 0b0010 || !$composer.skipping) {
                Text("Hello!", $composer, 0b0110)
                Text("Name $firstName", $composer, 0b1110 and $dirty)
                Text("Surname: $secondName", $composer, 0b1110 and $dirty shr 3)
            } else {
                $composer.skipToGroupEnd()
            }
            $composer.endReplaceableGroup()
        }, $composer, 0)
    } else {
        $composer.skipToGroupEnd()
    }
    $composer.endRestartGroup()?.updateScope { $composer: Composer?, $force: Int →
        Greeting(firstName, secondName, $composer, $changed or 0b0001)
    }
}
```

```
@Composable
fun Greeting(firstName: String, secondName: String, $composer: Composer?, $changed: Int) {
    $composer = $composer.startRestartGroup(-1339617867)
    sourceInformation($composer, "C(Greeting)7@291L134:Test.kt")
    val $dirty = $changed
    if ($changed and 0b1110 === 0) {
        $dirty = $dirty or if ($composer.changed(firstName)) 0b0100 else 0b0010
    }
    if ($changed and 0b01110000 === 0) {
        $dirty = $dirty or if ($composer.changed(secondName)) 0b00100000 else 0b00010000
    }
    if ($dirty and 0b01011011 === 0b00010010 || !$composer.skipping) {
        Column({ $composer: Composer?, $changed: Int →
            $composer.startReplaceableGroup(352554648)
            sourceInformation($composer, "C8@320L14,9@355L15,10@391L16:Test.kt")
            if ($changed and 0b1011 === 0b0010 || !$composer.skipping) {
                Text("Hello!", $composer, 0b0110)
                Text("Name $firstName", $composer, 0b1110 and $dirty)
                Text("Surname: $secondName", $composer, 0b1110 and $dirty shr 3)
            } else {
                $composer.skipToGroupEnd()
            }
            $composer.endReplaceableGroup()
        }, $composer, 0)
    } else {
        $composer.skipToGroupEnd()
    }
    $composer.endRestartGroup()?.updateScope { $composer: Composer?, $force: Int →
        Greeting(firstName, secondName, $composer, $changed or 0b0001)
    }
}
```

```
@Composable
fun Greeting(firstName: String, secondName: String, $composer: Composer?, $changed: Int) {
    $composer = $composer.startRestartGroup(-1339617867)
    sourceInformation($composer, "C(Greeting)7@291L134:Test.kt")
    val $dirty = $changed
    if ($changed and 0b1110 === 0) {
        $dirty = $dirty or if ($composer.changed(firstName)) 0b0100 else 0b0010
    }
    if ($changed and 0b01110000 === 0) {
        $dirty = $dirty or if ($composer.changed(secondName)) 0b00100000 else 0b00010000
    }
    if ($dirty and 0b01011011 === 0b00010010 || !$composer.skipping) {
        Column({ $composer: Composer?, $changed: Int →
            $composer.startReplaceableGroup(352554648)
            sourceInformation($composer, "C8@320L14,9@355L15,10@391L16:Test.kt")
            if ($changed and 0b1011 === 0b0010 || !$composer.skipping) {
                Text("Hello!", $composer, 0b0110)
                Text("Name $firstName", $composer, 0b1110 and $dirty)
                Text("Surname: $secondName", $composer, 0b1110 and $dirty shr 3)
            } else {
                $composer.skipToGroupEnd()
            }
            $composer.endReplaceableGroup()
        }, $composer, 0)
    } else {
        $composer.skipToGroupEnd()
    }
    $composer.endRestartGroup()?.updateScope { $composer: Composer?, $force: Int →
        Greeting(firstName, secondName, $composer, $changed or 0b0001)
    }
}
```

Stability

000

000

0b000: *Uncertain*
0b001: *Same*
0b010: *Different*
0b011: *Static*

force recomposition



```
data class MyClass(  
    val items: List<String>,  
    val isLoading: Boolean  
)
```



```
data class MyClass(  
    val items: MutableList<String>,  
    var isLoading: Boolean  
)
```

```
    fun compose(keyList: KeysList) = open. { upperCaseKeys -> state, l
```

```
    val keysListViewModel = viewModel<KeysListViewModel>()
    val state by keysListViewModel.getKeysListFlow().collectAsState()
    when (state) {
        is KeysListState.Loaded -> if (state.keys.isEmpty()) {
```

Smart cast to 'KeysListState.Loaded' is impossible, because 'state' is a property that has open or cus

} Cast expression 'state' to 'KeysListState.Loaded' ↗↔ More actions... ↗↔
Key

```
        val state: KeysListState
```

```
@Stable
data class MyClass(
    val items: SnapshotStateList<String>,
    val isLoading: MutableState<Boolean>
)
```

Вопросы :)



План

1. Формат проведения
2. Что такое Jetpack Compose
3. Что такое я
4. Что может Jetpack Compose
5. Hello world на Jetpack Compose
6. Верстаем на Jetpack Compose
7. Как работает Compose
8. MVVM на Jetpack Compose (**мы тут**)

```
class CounterModel {  
    val value = MutableStateFlow<Int>(0)  
  
    fun increment() {  
        value.update { count → count + 1 }  
    }  
  
    fun decrement() {  
        value.update { count → count - 1 }  
    }  
}
```

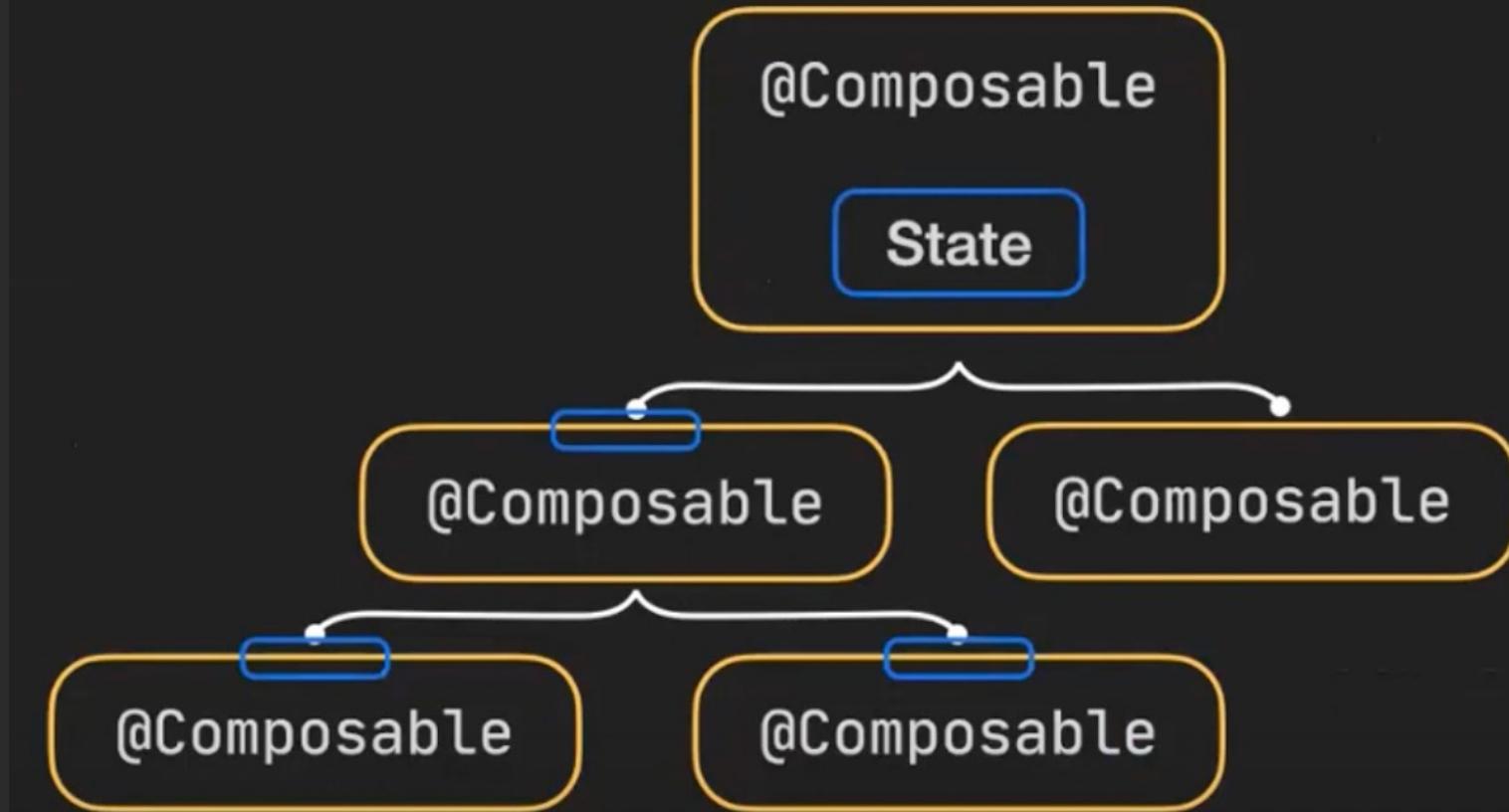
```
class CounterModel {  
    var value by mutableStateOf<Int>(0)  
  
    fun increment() {  
        value += 1  
    }  
  
    fun decrement() {  
        value -= 1  
    }  
}
```

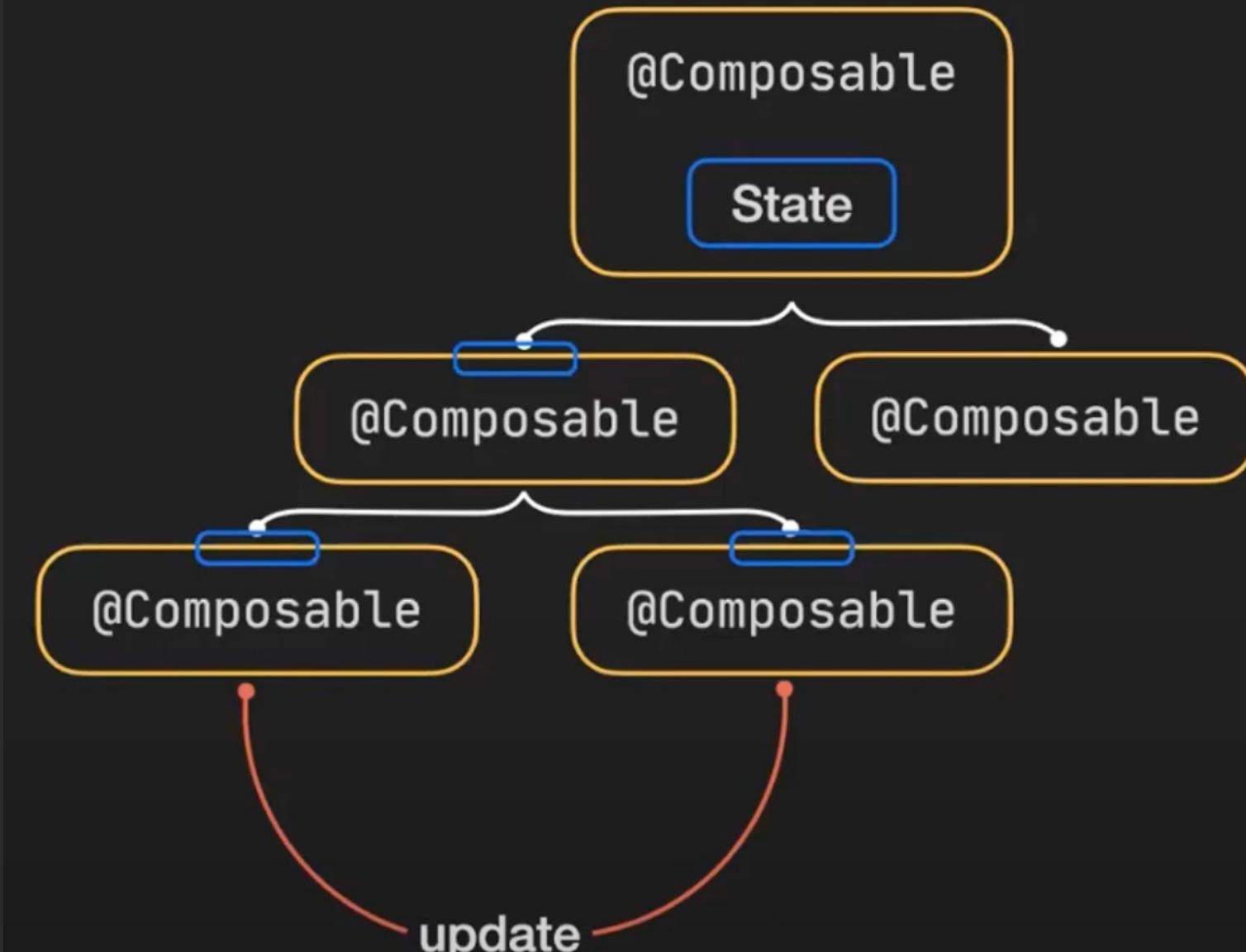
```
class CounterModel {  
    var value by mutableStateOf<Int>(0)  
    var label by mutableStateOf<String>("Counter")  
    /* ... */  
}  
  
class CounterView(private val model: CounterModel) {  
    val textView = /* ... */  
  
    init {  
        snapshotFlow { refresh() }.launchIn(scope)  
    }  
  
    fun refresh() {  
        textView.text = "${model.label}: ${model.value}"  
    }  
}
```

Практика:
remember+state

Вопросы :)







Вопросы :)



Практика+

