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SEBRAE SENAI SÃO PAULO GOVERNO DO ESTADO

Secretaria de Desenvolvimento Econômico

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Desenvolvimento de Aplicativos para Android

Carga Horária: 60 Horas

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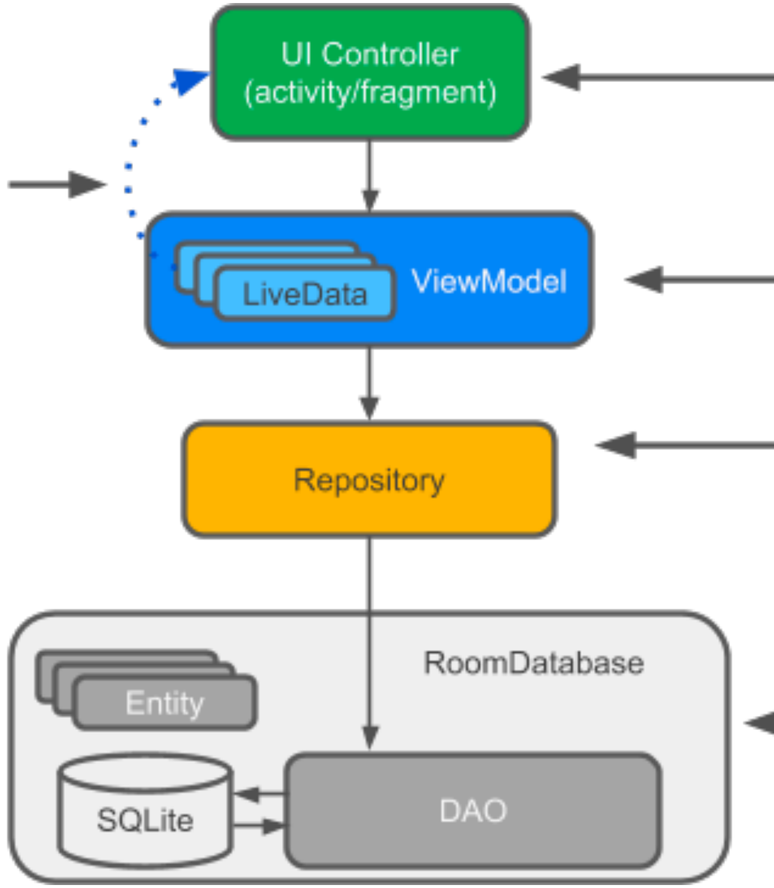
Android

Room e LifeCycle

Arquitetura de Componentes

A Interface de Usuário é notificada de mudanças com a utilização de **Observables**



Apresenta os dados e dispara eventos da Interface de Usuário

Mantém todos os dados necessários à Interface de Usuário

Única fonte de dados para toda a aplicação

Gerencia os dados locais no SQLite utilizando Objetos

Configuração no build.gradle

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```
dependencies {
    implementation fileTree(dir: 'libs', include: ['*.jar'])
    implementation 'androidx.appcompat:appcompat:1.2.0'
    implementation 'androidx.constraintlayout:constraintlayout:2.0.2'
    implementation 'com.google.android.material:material:1.2.1'
    implementation 'androidx.cardview:cardview:1.0.0'
    implementation 'androidx.recyclerview:recyclerview:1.1.0'
    implementation 'androidx.fragment:fragment-ktx:1.2.5'

    // Configura as Libs da linguagem Kotlin
    implementation "androidx.core:core-ktx:1.3.2"
    implementation "androidx.lifecycle:lifecycle-viewmodel-ktx:2.2.0"
    implementation "org.jetbrains.kotlin:kotlin-stdlib-jdk8:$kotlin_version"

    // Habilita o da API de Data (LocalDate, etc)
    implementation 'joda-time:joda-time:2.10.4'

    // Configura os componentes de Arquitetura de Ciclo de Vida (ViewModel)
    implementation 'androidx.lifecycle:lifecycle-extensions:2.2.0'
    kapt 'androidx.lifecycle:lifecycle-common-java8:2.2.0'

    // Incluir as lids de persistência
    implementation 'androidx.room:room-runtime:2.2.5'
    kapt 'androidx.room:room-compiler:2.2.5'

    // Incluir a lib de paginação
    implementation 'androidx.paging:paging-runtime-ktx:2.1.2'

    // Configura os componentes de Navegação de Fragments
    implementation 'androidx.navigation:navigation-fragment-ktx:2.3.1'
    implementation 'androidx.navigation:navigation-ui-ktx:2.3.1'

    // Habilita extensões da JetBrains (criadora do Kotlin) para o desenvolvimento android
    implementation 'org.jetbrains.anko:anko:0.10.8'
}
```

A Entity

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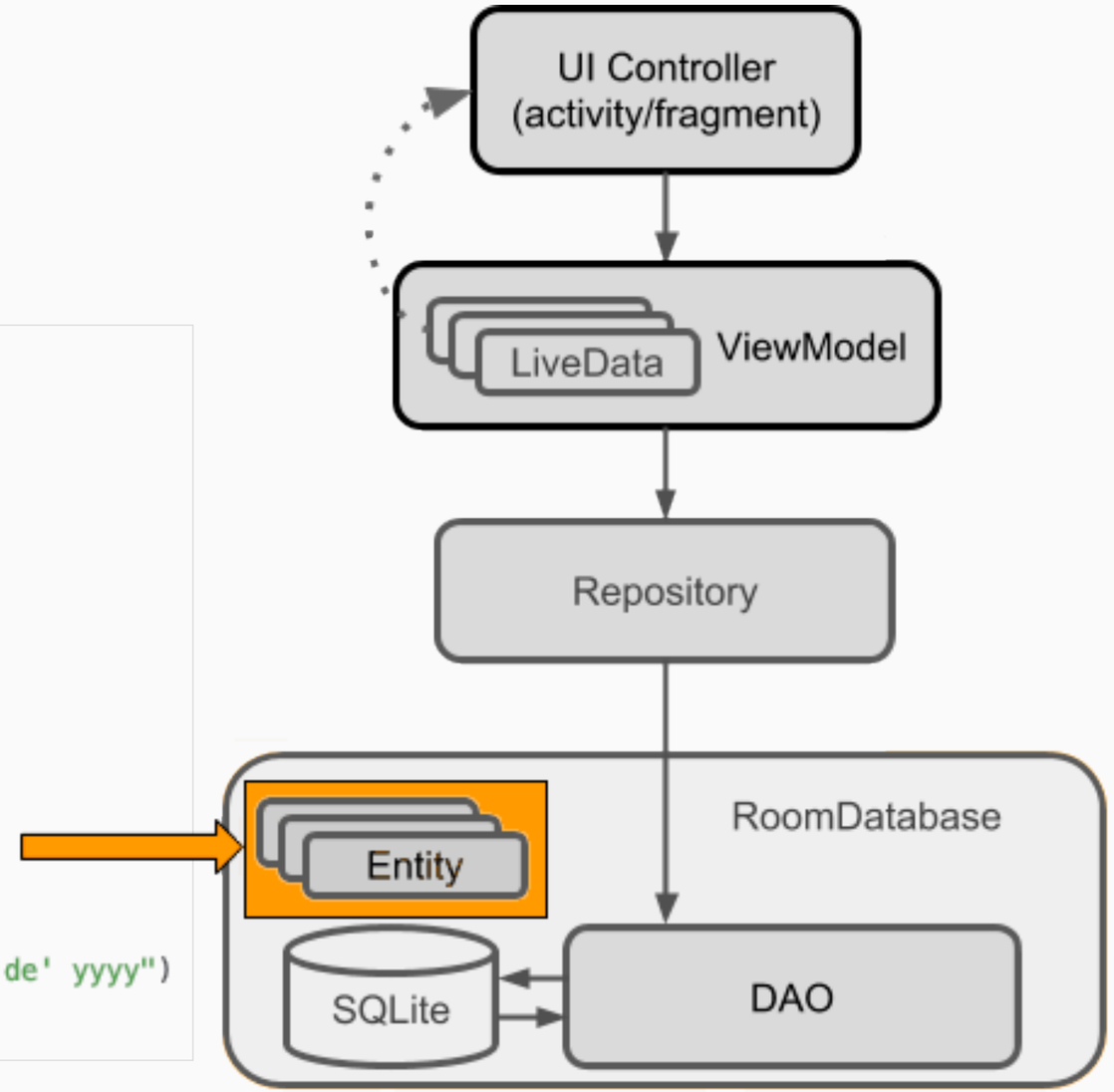
```
@Entity
data class Album(
    @PrimaryKey
    var id: Int? = null,
    var banda: String? = null,
    var album: String? = null,
    var genero: String? = null,
    var lancamento: LocalDate? = null,
    var capa: String? = null,
    var del: Boolean = false) {

    val dataDeLanacamento: String
        get() = lancamento!!.toString( pattern: "dd 'de' MMMM 'de' yyyy")
}
```



O DAO

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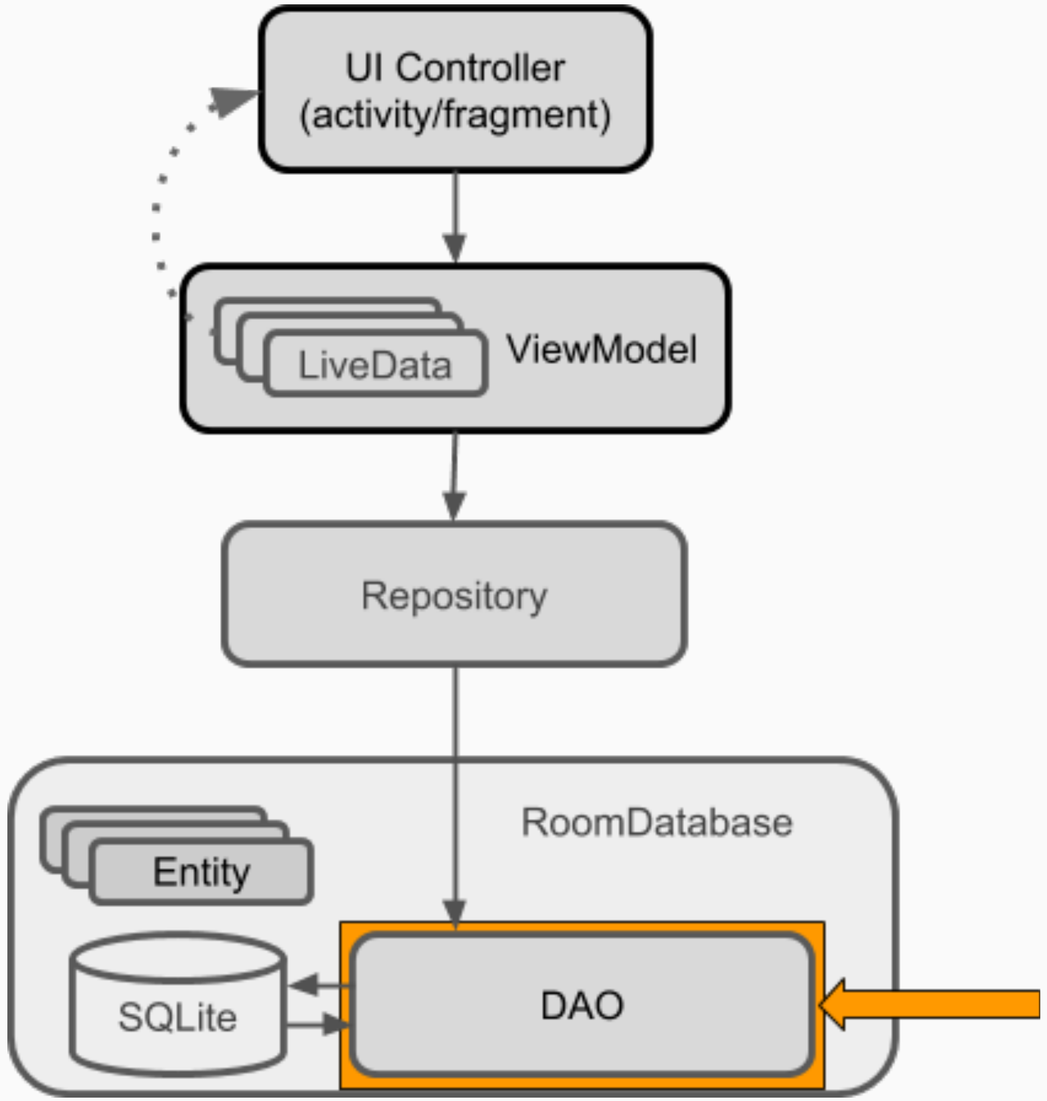
```
@Dao
interface AlbumDao {
    @get:Query( value: "select * from album order by banda")
    val albuns: DataSource.Factory<Int, Album>

    @Update
    fun atualizar(obj: Album)

    @Insert(onConflict = OnConflictStrategy.REPLACE)
    fun inserir(obj: Album)

    @Query( value: "select * from album where id = :id")
    fun localizar(id: Int): Album

    @Query( value: "delete from album where del = '1'")
    fun removerMarcados()
}
```



O RoomDatabase

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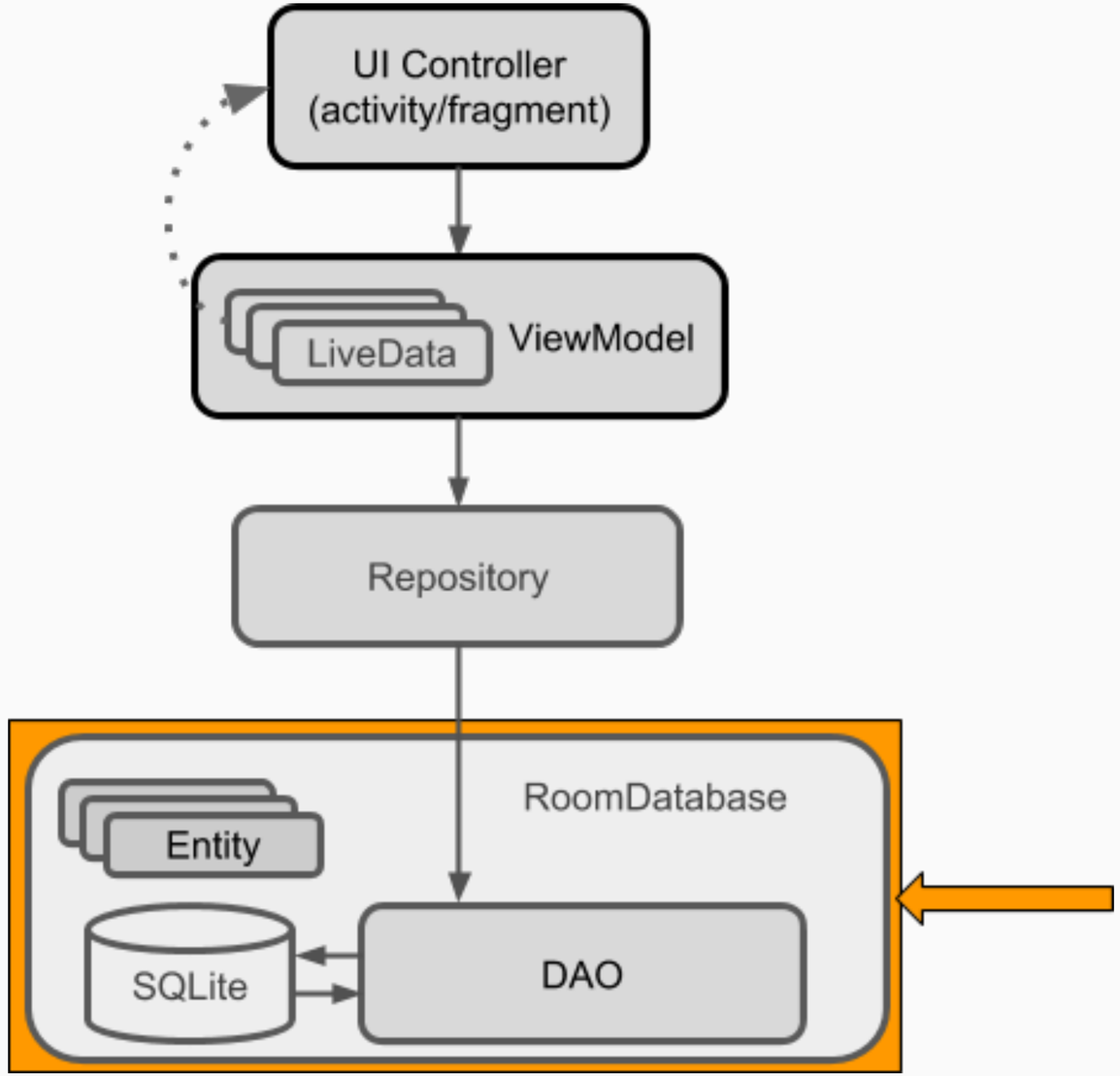
```
@Database(entities = [Album::class], version = 1, exportSchema = false)
@TypeConverters(LocalDateConverter::class)
abstract class AlbumDatabase : RoomDatabase() {
    abstract fun albumDao(): AlbumDao

    companion object {
        private var database: AlbumDatabase? = null

        internal val instance: AlbumDatabase
            get() {
                if (database == null) {
                    database = Room.databaseBuilder(
                        Main.context!!,
                        AlbumDatabase::class.java,
                        name: "albumdb")
                    .fallbackToDestructiveMigration()
                    .build()
                }
                return database!!
            }
    }
}
```



O Repository

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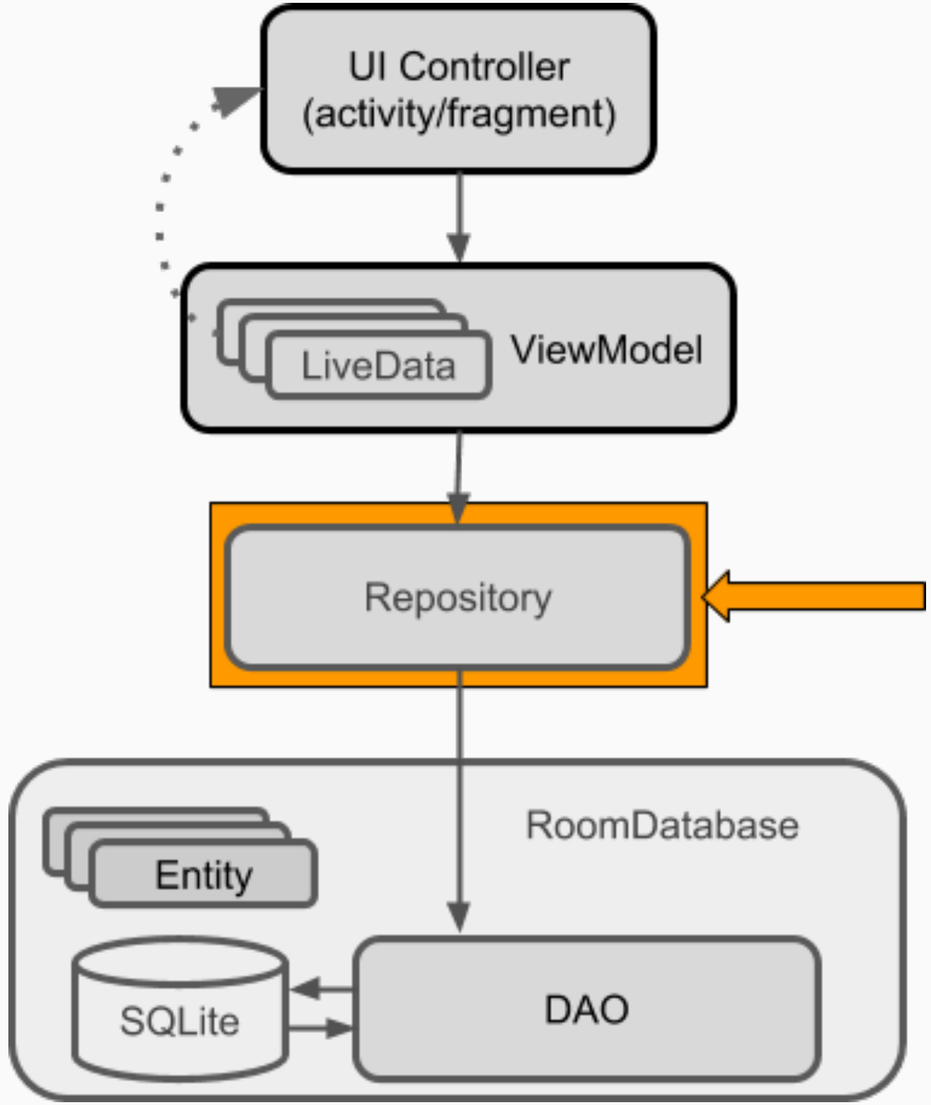
```
class AlbumRepository {
    private val dao: AlbumDao
    private var albuns: LiveData<PagedList<Album>>? = null
    private var ordenacao: String? = null

    init {
        val db = AlbumDatabase.instance
        dao = db.albumDao()
        albuns = LivePagedListBuilder(dao.albuns, pageSize: 10).build()
    }

    fun getAlbuns(): LiveData<PagedList<Album>> {
        return albuns!!
    }

    fun atulizar(album: Album) {
        Action<Album> { dao.atualizar(it!!) }.execute(album)
    }

    fun inserir(album: Album) {
        Action<Album> { dao.inserir(it!!) }.execute(album)
    }

    @Throws(DatabaseException::class)
    fun localizar(id: Int): Album {
        try {
            return Query<Int, Album> { dao.localizar(it!!) }.execute(id).get()
        } catch (ex: ExecutionException) {
            throw DatabaseException("Falha na execução da consulta ao ID: $id")
        } catch (ex: InterruptedException) {
            throw DatabaseException("Falha na execução da consulta ao ID: $id")
        }
    }
}
```



O ViewModel

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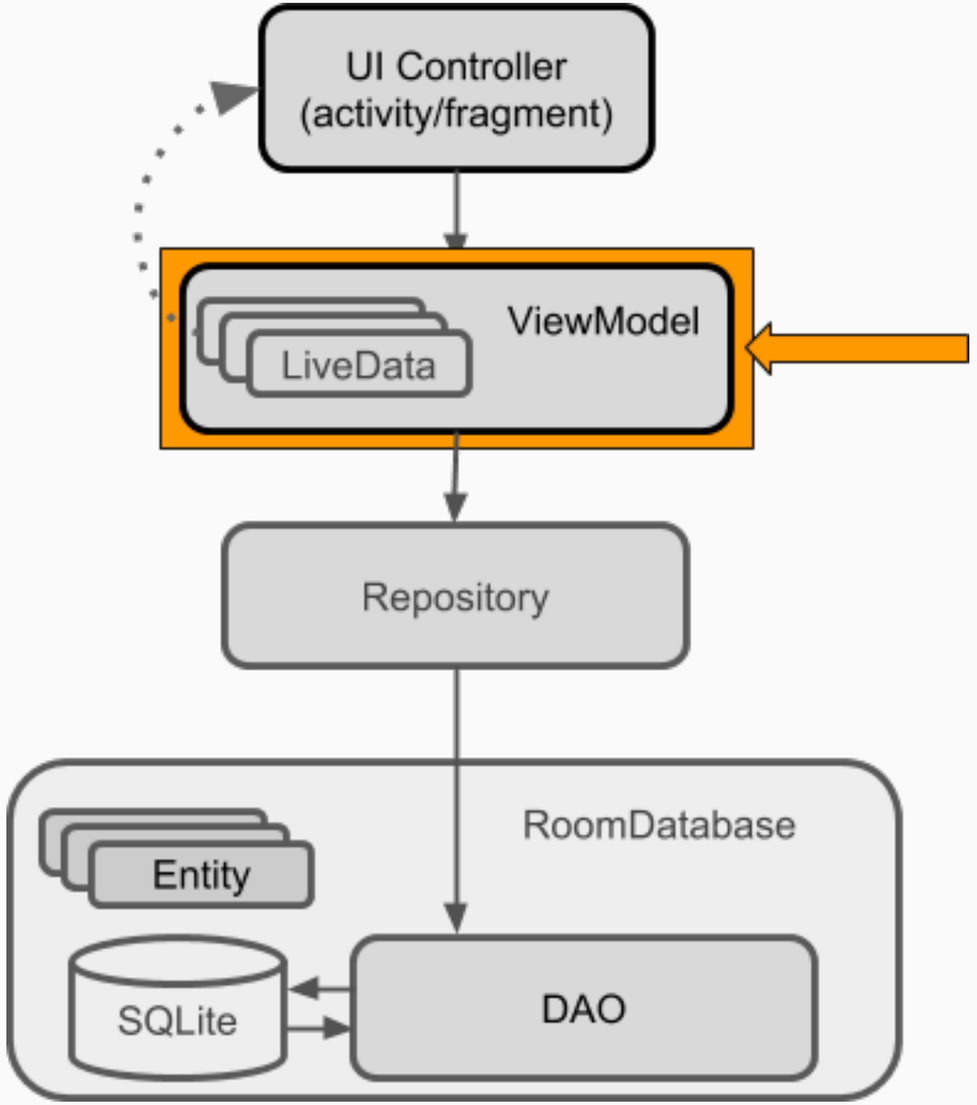
```
class AlbumViewModel : ViewModel() {
    private val dao = AlbumRepository()

    val albuns: LiveData<PagedList<Album>>
        get() = dao.getAlbuns()

    fun inserir(album: Album) {
        dao.inserir(album)
    }

    fun atualizar(album: Album) {
        dao.atulizar(album)
    }

    @Throws(DatabaseException::class)
    fun localizar(id: Int): Album {
        return dao.localizar(id)
    }
}
```



O LiveData

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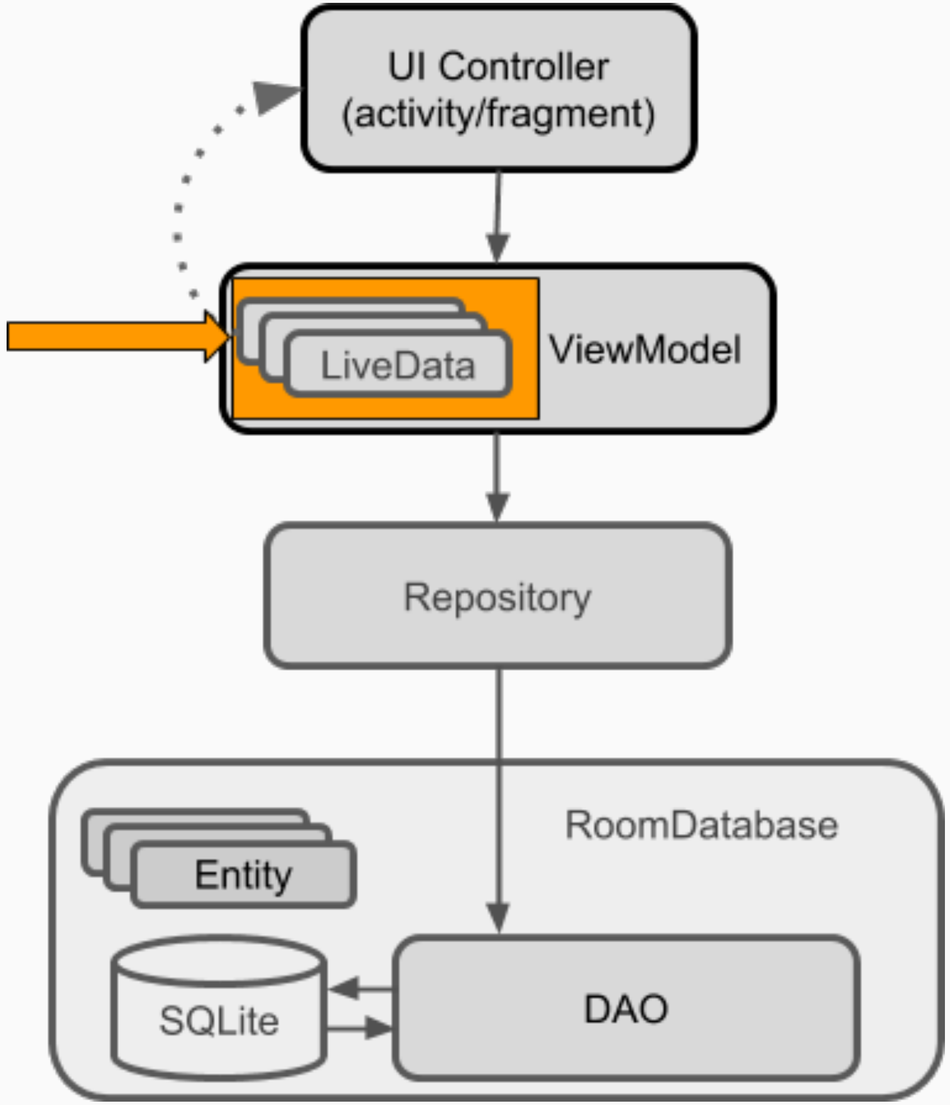
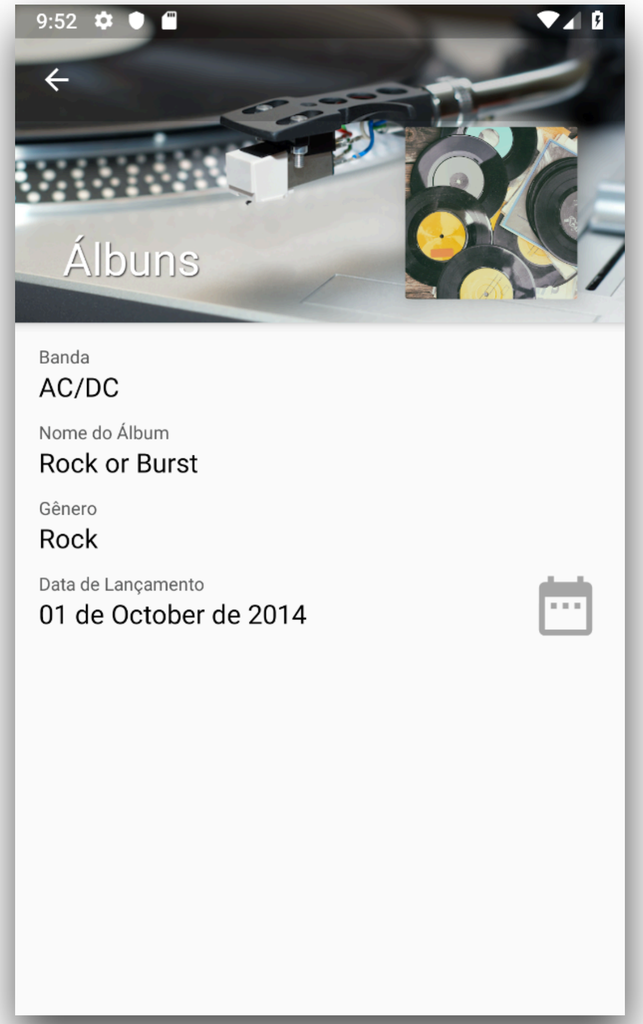
```
viewModel = ViewModelProvider(requireActivity())
        .get(AlbumViewModel::class.java)
idAlbum?.run { this: Int
    try {
        album = viewModel!!.localizar( id: this).also { it: Album
            edBanda.setText(it.banda)
            edAlbum.setText(it.album)
            edGenero.setText(it.genero)
            edLancamento.setText(it.lancamento!!
                    .toString( pattern: "dd 'de' MMMM 'de' yyyy"))
        }
    } catch (ex: DatabaseException) {
        longToast(ex.message!!) ^run
    }
}
```



Álbuns Musicais



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