Augmented Reality in Android Studio (Kotlin)

- **Motivation**:

- Why did I choose Augmented Reality for my final project project?
Everything is very simple - the last thing I did lately was just the developments related to augmented reality. I am very interested in this direction and I hope that in the future I will be able to realize myself in the direction of development related to augmented reality.

- **What I used in this project**:

SceneView - concept commonly used in augmented reality (AR) development frameworks and libraries to represent the view or display where the augmented content is rendered. It provides a way to visualize and overlay virtual objects onto the real-world environment captured by a device's camera.
By utilizing the SceneView, developers can create immersive AR experiences by blending virtual content seamlessly with the real world, providing users with interactive and engaging visual overlays.

- **How to create simple AR app**:

1. Add dependency of the AR SceneView to your *build.gradle(Module:app)* => *dependencies*:
   implementation'io.github.sceneview:arsceneview:0.10.0'

2. **Create Component of SceneView in *activity_main.xml:***

```
<io.github.sceneview.ar.ArSceneView
 android:id="@+id/sceneView"
 android:layout_width="match_parent"
 android:layout_height="match_parent"/>
```

3. **Create Button To Place Object on the surface**:

```
<com.google.android.material.floatingactionbutton.ExtendedFloatingActionButton
    android:id="@+id/place"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textSize="20sp"
```

```
        android:textAlignment="center"
        android:text="Place"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.907" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

4. **Develop the MainActivity:**

```
class MainActivity : AppCompatActivity() {


    lateinit var sceneView: ArSceneView
    lateinit var placeButton: ExtendedFloatingActionButton

    /**   modelNode is an instance of the ArModelNode class,
     *  which represents a 3D model that can be placed in the AR scene. **/

    private lateinit var modelNode: ArModelNode


    @SuppressLint("MissingInflatedId")

    override fun onCreate(savedInstanceState: Bundle?) {


        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        // Initialize SceneView from layout
        sceneView = findViewById(R.id.sceneView);

        // Initialize placeButton from layout
        placeButton = findViewById(R.id.place);

        // Set click listener for placeButton
        placeButton.setOnClickListener {
            placeModel()
        }
```

```
        // Create a new instance of ArModelNode and load the GLB model asynchronously
        modelNode = ArModelNode().apply {
            loadModelGlbAsync(
                glbFileLocation = "models/office_chair.glb"
            )
            {
                sceneView.planeRenderer.isVisible = true
            }


            /**The onAnchorChanged property of the modelNode is set to a lambda function,
             * which sets the isGone property of placeButton when the anchor (position and orientation) of the
model changes.**/


            onAnchorChanged = {
                placeButton.isGone
            }
        }

        // Add the modelNode to the sceneView
        sceneView.addChild(modelNode)
    }

    private fun placeModel(){
        modelNode?.anchor()
        sceneView.planeRenderer.isVisible = false
    }
}
```