



MM1 & MM3

Tahun Ajaran 2022/2023

PEMROGRAMAN

PERANGKAT BERGERAK

(KOTLIN)

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MODUL 11

RETROFIT – CRUD FIREBASE

Untuk praktikum ini kita masih menggunakan Real-Time Database.

Kita akan menggunakan kode dari MODUL 10.

Link Firebase (*Teman-teman membuat linknya sendiri ya)

<https://firstfire-cfad0-default-rtdb.firebaseio.com/>

Tutorial Rules Firebase

Project sebelumnya teman2 hanya berisi perintah read (membaca data) tapi tidak dapat untuk mengedit data. Oleh karena ini kita harus merubahnya di bagian rules.

Setelah itu kalian ke tab **Rules** dan buat write menjadi true, jangan lupa untuk meng publish perubahan

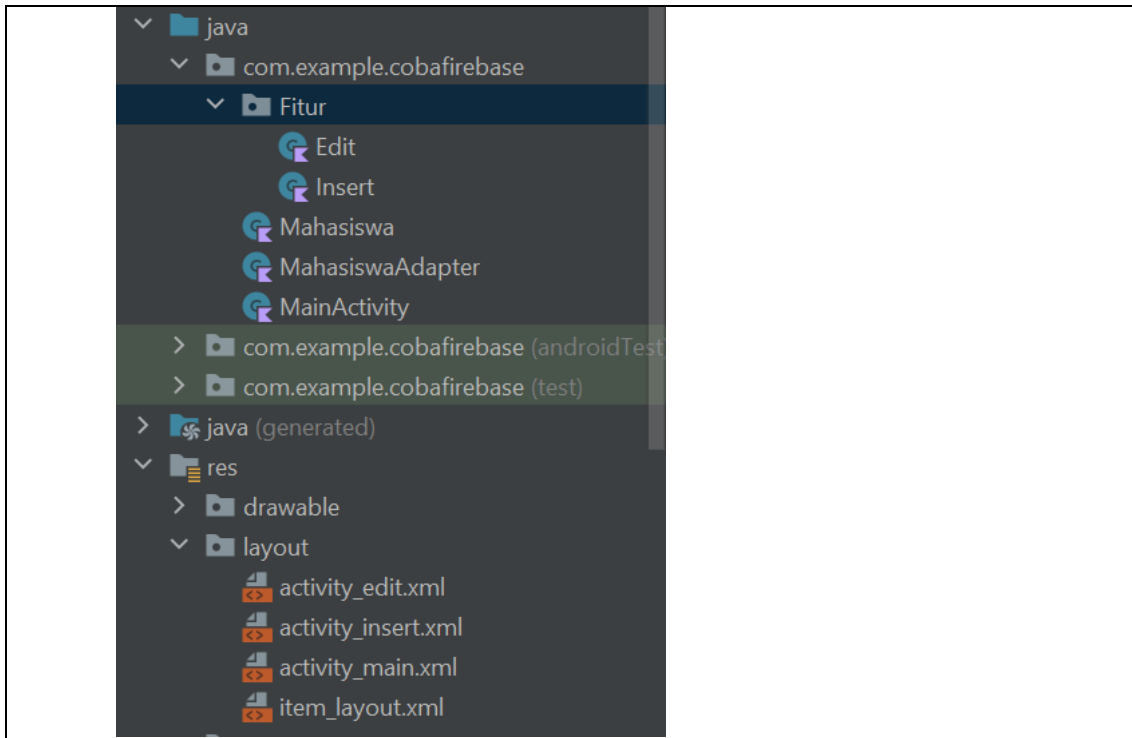
```
{  
  "rules": {  
    ".read": true,  
    ".write": true  
  }  
}
```

PRAKTIKUM

File Yang Akan Kita Buat

Buat :

1. Activity untuk edit
2. Activity untuk Insert



activity_edit.Xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_margin="24dp"
    tools:context=".Fitur.Edit">

    <TextView
        android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Update Data Mahasiswa"
        android:textAlignment="center"
        android:textColor="@color/black"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <com.google.android.material.textfield.TextInputLayout
        android:id="@+id/editTextNim"

style="@style/Widget.MaterialComponents.TextInputLayout.OutlinedBox"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
```

```

        android:layout_marginTop="40dp"
        android:paddingStart="10dp"
        android:paddingEnd="10dp"
        app:layout_constraintTop_toBottomOf="@+id/textView">

        <com.google.android.material.textfield.TextInputEditText
            android:id="@+id/inputNim"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:drawablePadding="10dp"
            android:hint="Nim"
            android:inputType="none"
            android:enabled="false"
            >

        </com.google.android.material.textfield.TextInputEditText>
    </com.google.android.material.textfield.TextInputLayout>

    <com.google.android.material.textfield.TextInputLayout
        android:id="@+id/editTextNama"
        style="@style/Widget.MaterialComponents.TextInputLayout.OutlinedBox"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:paddingStart="10dp"
        android:paddingEnd="10dp"
        app:layout_constraintTop_toBottomOf="@+id/editTextNim">

        <com.google.android.material.textfield.TextInputEditText
            android:id="@+id/inputNama"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:drawablePadding="10dp"
            android:hint="Nama"
            android:inputType="text">

        </com.google.android.material.textfield.TextInputEditText>
    </com.google.android.material.textfield.TextInputLayout>

    <com.google.android.material.textfield.TextInputLayout
        android:id="@+id/editTextTelepon"
        style="@style/Widget.MaterialComponents.TextInputLayout.OutlinedBox"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:paddingStart="10dp"
        android:paddingEnd="10dp"
        app:layout_constraintTop_toBottomOf="@+id/editTextNama">

        <com.google.android.material.textfield.TextInputEditText
            android:id="@+id/inputTelepon"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:drawablePadding="10dp"
            android:hint="Telepon"
            android:inputType="phone">

```

```

        </com.google.android.material.textfield.TextInputEditText>
    </com.google.android.material.textfield.TextInputLayout>

    <com.google.android.material.button.MaterialButton
        android:layout_marginStart="10dp"
        android:layout_marginEnd="10dp"
        android:id="@+id/btnUpdate"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="40dp"
        android:backgroundTint="#0095F6"
        android:padding="12dp"
        android:text="Update"
        android:textColor="@color/white"
        app:layout_constraintTop_toBottomOf="@+id/editTextTelepon"
    />
</androidx.constraintlayout.widget.ConstraintLayout>

```

Activity_Insert.xml

Dalam activity_main ini kita akan tambahkan button Insert untuk menambahkan data. Rubah codenya menjadi seperti dibawah ini:

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_margin="24dp"
    tools:context=".Fitur.Insert">

    <TextView
        android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Tambah Data Mahasiswa"
        android:textAlignment="center"
        android:textColor="@color/black"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <com.google.android.material.textfield.TextInputLayout
        android:id="@+id/editTextNim"
        style="@style/Widget.MaterialComponents.TextInputLayout.OutlinedBox"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="40dp"
        android:paddingStart="10dp"

```

```

        android:paddingEnd="10dp"
        app:layout_constraintTop_toBottomOf="@+id/textView">

        <com.google.android.material.textfield.TextInputEditText
            android:id="@+id/inputNimIns"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:drawablePadding="10dp"
            android:hint="Nim"
            android:inputType="phone">

        </com.google.android.material.textfield.TextInputEditText>
    </com.google.android.material.textfield.TextInputLayout>

    <com.google.android.material.textfield.TextInputLayout
        android:id="@+id/editTextNamaIns"
style="@style/Widget.MaterialComponents.TextInputLayout.OutlinedBox"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:paddingStart="10dp"
        android:paddingEnd="10dp"
        app:layout_constraintTop_toBottomOf="@+id/editTextNim">

        <com.google.android.material.textfield.TextInputEditText
            android:id="@+id/inputNamaIns"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:drawablePadding="10dp"
            android:hint="Nama"
            android:inputType="text">

        </com.google.android.material.textfield.TextInputEditText>
    </com.google.android.material.textfield.TextInputLayout>

    <com.google.android.material.textfield.TextInputLayout
        android:id="@+id/editTextTeleponIns"
style="@style/Widget.MaterialComponents.TextInputLayout.OutlinedBox"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:paddingStart="10dp"
        android:paddingEnd="10dp"
        app:layout_constraintTop_toBottomOf="@+id/editTextNamaIns">

        <com.google.android.material.textfield.TextInputEditText
            android:id="@+id/inputTeleponIns"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:drawablePadding="10dp"
            android:hint="Telepon"
            android:inputType="phone">

        </com.google.android.material.textfield.TextInputEditText>
    </com.google.android.material.textfield.TextInputLayout>

```

```

<com.google.android.material.button.MaterialButton
    android:layout_marginStart="10dp"
    android:layout_marginEnd="10dp"
    android:id="@+id/btnTambah"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="40dp"
    android:backgroundTint="#0095F6"
    android:padding="12dp"
    android:text="Insert"
    android:textColor="@color/white"

app:layout_constraintTop_toBottomOf="@+id/editTextTeleponIns" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

Output

Tambah Data Mahasiswa

MahasiswaAdapter.Kt

Perbarui kode sebelumnya menjadi

```

package com.example.cobafirebase

import android.content.Context
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup
import android.widget.ImageButton
import android.widget.TextView
import androidx.recyclerview.widget.RecyclerView
import com.google.firebase.database.DatabaseReference
import com.google.firebase.database.FirebaseDatabase

```

```

@Suppress("DEPRECATION")
class MahasiswaAdapter(
    private val userList: ArrayList<Mahasiswa>,
    private val context: Context,
    private val editClickListener: (Mahasiswa) -> Unit,
    private val deleteClickListener: (Mahasiswa) -> Unit
) : RecyclerView.Adapter<MahasiswaAdapter.MyViewHolder>() {

    private val database: DatabaseReference =
        FirebaseDatabase.getInstance().reference.child("mahasiswa")

    override fun onCreateViewHolder(parent: ViewGroup, viewType:
        Int): MyViewHolder {
        val itemView =
            LayoutInflater.from(parent.context).inflate(R.layout.item_layout,
                parent, false)
        return MyViewHolder(itemView)
    }

    override fun onBindViewHolder(holder: MyViewHolder, position:
        Int) {
        val currentItem = userList[position]
        holder.nama.text = currentItem.nama
        holder.nim.text = "Nim: ${currentItem.nim}" // Ubah
        pengisian kolom nim
        holder.telp.text = currentItem.telp

        holder.editButton.setOnClickListener {
            editClickListener.invoke(currentItem)
        }

        holder.deleteButton.setOnClickListener {
            deleteClickListener.invoke(currentItem)
        }
    }

    override fun getItemCount(): Int {
        return userList.size
    }

    inner class MyViewHolder(itemView: View) :
        RecyclerView.ViewHolder(itemView) {
        val nama: TextView =
            itemView.findViewById(R.id.namaTextView)
        val nim: TextView = itemView.findViewById(R.id.nimTextView)
        val telp: TextView =
            itemView.findViewById(R.id.telpTextView)
        val editButton: ImageButton =
            itemView.findViewById(R.id.btnEdit)
        val deleteButton: ImageButton =
            itemView.findViewById(R.id.btnDellete)

        init {
            editButton.setOnClickListener {
                val position = adapterPosition
                if (position != RecyclerView.NO_POSITION) {
                    val mahasiswa = userList[position]
                    editClickListener.invoke(mahasiswa)
                }
            }
        }
    }
}

```



```

    }
}

deleteButton.setOnClickListener {
    val position = adapterPosition
    if (position != RecyclerView.NO_POSITION) {
        val mahasiswa = userList[position]
        deleteClickListener.invoke(mahasiswa)
    }
}
}
}
}

```

MainActivity.Kt

Perbarui code menjadi spt ini

```

package com.example.cobafirebase

import android.content.Context
import android.content.Intent
import android.os.Bundle
import android.widget.Button
import androidx.appcompat.app.AppCompatActivity
import androidx.recyclerview.widget.LinearLayoutManager
import androidx.recyclerview.widget.RecyclerView
import com.example.cobafirebase.Fitur.Edit
import com.example.cobafirebase.Fitur.Insert
import com.google.firebase.database.*

class MainActivity : AppCompatActivity() {
    private lateinit var userRecyclerView: RecyclerView
    private lateinit var adapter: MahasiswaAdapter
    private lateinit var userList: ArrayList<Mahasiswa>
    private lateinit var database: DatabaseReference

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        val insertButton: Button = findViewById(R.id.insertButton)
        insertButton.setOnClickListener {
            insertMahasiswa()
        }

        // Initialize RecyclerView
        userRecyclerView = findViewById(R.id.recyclerView)
        userRecyclerView.layoutManager = LinearLayoutManager(this)

        // Initialize ArrayList and Adapter
        userList = ArrayList()
        adapter = MahasiswaAdapter(userList, this, ::editMahasiswa,
        ::deleteMahasiswa)
        userRecyclerView.adapter = adapter

        // Get Firebase database reference
    }
}

```

```

        database =
FirebaseDatabase.getInstance().getReference("mahasiswa")

        // Get data from Firebase
        database.addValueEventListener(object : ValueEventListener {
            override fun onDataChange(dataSnapshot: DataSnapshot) {
                // Clear previous data from userList
                userList.clear()

                // Loop through each data item and add it to
userList
                for (snapshot in dataSnapshot.children) {
                    val nim =
snapshot.child("nim").getValue(String::class.java)
                    val mahasiswa =
snapshot.getValue(Mahasiswa::class.java)
                    mahasiswa?.let {
                        it.nim = nim
                        it.nim?.let { nim -> // Check if nim is not
null
                            it.nim = nim
                            userList.add(it)
                        }
                    }
                }

                // Update the RecyclerView after receiving new data
                adapter.notifyDataSetChanged()
            }

            override fun onCancelled(error: DatabaseError) {
                // Handle error when accessing Firebase
            }
        })
    }

    private fun editMahasiswa(mahasiswa: Mahasiswa) {
        // Open the edit activity or perform the edit operation as
needed
        val intent = Intent(this, Edit::class.java)
        intent.putExtra("nama", mahasiswa.nama)
        intent.putExtra("nim", mahasiswa.nim)
        intent.putExtra("telp", mahasiswa.telp)
        startActivity(intent)
    }

    private fun deleteMahasiswa(mahasiswa: Mahasiswa) {
        // Delete the mahasiswa data from Firebase
        val userId = mahasiswa.nim
        userId?.let {
            database.child(it).removeValue()
        }
    }

    private fun insertMahasiswa() {
        val intent = Intent(this, Insert::class.java)
        startActivity(intent)
    }

```

```
}  
}
```

Edit.Kt

```
package com.example.cobafirebase.Fitur  
  
import androidx.appcompat.app.AppCompatActivity  
import android.os.Bundle  
import android.widget.Button  
import android.widget.EditText  
import android.widget.Toast  
import com.example.cobafirebase.Mahasiswa  
import com.example.cobafirebase.R  
import com.google.firebase.database.*  
  
class Edit : AppCompatActivity() {  
  
    private lateinit var inputNama: EditText  
    private lateinit var inputNim: EditText  
    private lateinit var inputTelepon: EditText  
    private lateinit var btnUpdate: Button  
    private lateinit var database: DatabaseReference  
  
    override fun onCreate(savedInstanceState: Bundle?) {  
        super.onCreate(savedInstanceState)  
        setContentView(R.layout.activity_edit)  
  
        val nim = intent.getStringExtra("nim")!!  
        val nama = intent.getStringExtra("nama")!!  
        val telp = intent.getStringExtra("telp")!!  
  
        inputNama = findViewById(R.id.inputNama)  
        inputNim = findViewById(R.id.inputNim)  
        inputTelepon = findViewById(R.id.inputTelepon)  
        btnUpdate = findViewById(R.id.btnUpdate)  
  
        database =  
        FirebaseDatabase.getInstance().getReference("mahasiswa")  
  
        // Set the existing data to EditText fields  
        inputNama.setText(nama)  
        inputNim.setText(nim)  
        inputTelepon.setText(telp)  
  
        btnUpdate.setOnClickListener {  
            val updatedNama = inputNama.text.toString().trim()  
            val updatedTelepon = inputTelepon.text.toString().trim()  
  
            btnUpdate.setOnClickListener {  
                val updatedNama = inputNama.text.toString().trim()  
                val updatedTelepon =  
                inputTelepon.text.toString().trim()  
  
                if (updatedNama.isNotEmpty() &&  
                updatedTelepon.isNotEmpty()) {  
                    // Update the data in Firebase
```



```

        insertButton.setOnClickListener {
            val nim = inputNim.text.toString().trim()
            val nama = inputNama.text.toString().trim()
            val telepon = inputTelepon.text.toString().trim()

            if (nim.isNotEmpty() && nama.isNotEmpty() &&
telepon.isNotEmpty()) {
                tambahDataMahasiswa(nama, nim, telepon)
            } else {
                // Handling jika field tidak diisi
                // Misalnya dengan menampilkan pesan kesalahan
            }
        }
    }

    private fun tambahDataMahasiswa(nama: String, nim: String,
telepon: String) {
        // Generate ID baru untuk mahasiswa
        val mahasiswaId = database.push().key

        // Buat objek Mahasiswa baru
        val mahasiswa = Mahasiswa(nama, nim, telepon)

        // Tambahkan data ke Firebase dengan ID yang baru dibuat
        if (mahasiswaId != null) {
            database.child(mahasiswaId).setValue(mahasiswa)
                .addOnCompleteListener {
                    // Handling ketika penambahan data selesai
                    // Misalnya dengan menampilkan pesan sukses
                    // atau kembali ke activity sebelumnya
                }
                .addOnFailureListener {
                    // Handling jika penambahan data gagal
                    // Misalnya dengan menampilkan pesan kesalahan
                }
        }
    }
}

```

Output

