Assignment 1

Group 2

Computer Programming, Georgian@ILAC

COMP 3025: Mobile and Pervasive Computing

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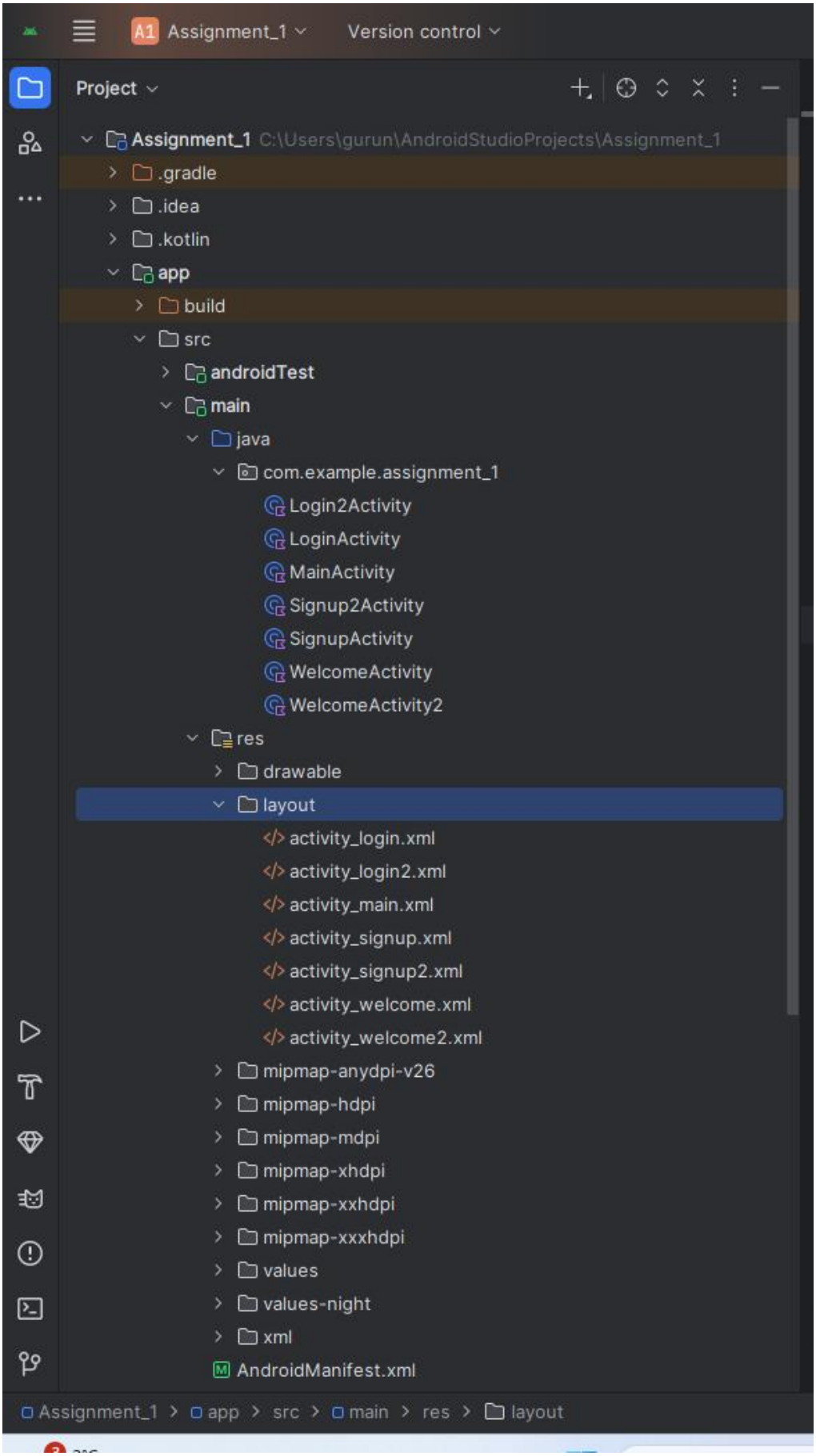
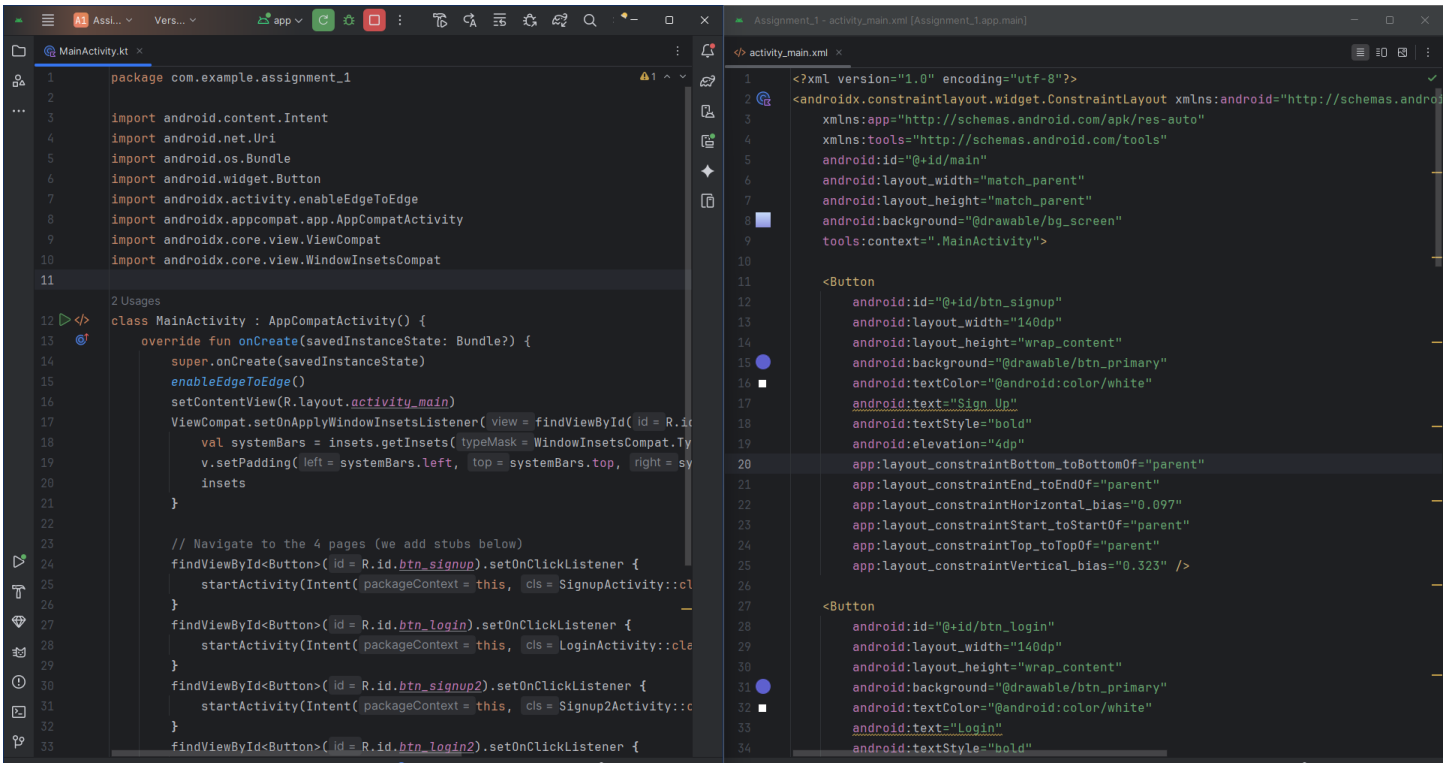
October 27, 2025

Project Structure



Kotlin files and respective XML files (Activity)

1. Main Page



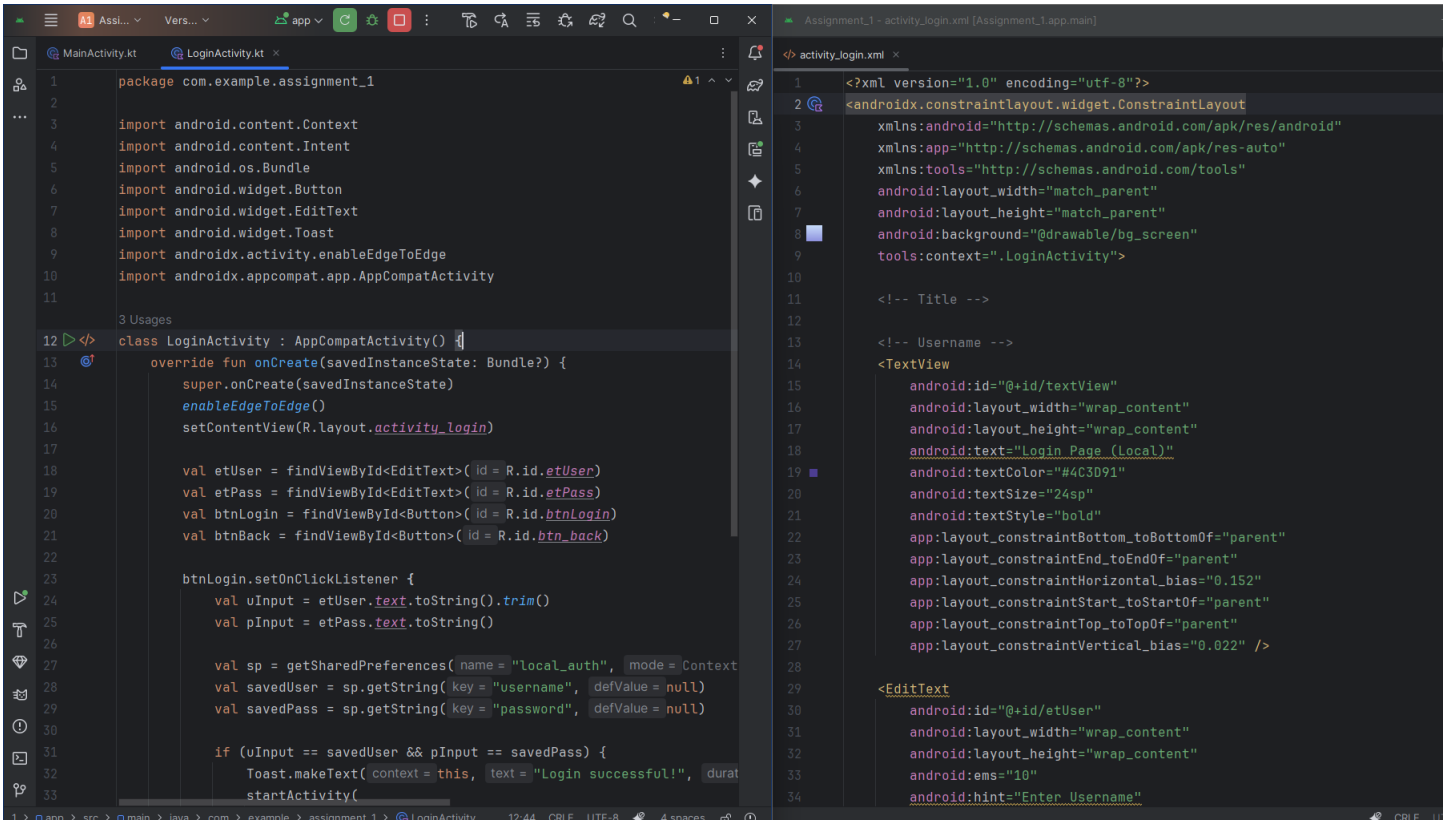
MainActivity.kt

```kotlin
package com.example.assignment_1

import android.content.Intent
import android.net.Uri
import android.os.Bundle
import android.widget.Button
import androidx.activity.enableEdgeToEdge
import androidx.appcompat.app.AppCompatActivity
import androidx.core.view.ViewCompat
import androidx.core.view.WindowInsetsCompat

2 Usages
class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        enableEdgeToEdge()
        setContentView(R.layout.activity_main)
        ViewCompat.setOnApplyWindowInsetsListener( view = findViewById( id = R.id
            val systemBars = insets.getInsets( typeMask = WindowInsetsCompat.Ty
            v.setPadding( left = systemBars.left,  top = systemBars.top,  right = sy
            insets
        }

        // Navigate to the 4 pages (we add stubs below)
        findViewById<Button>( id = R.id.btn_signup).setOnClickListener {
            startActivity(Intent( packageContext = this,  cls = SignupActivity::cl
        }
        findViewById<Button>( id = R.id.btn_login).setOnClickListener {
            startActivity(Intent( packageContext = this,  cls = LoginActivity::cla
        }
        findViewById<Button>( id = R.id.btn_signup2).setOnClickListener {
            startActivity(Intent( packageContext = this,  cls = Signup2Activity::c
        }
        findViewById<Button>( id = R.id.btn_login2).setOnClickListener {
```

activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.androi
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@drawable/bg_screen"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/btn_signup"
        android:layout_width="140dp"
        android:layout_height="wrap_content"
        android:background="@drawable/btn_primary"
        android:textColor="@android:color/white"
        android:text="Sign Up"
        android:textStyle="bold"
        android:elevation="4dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.097"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.323" />

    <Button
        android:id="@+id/btn_login"
        android:layout_width="140dp"
        android:layout_height="wrap_content"
        android:background="@drawable/btn_primary"
        android:textColor="@android:color/white"
        android:text="Login"
        android:textStyle="bold"
```

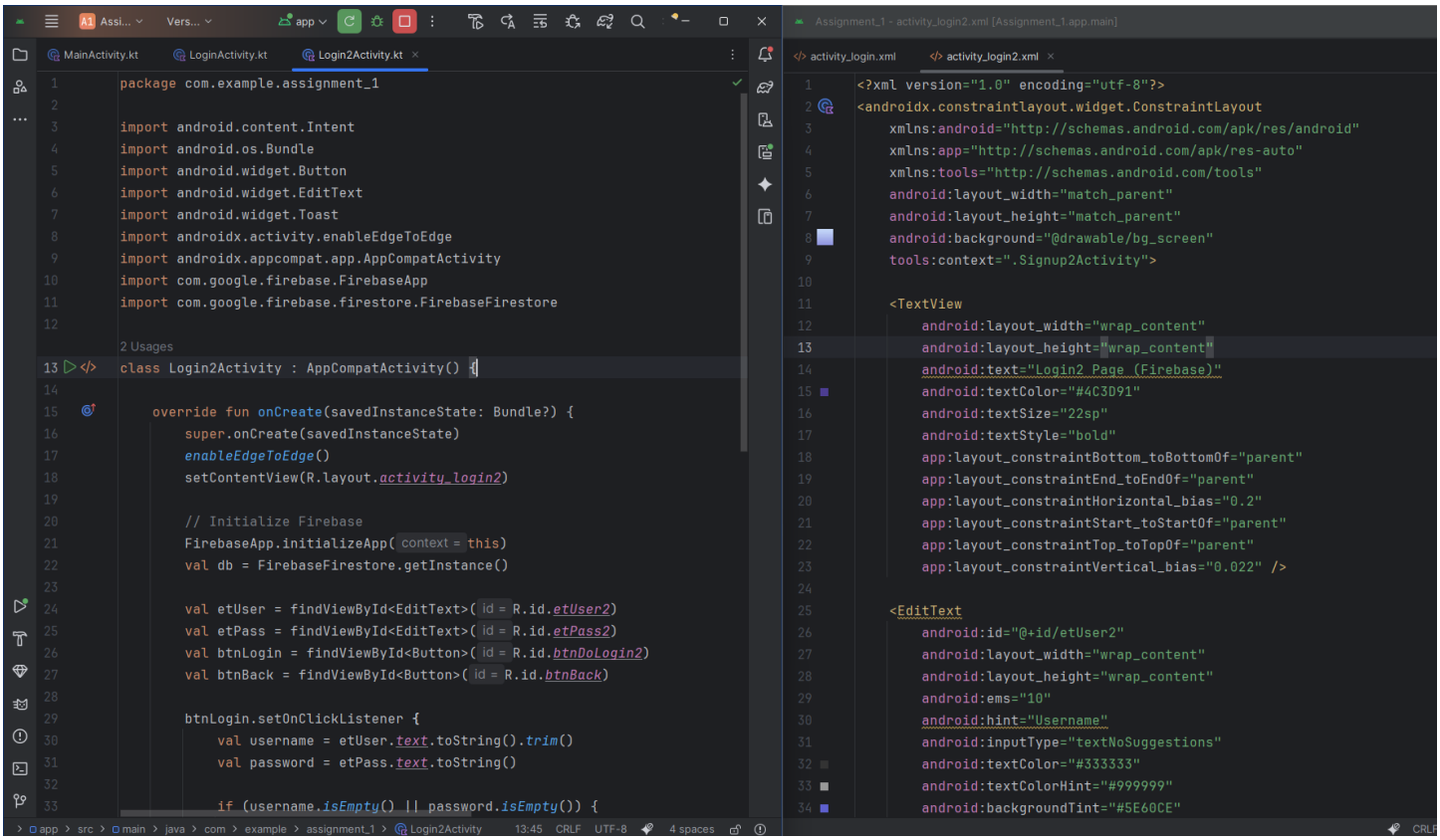
2. Login Page (Local)



```kotlin
package com.example.assignment_1

import android.content.Context
import android.content.Intent
import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.Toast
import androidx.activity.enableEdgeToEdge
import androidx.appcompat.app.AppCompatActivity

3 Usages
class LoginActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        enableEdgeToEdge()
        setContentView(R.layout.activity_login)

        val etUser = findViewById<EditText>( id = R.id.etUser)
        val etPass = findViewById<EditText>( id = R.id.etPass)
        val btnLogin = findViewById<Button>( id = R.id.btnLogin)
        val btnBack = findViewById<Button>( id = R.id.btn_back)

        btnLogin.setOnClickListener {
            val uInput = etUser.text.toString().trim()
            val pInput = etPass.text.toString()

            val sp = getSharedPreferences( name = "local_auth",  mode = Context
            val savedUser = sp.getString( key = "username",  defValue = null)
            val savedPass = sp.getString( key = "password",  defValue = null)

            if (uInput == savedUser && pInput == savedPass) {
                Toast.makeText( context = this,  text = "Login successful!",  durat
                startActivity(
```

```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:background="@drawable/bg_screen"
    tools:context=".LoginActivity">

    <!-- Title -->

    <!-- Username -->
    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Login Page (Local)"
        android:textColor="#4C3D91"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.152"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.022" />

    <EditText
        android:id="@+id/etUser"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="Enter Username"
```

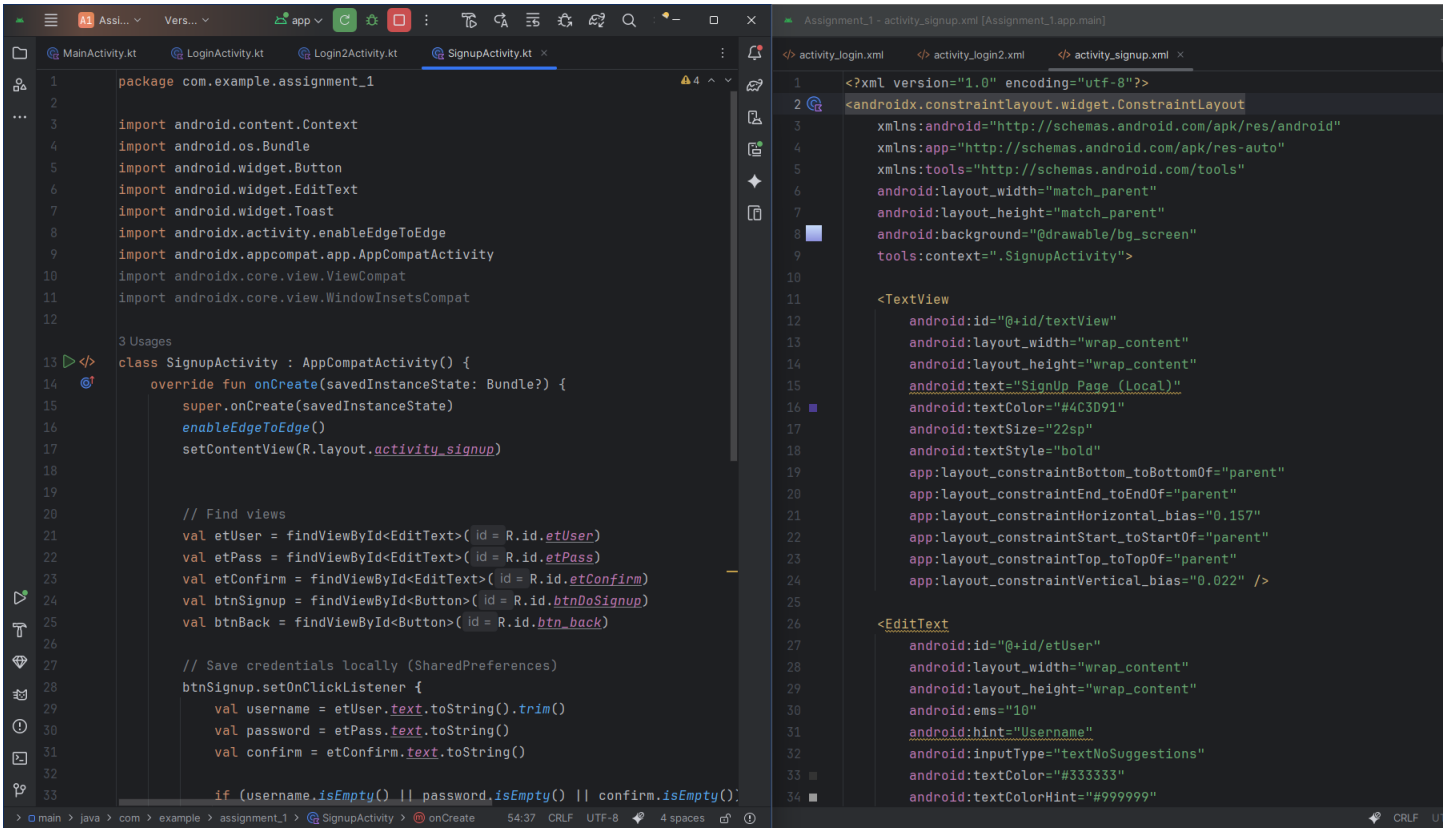
3. Login2 Page (Firebase)



```kotlin
package com.example.assignment_1

import android.content.Intent
import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.Toast
import androidx.activity.enableEdgeToEdge
import androidx.appcompat.app.AppCompatActivity
import com.google.firebase.FirebaseApp
import com.google.firebase.firestore.FirebaseFirestore

2 Usages
class Login2Activity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        enableEdgeToEdge()
        setContentView(R.layout.activity_login2)

        // Initialize Firebase
        FirebaseApp.initializeApp( context = this)
        val db = FirebaseFirestore.getInstance()

        val etUser = findViewById<EditText>( id = R.id.etUser2)
        val etPass = findViewById<EditText>( id = R.id.etPass2)
        val btnLogin = findViewById<Button>( id = R.id.btnDoLogin2)
        val btnBack = findViewById<Button>( id = R.id.btnBack)

        btnLogin.setOnClickListener {
            val username = etUser.text.toString().trim()
            val password = etPass.text.toString()

            if (username.isEmpty() || password.isEmpty()) {
```

```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:background="@drawable/bg_screen"
    tools:context=".Signup2Activity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Login2 Page (Firebase)"
        android:textColor="#4C3D91"
        android:textSize="22sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.2"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.022" />

    <EditText
        android:id="@+id/etUser2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="Username"
        android:inputType="textNoSuggestions"
        android:textColor="#333333"
        android:textColorHint="#999999"
        android:backgroundTint="#5E60CE"
```

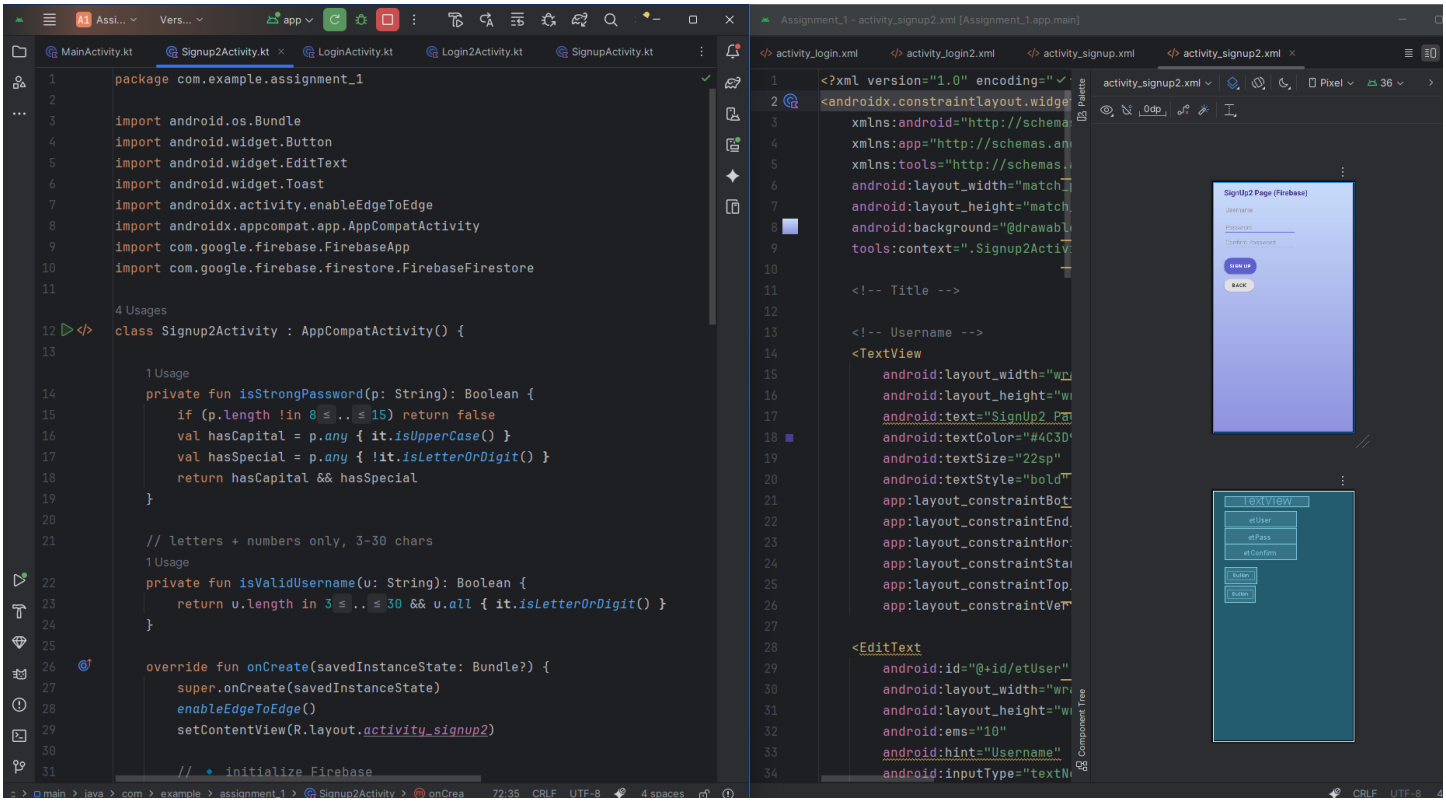
4. Signup Page (Local)



```kotlin
package com.example.assignment_1

import android.content.Context
import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.Toast
import androidx.activity.enableEdgeToEdge
import androidx.appcompat.app.AppCompatActivity
import androidx.core.view.ViewCompat
import androidx.core.view.WindowInsetsCompat

3 Usages
class SignupActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        enableEdgeToEdge()
        setContentView(R.layout.activity_signup)


        // Find views
        val etUser = findViewById<EditText>( id = R.id.etUser)
        val etPass = findViewById<EditText>( id = R.id.etPass)
        val etConfirm = findViewById<EditText>( id = R.id.etConfirm)
        val btnSignup = findViewById<Button>( id = R.id.btnDoSignup)
        val btnBack = findViewById<Button>( id = R.id.btn_back)

        // Save credentials locally (SharedPreferences)
        btnSignup.setOnClickListener {
            val username = etUser.text.toString().trim()
            val password = etPass.text.toString()
            val confirm = etConfirm.text.toString()

            if (username.isEmpty() || password.isEmpty() || confirm.isEmpty()
```

```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:background="@drawable/bg_screen"
    tools:context=".SignupActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="SignUp Page (Local)"
        android:textColor="#4C3D91"
        android:textSize="22sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.157"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.022" />

    <EditText
        android:id="@+id/etUser"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="Username"
        android:inputType="textNoSuggestions"
        android:textColor="#333333"
        android:textColorHint="#999999"
```

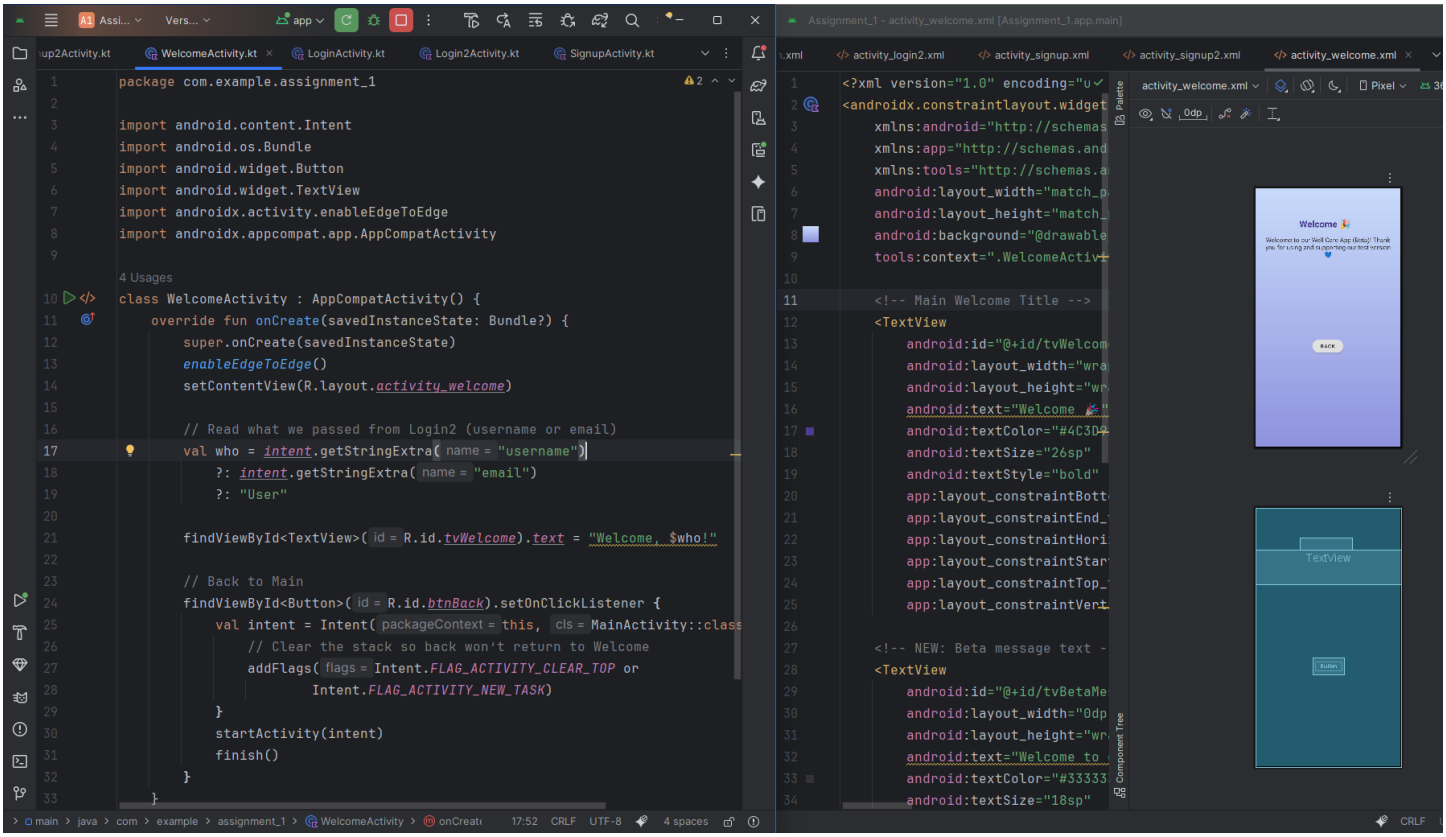
5. Signup2 Page (Firebase)



```kotlin
package com.example.assignment_1

import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.Toast
import androidx.activity.enableEdgeToEdge
import androidx.appcompat.app.AppCompatActivity
import com.google.firebase.FirebaseApp
import com.google.firebase.firestore.FirebaseFirestore

4 Usages
class Signup2Activity : AppCompatActivity() {

    1 Usage
    private fun isStrongPassword(p: String): Boolean {
        if (p.length !in 8 ≤ .. ≤ 15) return false
        val hasCapital = p.any { it.isUpperCase() }
        val hasSpecial = p.any { !it.isLetterOrDigit() }
        return hasCapital && hasSpecial
    }

    // letters + numbers only, 3-30 chars
    1 Usage
    private fun isValidUsername(u: String): Boolean {
        return u.length in 3 ≤ .. ≤ 30 && u.all { it.isLetterOrDigit() }
    }

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        enableEdgeToEdge()
        setContentView(R.layout.activity_signup2)

        // 🔹 initialize Firebase
```

```xml
<?xml version="1.0" encoding="
<androidx.constraintlayout.widge
    xmlns:android="http://schema
    xmlns:app="http://schemas.an
    xmlns:tools="http://schemas.
    android:layout_width="match_
    android:layout_height="match
    android:background="@drawabl
    tools:context=".Signup2Activ

    <!-- Title -->

    <!-- Username -->
    <TextView
        android:layout_width="wr
        android:layout_height="w
        android:text="SignUp2 Pa
        android:textColor="#4C3D
        android:textSize="22sp"
        android:textStyle="bold"
        app:layout_constraintBot
        app:layout_constraintEnd_
        app:layout_constraintHor
        app:layout_constraintSta
        app:layout_constraintTop_
        app:layout_constraintVer

    <EditText
        android:id="@+id/etUser"
        android:layout_width="wr
        android:layout_height="w
        android:ems="10"
        android:hint="Username"
        android:inputType="textN
```

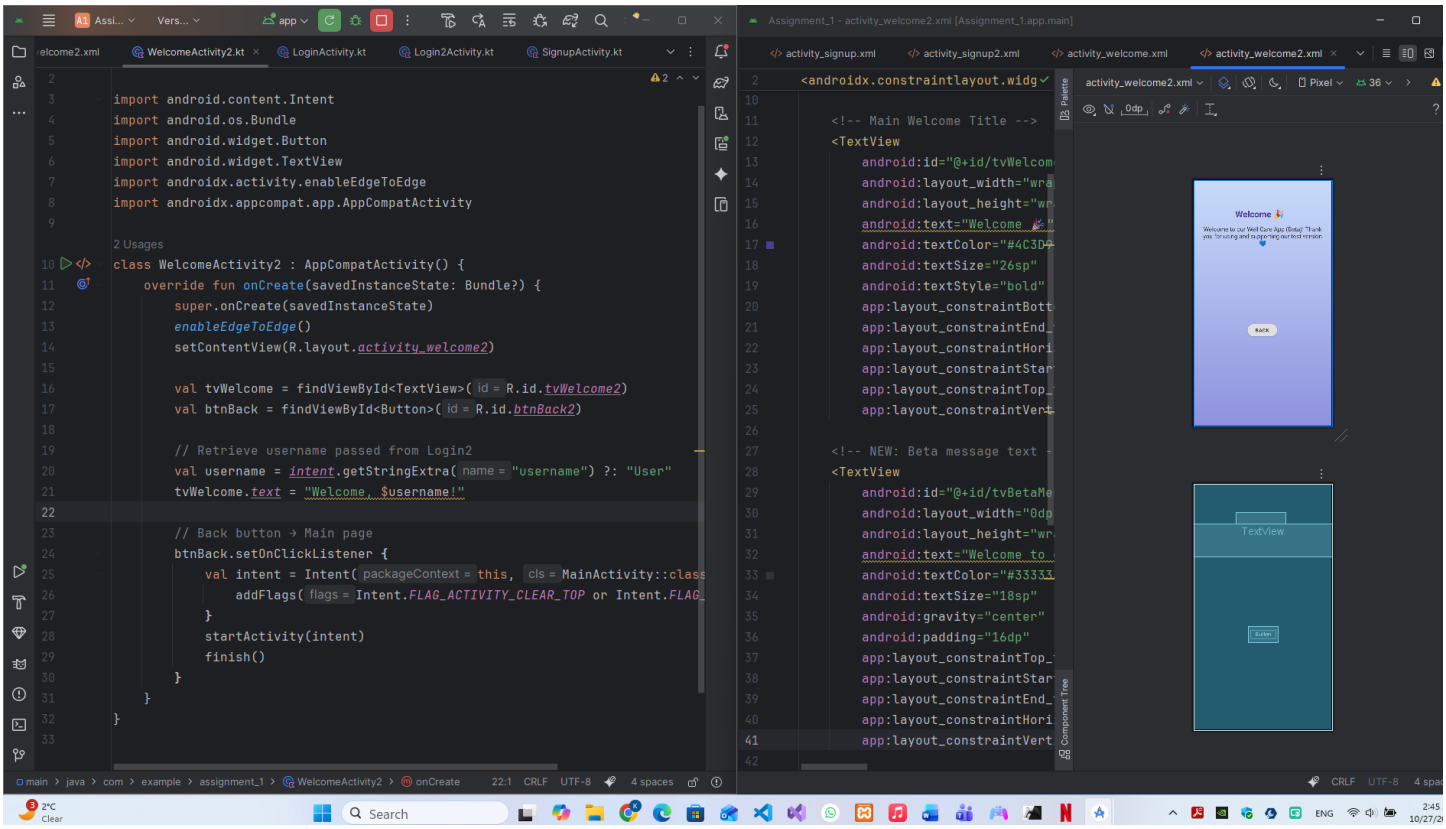
6. Welcome Page (Local)



```
package com.example.assignment_1

import android.content.Intent
import android.os.Bundle
import android.widget.Button
import android.widget.TextView
import androidx.activity.enableEdgeToEdge
import androidx.appcompat.app.AppCompatActivity

4 Usages
class WelcomeActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        enableEdgeToEdge()
        setContentView(R.layout.activity_welcome)

        // Read what we passed from Login2 (username or email)
        val who = intent.getStringExtra( name = "username")
            ?: intent.getStringExtra( name = "email")
            ?: "User"

        findViewById<TextView>( id = R.id.tvWelcome).text = "Welcome, $who!"

        // Back to Main
        findViewById<Button>( id = R.id.btnBack).setOnClickListener {
            val intent = Intent( packageContext = this, cls = MainActivity::class
                // Clear the stack so back won't return to Welcome
                addFlags( flags = Intent.FLAG_ACTIVITY_CLEAR_TOP or
                        Intent.FLAG_ACTIVITY_NEW_TASK)
            }
            startActivity(intent)
            finish()
        }
    }
```

```
<?xml version="1.0" encoding="u
<androidx.constraintlayout.widget
    xmlns:android="http://schemas
    xmlns:app="http://schemas.and
    xmlns:tools="http://schemas.a
    android:layout_width="match_p
    android:layout_height="match_
    android:background="@drawable
    tools:context=".WelcomeActiv

    <!-- Main Welcome Title -->
    <TextView
        android:id="@+id/tvWelcom
        android:layout_width="wra
        android:layout_height="wr
        android:text="Welcome
        android:textColor="#4C3D
        android:textSize="26sp"
        android:textStyle="bold"
        app:layout_constraintBott
        app:layout_constraintEnd_
        app:layout_constraintHori
        app:layout_constraintStar
        app:layout_constraintTop_
        app:layout_constraintVert

    <!-- NEW: Beta message text -
    <TextView
        android:id="@+id/tvBetaMe
        android:layout_width="0dp
        android:layout_height="wr
        android:text="Welcome to
        android:textColor="#33333
        android:textSize="18sp"
```

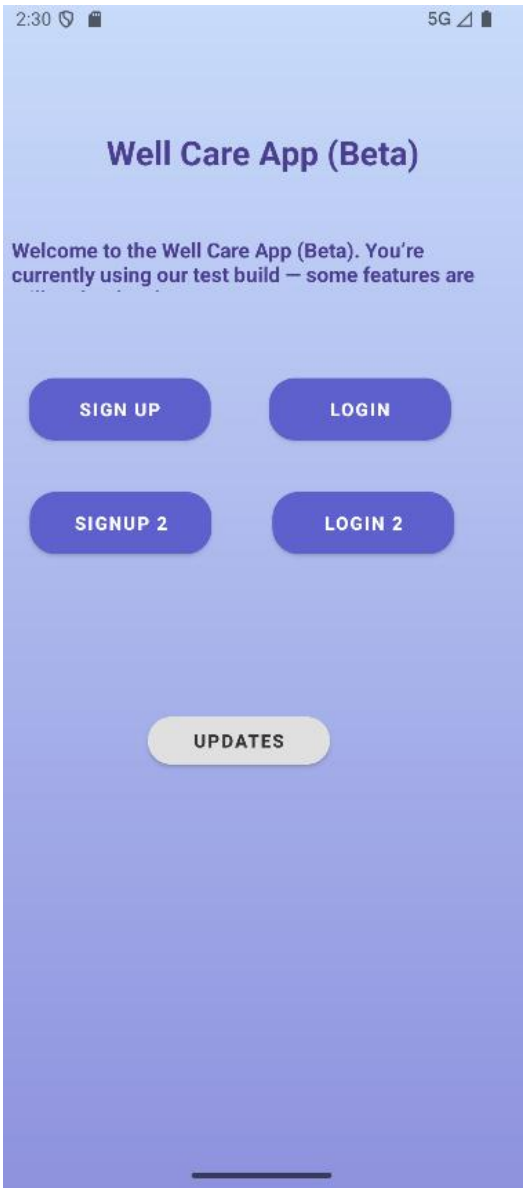
7. Welcome Page (Firebase)



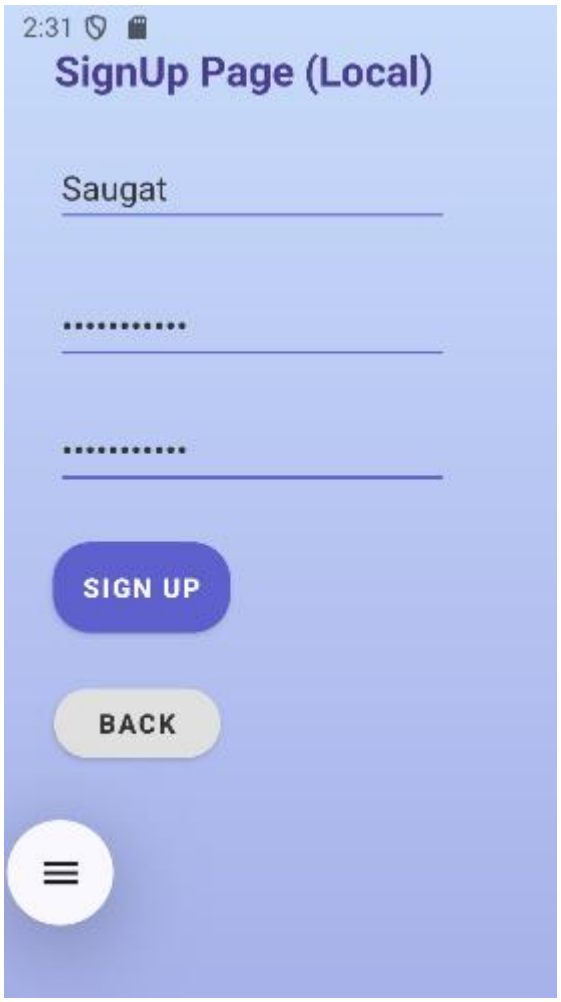
```
import android.content.Intent
import android.os.Bundle
import android.widget.Button
import android.widget.TextView
import androidx.activity.enableEdgeToEdge
import androidx.appcompat.app.AppCompatActivity

2 Usages
class WelcomeActivity2 : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        enableEdgeToEdge()
        setContentView(R.layout.activity_welcome2)

        val tvWelcome = findViewById<TextView>( id = R.id.tvWelcome2)
        val btnBack = findViewById<Button>( id = R.id.btnBack2)

        // Retrieve username passed from Login2
        val username = intent.getStringExtra( name = "username") ?: "User"
        tvWelcome.text = "Welcome, $username!"

        // Back button → Main page
        btnBack.setOnClickListener {
            val intent = Intent( packageContext = this, cls = MainActivity::class
                addFlags( flags = Intent.FLAG_ACTIVITY_CLEAR_TOP or Intent.FLAG_
            }
            startActivity(intent)
            finish()
        }
    }
}
```

```
<androidx.constraintlayout.widg

    <!-- Main Welcome Title -->
    <TextView
        android:id="@+id/tvWelcom
        android:layout_width="wra
        android:layout_height="wr
        android:text="Welcome
        android:textColor="#4C3D
        android:textSize="26sp"
        android:textStyle="bold"
        app:layout_constraintBott
        app:layout_constraintEnd_
        app:layout_constraintHori
        app:layout_constraintStar
        app:layout_constraintTop_
        app:layout_constraintVert

    <!-- NEW: Beta message text -
    <TextView
        android:id="@+id/tvBetaMe
        android:layout_width="0dp
        android:layout_height="wr
        android:text="Welcome to
        android:textColor="#33333
        android:textSize="18sp"
        android:gravity="center"
        android:padding="16dp"
        app:layout_constraintTop_
        app:layout_constraintStar
        app:layout_constraintEnd_
        app:layout_constraintHori
        app:layout_constraintVert
```

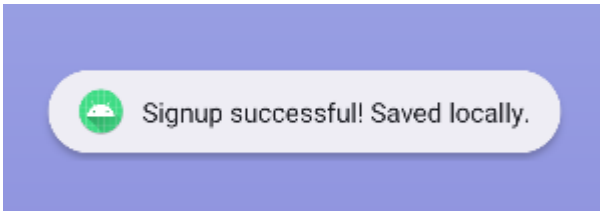
Main Page



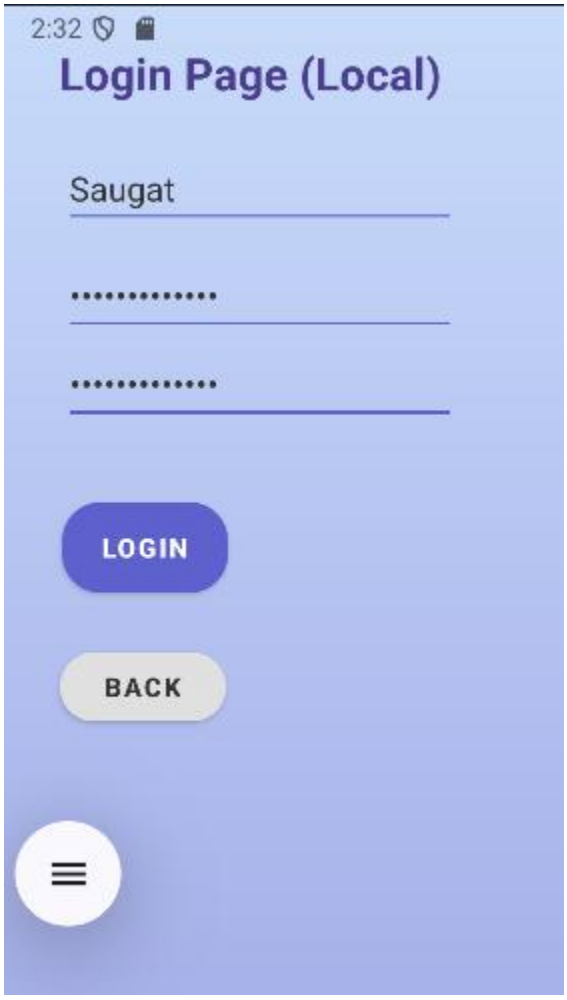
Signup Page (Local)



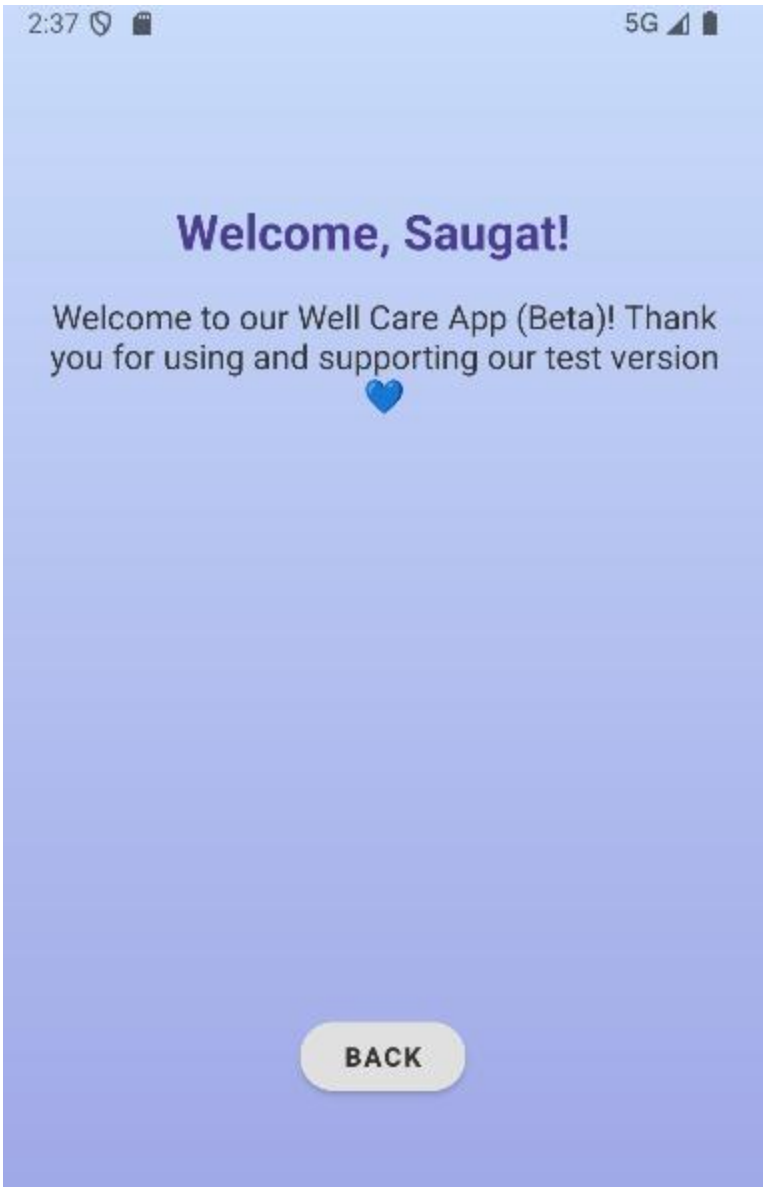
When signing up, it will save locally in our computer



Login Page (Local)

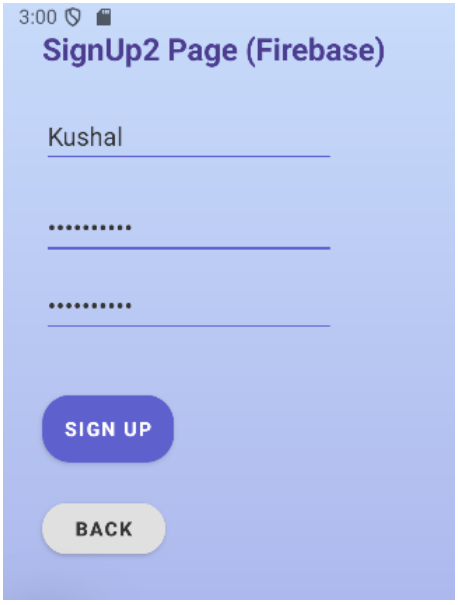


Welcome Page (Local)

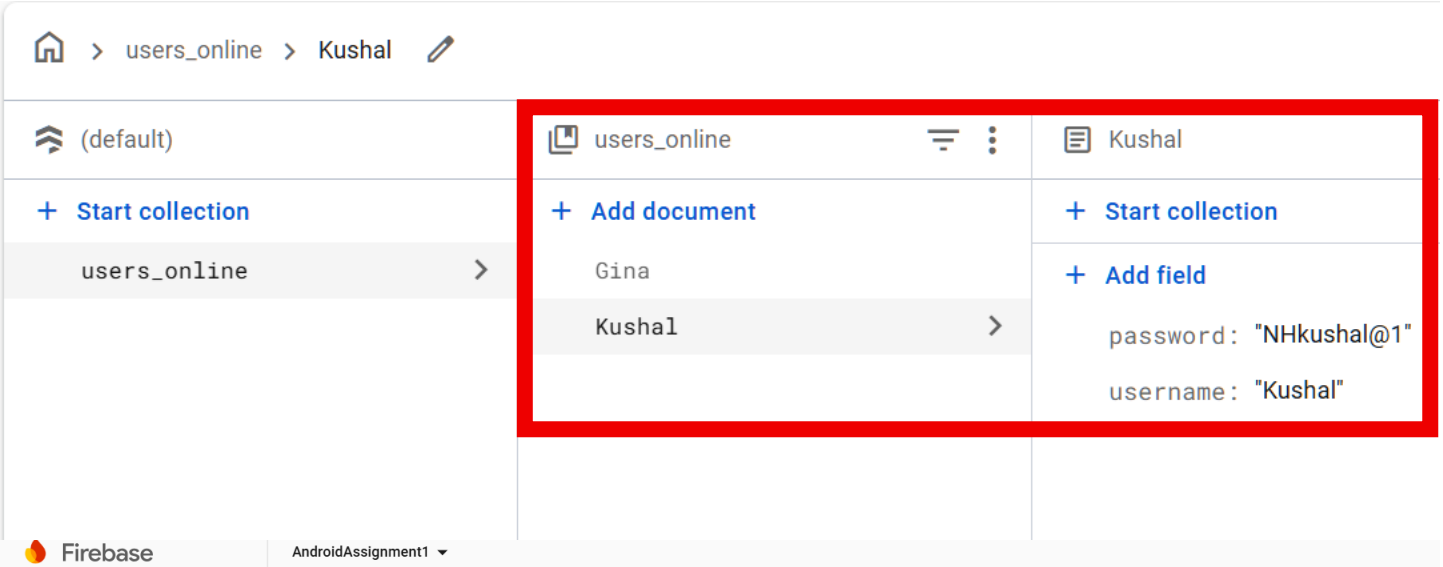


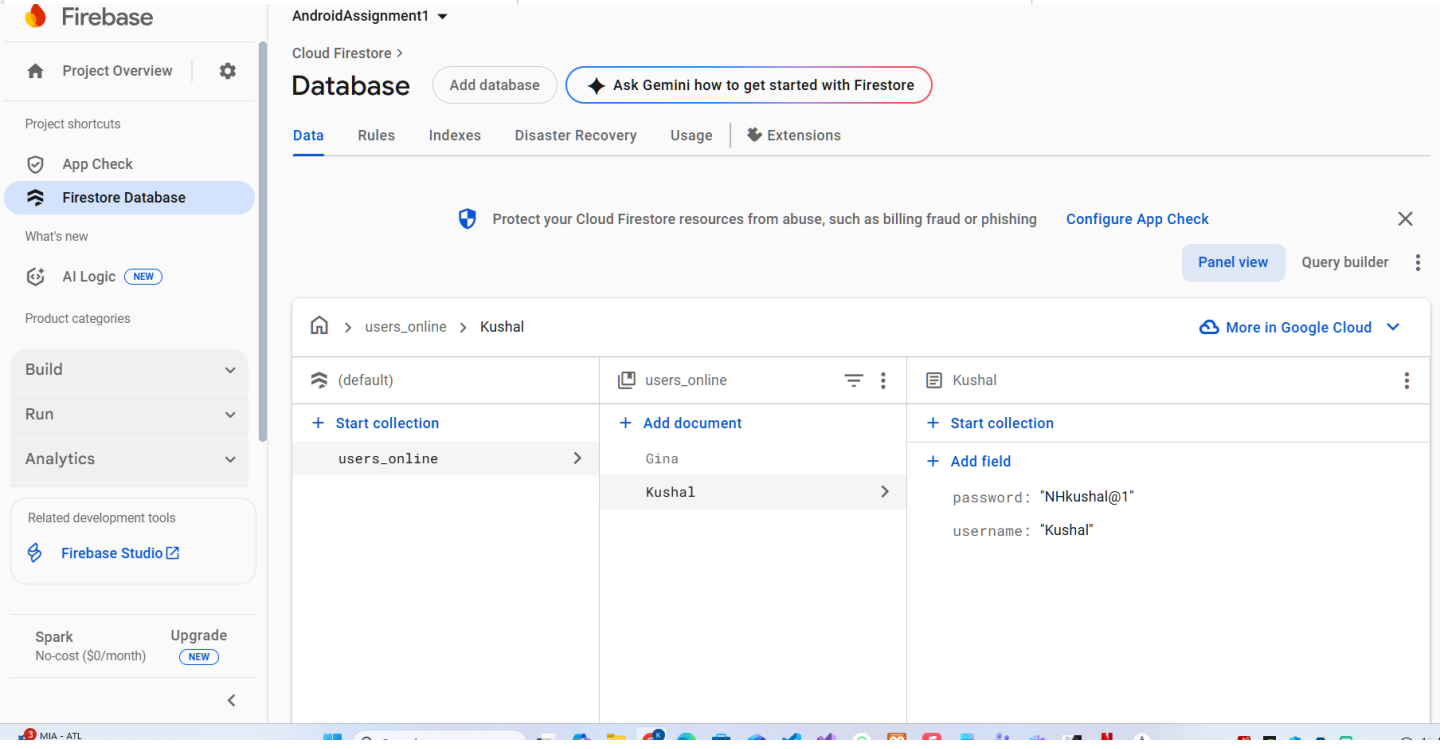
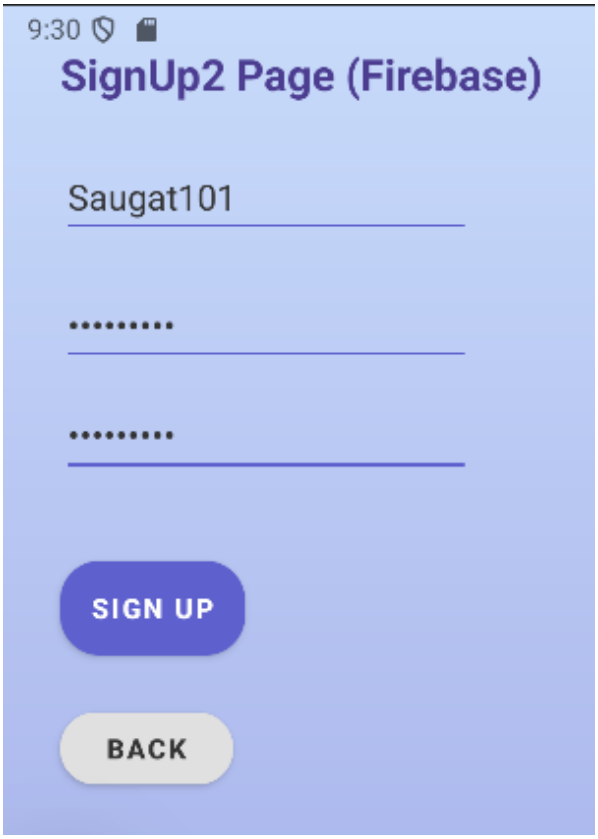
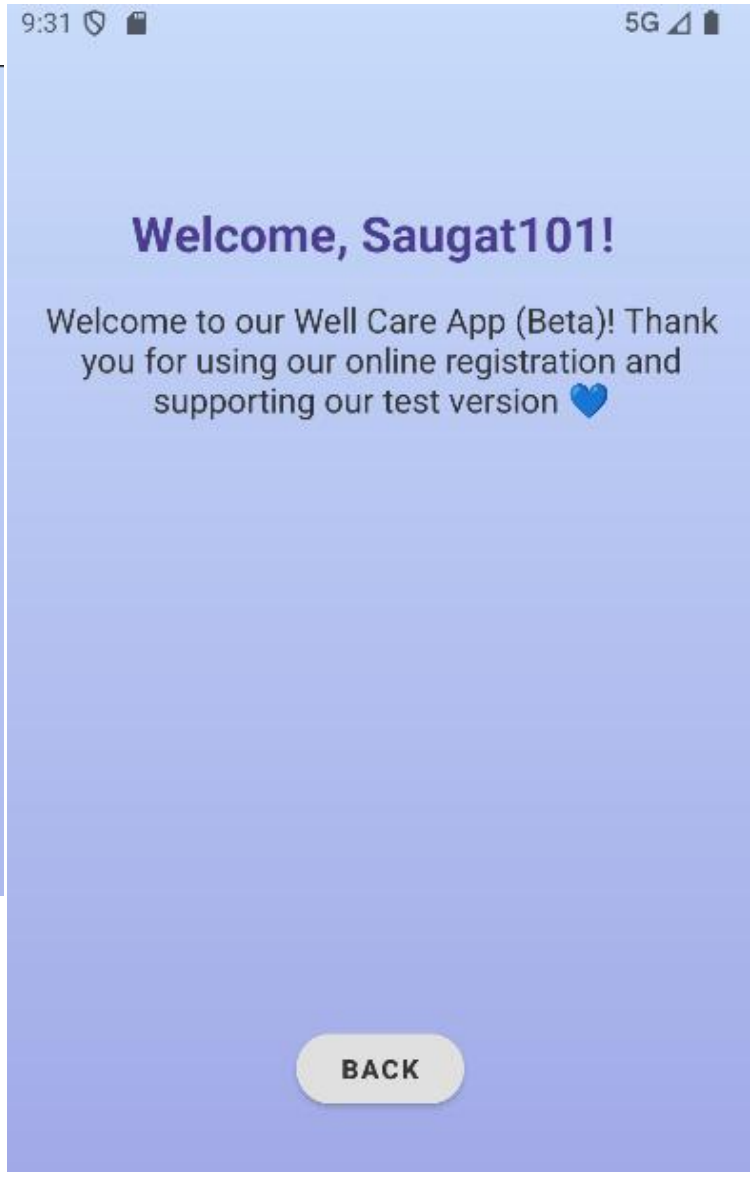
After successful login, it will lead to Welcome Page

Signup2 Page (Firebase)



When signing up, the username and password will be saved on our Firebase database





Login2 Page (Firebase)