ADAPTIVE MAIL – A flexible Email Client App

By using android application

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CONTENTS

The areas where this solution can be applied.

6. CONCLUSION

Conclusion summarizing the entire work and findings.

7. FUTURE SCOPE

Enhancements that can be made in the future.

8. APPENDIX

Source code of the project

INTRODUCTION:

0VERVIEW:

Adaptive Mail app is a sample project that demonstrates how to use the Android Compose UI toolkit to build a conversational UI. The app simulates a messaging interface, allowing the user to send and receive messages, and view a history of previous messages. It showcases some of the key features of the Compose UI toolkit, data management, and user interactions.

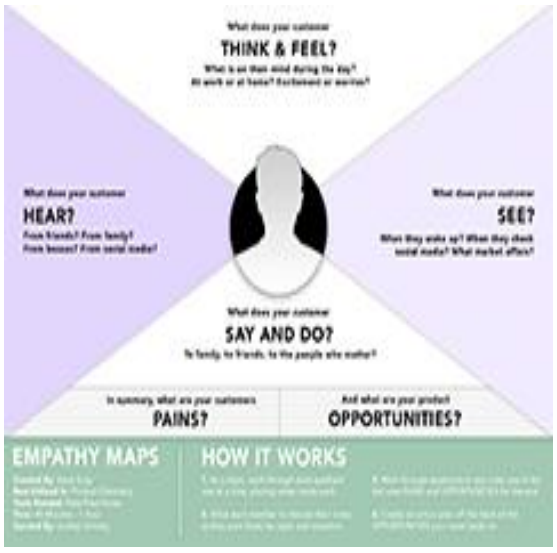
PREVIEW:

An adaptive email is an email that looks good on any device, whether it's a desktop, tablet, or mobile phone. The email automatically adapts to all screen resolutions, allowing subscribers to read emails on the go with convenience and meeting a modern demand in mobile presence.

PROBLEM DEFINITION AND DESIGN THINKING:

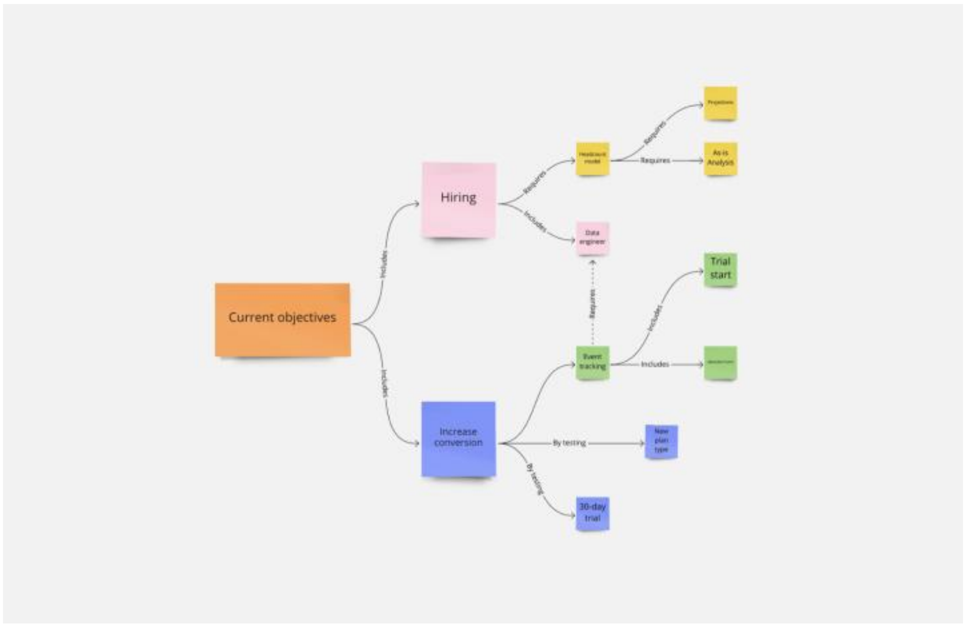
EMPATHY MAP:

An empathy map is a collaborative tool teams can use to gain deeper insight into their customers. Much like a user’s personal an empathy map can represent a group of users, such as a customer segments.


What does your customer
THINK & FEEL?
What is on their mind during the day?
At work or at home? Excitement or worries?
What does your customer
HEAR?
From friends? From family?
From bosses? From social media?
What does your customer
SEE?
When they wake up? When they check
social media? What market offers?
What does your customer
SAY AND DO?
To family, to friends, to the people who matter?
In summary, what are your customers
PAINS?
And what are your product
OPPORTUNITIES?
EMPATHY MAPS
HOW IT WORKS

IDEATION & BRAINSTORMING MAP:

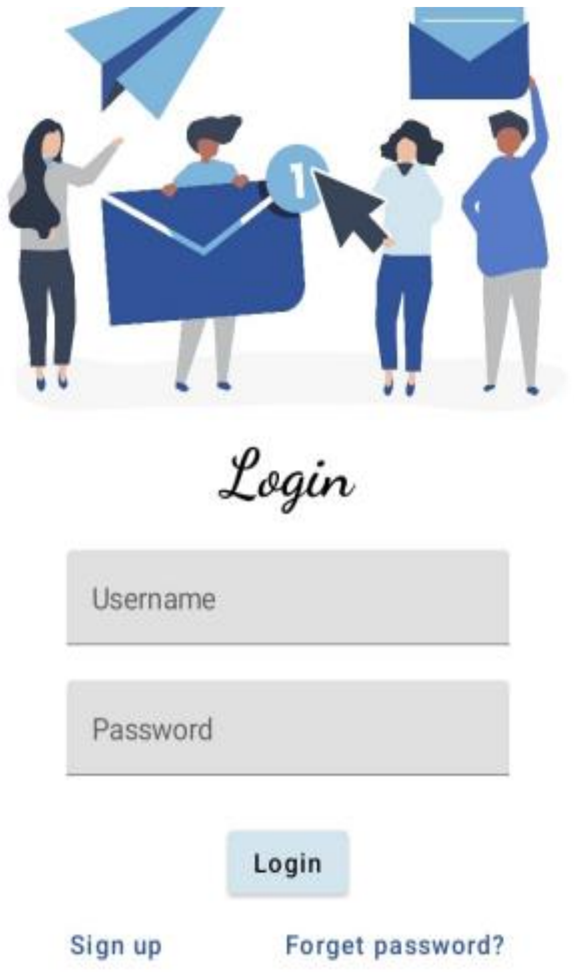
Ideation is often closely related to the practice of brainstorming, a specific technique that is utilized to generate new ideas. A principal difference between ideation and brainstorming is that ideation is commonly more thought of as being an individual pursuit, while brainstorming is almost always a group activity.



RESULTS:

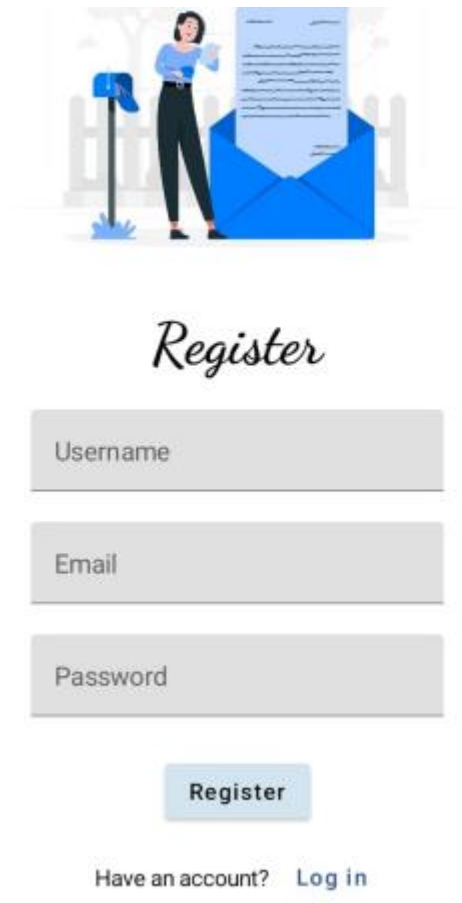
1. Login page:

Used to login the adaptive mail.



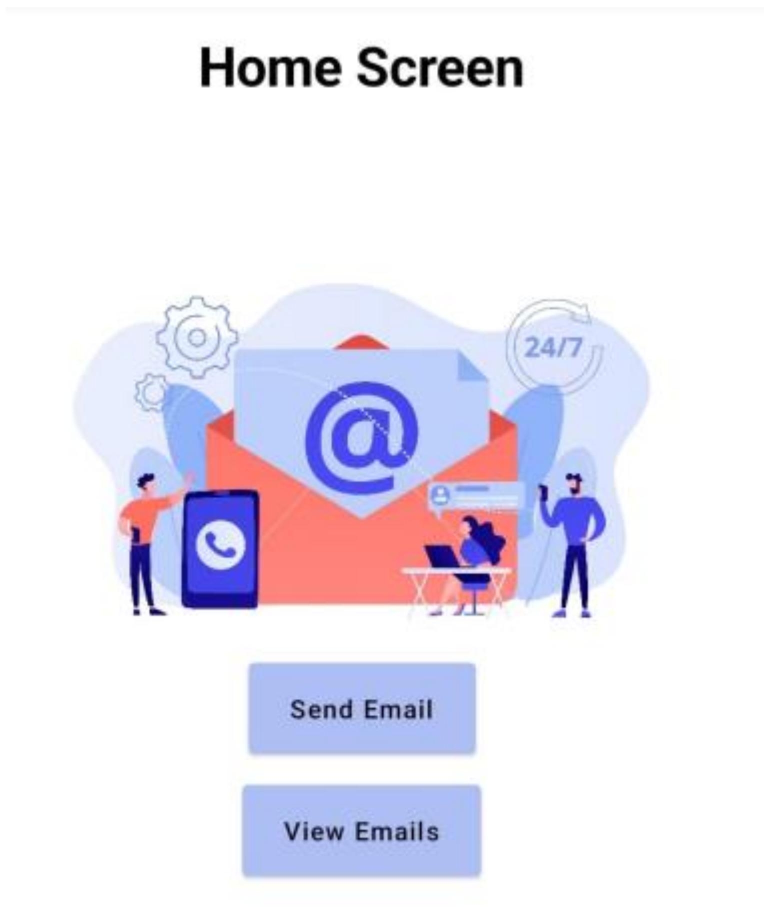
2. **REGISTER PAGE:**

   Used to register in an email



3. HOMESCREEN PAGE:

Used to view the homepage after registering into the adaptive E-mail.



4. View page:

To view the received mail and send mail.

1

ADVANTAGES & DISADVANTAGES

ADVANTAGES:

1. Connecting with strangers over email is never easy.
2. And writing one that actually gets a response is even harder.
3. Users register into the application.
4. After registration , user logins into the application.
5. User enters into the main page
6. User can View previously sent emails.
7. User can give subject and email body to send

DISADVANTAGES:

1. Time-consuming
2. Size of app
3. Uses more processing.

APPLICATIONS:

1. Adaptive mail can be used to communicate within the organization or personally.
2. It provides flexibility in communication.
3. It is a professional way to communicate.
4. Email is also used as a newsletter to send advertisements, promotions, and various other content.

CONCLUSION:

In conclusion I would like to tell you about adaptivity that can be configured for any composed email or particular block. Adaptivity has so wide range of options that you can even disable the displaying of certain blocks for mobile devices, configure fonts, headers, turn on/off the adaptivity of images.

FUTURE SCOPE:

Consumers will get more choices for email services. New email service entrants will emerge as demand increases. In the next two years alone, the number of worldwide email accounts is reportedly expected to continue growing at a slightly faster pace than the number of worldwide email users (3% per year — reaching 4.4 billion worldwide users by end of 2024).

APPENDIX

Source code:

```
// User data class code:

package com.example.emailapplication

import androidx.room.ColumnInfo
import androidx.room.Entity
import androidx.room.PrimaryKey

@Entity(tableName = "user_table")
data class User(
    @PrimaryKey(autoGenerate = true) val id: Int?,
    @ColumnInfo(name = "first_name") val firstName: String?,
    @ColumnInfo(name = "last_name") val lastName: String?,
    @ColumnInfo(name = "email") val email: String?,
    @ColumnInfo(name = "password") val password: String?,

    )
```

//UserDao interface code:

```
package com.example.emailapplication

import androidx.room.*

@Dao
interface UserDao {

    @Query("SELECT * FROM user_table WHERE email =
:email")
    suspend fun getUserByEmail(email: String): User?

    @Insert(onConflict = OnConflictStrategy.REPLACE)
    suspend fun insertUser(user: User)

    @Update
    suspend fun updateUser(user: User)

    @Delete
    suspend fun deleteUser(user: User)
}


//UserDatabase class code :

package com.example.emailapplication

import android.content.Context
import androidx.room.Database
import androidx.room.Room
import androidx.room.RoomDatabase

@Database(entities = [User::class], version = 1)
abstract class UserDatabase : RoomDatabase() {

    abstract fun userDao(): UserDao

    companion object {

        @Volatile
        private var instance: UserDatabase? = null

        fun getDatabase(context: Context): UserDatabase {
            return instance ?: synchronized(this) {
                val newInstance = Room.databaseBuilder(
                    context.applicationContext,
                    UserDatabase::class.java,
                    "user_database"
                ).build()
                instance = newInstance
                newInstance
            }
        }
    }
}

// UserDatabaseHelper class code :

 package com.example.emailapplication

import android.annotation.SuppressLint
import android.content.ContentValues
import android.content.Context
import android.database.Cursor
import android.database.sqlite.SQLiteDatabase
import android.database.sqlite.SQLiteOpenHelper

class UserDatabaseHelper(context: Context) :
    SQLiteOpenHelper(context, DATABASE_NAME, null,
DATABASE_VERSION) {

    companion object {
        private const val DATABASE_VERSION = 1
        private const val DATABASE_NAME = "UserDatabase.db"

        private const val TABLE_NAME = "user_table"
        private const val COLUMN_ID = "id"
        private const val COLUMN_FIRST_NAME = "first_name"
        private const val COLUMN_LAST_NAME = "last_name"
        private const val COLUMN_EMAIL = "email"
        private const val COLUMN_PASSWORD = "password"
    }

    override fun onCreate(db: SQLiteDatabase?) {
        val createTable = "CREATE TABLE $TABLE_NAME (" +
                "$COLUMN_ID INTEGER PRIMARY KEY
AUTOINCREMENT, " +
                "$COLUMN_FIRST_NAME TEXT, " +
                "$COLUMN_LAST_NAME TEXT, " +
                "$COLUMN_EMAIL TEXT, " +
                "$COLUMN_PASSWORD TEXT" +
                ")"

        db?.execSQL(createTable)
    }

    override fun onUpgrade(db: SQLiteDatabase?, oldVersion: Int,
newVersion: Int) {
        db?.execSQL("DROP TABLE IF EXISTS $TABLE_NAME")
        onCreate(db)
    }

    fun insertUser(user: User) {
        val db = writableDatabase
        val values = ContentValues()
        values.put(COLUMN_FIRST_NAME, user.firstName)
        values.put(COLUMN_LAST_NAME, user.lastName)
        values.put(COLUMN_EMAIL, user.email)
        values.put(COLUMN_PASSWORD, user.password)
        db.insert(TABLE_NAME, null, values)
        db.close()
    }

    @SuppressLint("Range")
    fun getUserByUsername(username: String): User? {
        val db = readableDatabase
        val cursor: Cursor = db.rawQuery("SELECT * FROM
$TABLE_NAME WHERE $COLUMN_FIRST_NAME = ?",
arrayOf(username))
        var user: User? = null
        if (cursor.moveToFirst()) {
            user = User(
                id =
cursor.getInt(cursor.getColumnIndex(COLUMN_ID)),
                firstName =
cursor.getString(cursor.getColumnIndex(COLUMN_FIRST_NAM
E)),
                lastName =
cursor.getString(cursor.getColumnIndex(COLUMN_LAST_NAME)
),
                email =
cursor.getString(cursor.getColumnIndex(COLUMN_EMAIL)),
                password =
cursor.getString(cursor.getColumnIndex(COLUMN_PASSWORD)
),
            )
        }
        cursor.close()
        db.close()
        return user
    }
    @SuppressLint("Range")
    fun getUserById(id: Int): User? {
        val db = readableDatabase
        val cursor: Cursor = db.rawQuery("SELECT * FROM
$TABLE_NAME WHERE $COLUMN_ID = ?",
arrayOf(id.toString()))
        var user: User? = null
        if (cursor.moveToFirst()) {
            user = User(
                id =
cursor.getInt(cursor.getColumnIndex(COLUMN_ID)),
                firstName =
cursor.getString(cursor.getColumnIndex(COLUMN_FIRST_NAM
E)),
                lastName =
cursor.getString(cursor.getColumnIndex(COLUMN_LAST_NAME)
),
                email =
cursor.getString(cursor.getColumnIndex(COLUMN_EMAIL)),
                password =
cursor.getString(cursor.getColumnIndex(COLUMN_PASSWORD)
),
            )
        }
        cursor.close()
        db.close()
        return user
    }

    @SuppressLint("Range")
    fun getAllUsers(): List<User> {
        val users = mutableListOf<User>()
        val db = readableDatabase
        val cursor: Cursor = db.rawQuery("SELECT * FROM
$TABLE_NAME", null)
        if (cursor.moveToFirst()) {
            do {
                val user = User(
                    id =
cursor.getInt(cursor.getColumnIndex(COLUMN_ID)),
                    firstName =
cursor.getString(cursor.getColumnIndex(COLUMN_FIRST_NAM
E)),
                    lastName =
cursor.getString(cursor.getColumnIndex(COLUMN_LAST_NAME)
),
                    email =
cursor.getString(cursor.getColumnIndex(COLUMN_EMAIL)),
                    password =
cursor.getString(cursor.getColumnIndex(COLUMN_PASSWORD)
),
                )
                users.add(user)
            } while (cursor.moveToNext())
        }
        cursor.close()
        db.close()
        return users
    }

}
```

```
//Email data class code:

package com.example.emailapplication

import androidx.room.ColumnInfo
import androidx.room.Entity
import androidx.room.PrimaryKey

@Entity(tableName = "email_table")
data class Email(
    @PrimaryKey(autoGenerate = true) val id: Int?,
    @ColumnInfo(name = "receiver_mail") val recevierMail:
String?,
    @ColumnInfo(name = "subject") val subject: String?,
    @ColumnInfo(name = "body") val body: String?,
)


// UserDatabaseHelper class code :

 package com.example.emailapplication

import android.annotation.SuppressLint
import android.content.ContentValues
import android.content.Context
import android.database.Cursor
import android.database.sqlite.SQLiteDatabase
import android.database.sqlite.SQLiteOpenHelper
```

```
class UserDatabaseHelper(context: Context) :
    SQLiteOpenHelper(context, DATABASE_NAME, null,
DATABASE_VERSION) {

    companion object {
        private const val DATABASE_VERSION = 1
        private const val DATABASE_NAME = "UserDatabase.db"

        private const val TABLE_NAME = "user_table"
        private const val COLUMN_ID = "id"
        private const val COLUMN_FIRST_NAME = "first_name"
        private const val COLUMN_LAST_NAME = "last_name"
        private const val COLUMN_EMAIL = "email"
        private const val COLUMN_PASSWORD = "password"
    }

    override fun onCreate(db: SQLiteDatabase?) {
        val createTable = "CREATE TABLE $TABLE_NAME (" +
                "$COLUMN_ID INTEGER PRIMARY KEY
AUTOINCREMENT, " +
                "$COLUMN_FIRST_NAME TEXT, " +
                "$COLUMN_LAST_NAME TEXT, " +
                "$COLUMN_EMAIL TEXT, " +
                "$COLUMN_PASSWORD TEXT" +
                ")"

        db?.execSQL(createTable)
    }
    override fun onUpgrade(db: SQLiteDatabase?, oldVersion: Int,
newVersion: Int) {
        db?.execSQL("DROP TABLE IF EXISTS $TABLE_NAME")
        onCreate(db)
    }

    fun insertUser(user: User) {
        val db = writableDatabase
        val values = ContentValues()
        values.put(COLUMN_FIRST_NAME, user.firstName)
        values.put(COLUMN_LAST_NAME, user.lastName)
        values.put(COLUMN_EMAIL, user.email)
        values.put(COLUMN_PASSWORD, user.password)
        db.insert(TABLE_NAME, null, values)
        db.close()
    }

    @SuppressLint("Range")
    fun getUserByUsername(username: String): User? {
        val db = readableDatabase
        val cursor: Cursor = db.rawQuery("SELECT * FROM
$TABLE_NAME WHERE $COLUMN_FIRST_NAME = ?",
arrayOf(username))
        var user: User? = null
        if (cursor.moveToFirst()) {
            user = User(
                id =
cursor.getInt(cursor.getColumnIndex(COLUMN_ID)),
                firstName =
cursor.getString(cursor.getColumnIndex(COLUMN_FIRST_NAM
E)),
                lastName =
cursor.getString(cursor.getColumnIndex(COLUMN_LAST_NAME)
),
                email =
cursor.getString(cursor.getColumnIndex(COLUMN_EMAIL)),
                password =
cursor.getString(cursor.getColumnIndex(COLUMN_PASSWORD)
),
            )
        }
        cursor.close()
        db.close()
        return user
    }
    @SuppressLint("Range")
    fun getUserById(id: Int): User? {
        val db = readableDatabase
        val cursor: Cursor = db.rawQuery("SELECT * FROM
$TABLE_NAME WHERE $COLUMN_ID = ?",
arrayOf(id.toString()))
        var user: User? = null
        if (cursor.moveToFirst()) {
            user = User(
                id =
cursor.getInt(cursor.getColumnIndex(COLUMN_ID)),
                firstName =
cursor.getString(cursor.getColumnIndex(COLUMN_FIRST_NAM
E)),
                lastName =
cursor.getString(cursor.getColumnIndex(COLUMN_LAST_NAME)
),
                email =
cursor.getString(cursor.getColumnIndex(COLUMN_EMAIL)),
                password =
cursor.getString(cursor.getColumnIndex(COLUMN_PASSWORD)
),
            )
        }
        cursor.close()
        db.close()
        return user
    }

    @SuppressLint("Range")
    fun getAllUsers(): List<User> {
        val users = mutableListOf<User>()
        val db = readableDatabase
        val cursor: Cursor = db.rawQuery("SELECT * FROM
$TABLE_NAME", null)
        if (cursor.moveToFirst()) {
            do {
                val user = User(
                    id =
cursor.getInt(cursor.getColumnIndex(COLUMN_ID)),
                    firstName =
cursor.getString(cursor.getColumnIndex(COLUMN_FIRST_NAM
E)),
                    lastName =
cursor.getString(cursor.getColumnIndex(COLUMN_LAST_NAME)
),
                    email =
cursor.getString(cursor.getColumnIndex(COLUMN_EMAIL)),
                    password =
cursor.getString(cursor.getColumnIndex(COLUMN_PASSWORD)
),
                )
                users.add(user)
            } while (cursor.moveToNext())
        }
        cursor.close()
        db.close()
        return users
    }

}

//Email data class code:

package com.example.emailapplication

import androidx.room.ColumnInfo
import androidx.room.Entity
import androidx.room.PrimaryKey

@Entity(tableName = "email_table")
data class Email(
    @PrimaryKey(autoGenerate = true) val id: Int?,
    @ColumnInfo(name = "receiver_mail") val recevierMail:
String?,
    @ColumnInfo(name = "subject") val subject: String?,
    @ColumnInfo(name = "body") val body: String?,
)
```

```
//EmailDatabaseHelper class code:

package com.example.emailapplication

import android.annotation.SuppressLint
import android.content.ContentValues
import android.content.Context
import android.database.Cursor
import android.database.sqlite.SQLiteDatabase
import android.database.sqlite.SQLiteOpenHelper

class UserDatabaseHelper(context: Context) :
    SQLiteOpenHelper(context, DATABASE_NAME, null,
DATABASE_VERSION) {

    companion object {
        private const val DATABASE_VERSION = 1
        private const val DATABASE_NAME = "UserDatabase.db"

        private const val TABLE_NAME = "user_table"
        private const val COLUMN_ID = "id"
        private const val COLUMN_FIRST_NAME = "first_name"
        private const val COLUMN_LAST_NAME = "last_name"
        private const val COLUMN_EMAIL = "email"
        private const val COLUMN_PASSWORD = "password"
    }

    override fun onCreate(db: SQLiteDatabase?) {
        val createTable = "CREATE TABLE $TABLE_NAME (" +
                "$COLUMN_ID INTEGER PRIMARY KEY
AUTOINCREMENT, " +
                "$COLUMN_FIRST_NAME TEXT, " +
                "$COLUMN_LAST_NAME TEXT, " +
                "$COLUMN_EMAIL TEXT, " +
                "$COLUMN_PASSWORD TEXT" +
                ")"

        db?.execSQL(createTable)
    }

    override fun onUpgrade(db: SQLiteDatabase?, oldVersion: Int,
newVersion: Int) {
        db?.execSQL("DROP TABLE IF EXISTS $TABLE_NAME")
        onCreate(db)
    }

    fun insertUser(user: User) {
        val db = writableDatabase
        val values = ContentValues()
        values.put(COLUMN_FIRST_NAME, user.firstName)
        values.put(COLUMN_LAST_NAME, user.lastName)
        values.put(COLUMN_EMAIL, user.email)
        values.put(COLUMN_PASSWORD, user.password)
        db.insert(TABLE_NAME, null, values)
        db.close()
    }

    @SuppressLint("Range")
    fun getUserByUsername(username: String): User? {
        val db = readableDatabase
        val cursor: Cursor = db.rawQuery("SELECT * FROM
$TABLE_NAME WHERE $COLUMN_FIRST_NAME = ?",
arrayOf(username))
        var user: User? = null
        if (cursor.moveToFirst()) {
            user = User(
                id =
cursor.getInt(cursor.getColumnIndex(COLUMN_ID)),
                firstName =
cursor.getString(cursor.getColumnIndex(COLUMN_FIRST_NAM
E)),
                lastName =
cursor.getString(cursor.getColumnIndex(COLUMN_LAST_NAME)
),
                email =
cursor.getString(cursor.getColumnIndex(COLUMN_EMAIL)),
                password =
cursor.getString(cursor.getColumnIndex(COLUMN_PASSWORD)
),
            )
        }
        cursor.close()
        db.close()
        return user
    }
    @SuppressLint("Range")
    fun getUserById(id: Int): User? {
        val db = readableDatabase
        val cursor: Cursor = db.rawQuery("SELECT * FROM
$TABLE_NAME WHERE $COLUMN_ID = ?",
arrayOf(id.toString()))
```

```
        var user: User? = null
        if (cursor.moveToFirst()) {
            user = User(
                id =
cursor.getInt(cursor.getColumnIndex(COLUMN_ID)),
                firstName =
cursor.getString(cursor.getColumnIndex(COLUMN_FIRST_NAM
E)),
                lastName =
cursor.getString(cursor.getColumnIndex(COLUMN_LAST_NAME)
),
                email =
cursor.getString(cursor.getColumnIndex(COLUMN_EMAIL)),
                password =
cursor.getString(cursor.getColumnIndex(COLUMN_PASSWORD)
),
            )
        }
        cursor.close()
        db.close()
        return user
    }

    @SuppressLint("Range")
    fun getAllUsers(): List<User> {
        val users = mutableListOf<User>()
        val db = readableDatabase
        val cursor: Cursor = db.rawQuery("SELECT * FROM
$TABLE_NAME", null)
        if (cursor.moveToFirst()) {
            do {
                val user = User(
                    id =
cursor.getInt(cursor.getColumnIndex(COLUMN_ID)),
                    firstName =
cursor.getString(cursor.getColumnIndex(COLUMN_FIRST_NAM
E)),
                    lastName =
cursor.getString(cursor.getColumnIndex(COLUMN_LAST_NAME)
),
                    email =
cursor.getString(cursor.getColumnIndex(COLUMN_EMAIL)),
                    password =
cursor.getString(cursor.getColumnIndex(COLUMN_PASSWORD)
),
                )
                users.add(user)
            } while (cursor.moveToNext())
        }
        cursor.close()
        db.close()
        return users
    }

}

//Building application UI and connecting to database
//Database connection in LoginActivity.kt

package com.example.emailapplication

import android.content.Context
import android.content.Intent
import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.compose.foundation.Image
import androidx.compose.foundation.background
import androidx.compose.foundation.layout.*
import androidx.compose.material.*
import androidx.compose.runtime.*
import androidx.compose.ui.Alignment
import androidx.compose.ui.Modifier
import androidx.compose.ui.graphics.Color
import androidx.compose.ui.layout.ContentScale
import androidx.compose.ui.res.painterResource
import androidx.compose.ui.text.font.FontFamily
import androidx.compose.ui.text.font.FontWeight
import
androidx.compose.ui.text.input.PasswordVisualTransformation
import androidx.compose.ui.tooling.preview.Preview
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp
import androidx.core.content.ContextCompat
import
com.example.emailapplication.ui.theme.EmailApplicationTheme

class LoginActivity : ComponentActivity() {
    private lateinit var databaseHelper: UserDatabaseHelper
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        databaseHelper = UserDatabaseHelper(this)
        setContent {

            LoginScreen(this, databaseHelper)
        }
    }
}
@Composable
fun LoginScreen(context: Context, databaseHelper: 
UserDatabaseHelper) {


    var username by remember { mutableStateOf("") }
    var password by remember { mutableStateOf("") }
    var error by remember { mutableStateOf("") }

    Column(
        modifier = Modifier.fillMaxSize().background(Color.White),
        horizontalAlignment = Alignment.CenterHorizontally,
        verticalArrangement = Arrangement.Center
    ) {
        Image(
            painterResource(id = R.drawable.email_login), 
contentDescription = ""
        )


        Text(
            fontSize = 36.sp,
            fontWeight = FontWeight.ExtraBold,
            fontFamily = FontFamily.Cursive,
            text = "Login"
        )
        Spacer(modifier = Modifier.height(10.dp))

        TextField(
            value = username,
            onValueChange = { username = it },
            label = { Text("Username") },
            modifier = Modifier.padding(10.dp)
                .width(280.dp)
        )

        TextField(
            value = password,
            onValueChange = { password = it },
            label = { Text("Password") },
            visualTransformation = PasswordVisualTransformation(),
            modifier = Modifier.padding(10.dp)
                .width(280.dp)
        )

        if (error.isNotEmpty()) {
            Text(
                text = error,
                color = MaterialTheme.colors.error,
                modifier = Modifier.padding(vertical = 16.dp)
            )
        }

        Button(
            onClick = {
                if (username.isNotEmpty() && password.isNotEmpty()) {
                    val user =
databaseHelper.getUserByUsername(username)
                    if (user != null && user.password == password) {
                        error = "Successfully log in"
                        context.startActivity(
                            Intent(
                                context,
                                MainActivity::class.java
                            )
                        )
                        //onLoginSuccess()
                    }

                } else {
                    error = "Please fill all fields"
                }
            },
            colors = ButtonDefaults.buttonColors(backgroundColor =
Color(0xFFd3e5ef)),
            modifier = Modifier.padding(top = 16.dp)
        ) {
            Text(text = "Login")
        }
        Row {
            TextButton(onClick = {context.startActivity(
                Intent(
                    context,
                    RegisterActivity::class.java
                )
            )}
            )
            { Text(color = Color(0xFF31539a),text = "Sign up") }
            TextButton(onClick = {
            })

            {
                Spacer(modifier = Modifier.width(60.dp))
                Text(color = Color(0xFF31539a),text = "Forget
password?")
            }
        }
    }
}
private fun startMainPage(context: Context) {
    val intent = Intent(context, MainActivity::class.java)
    ContextCompat.startActivity(context, intent, null)
}

//Creating RegisterActivity.kt with database
//Database connection in RegisterActivity.kt

package com.example.emailapplication

import android.content.Context
import android.content.Intent
import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.compose.foundation.Image
import androidx.compose.foundation.background
import androidx.compose.foundation.layout.*
import androidx.compose.material.*
import androidx.compose.runtime.*
import androidx.compose.ui.Alignment
import androidx.compose.ui.Modifier
import androidx.compose.ui.graphics.Color
import androidx.compose.ui.layout.ContentScale
import androidx.compose.ui.res.painterResource
import androidx.compose.ui.text.font.FontFamily
import androidx.compose.ui.text.font.FontWeight
import
androidx.compose.ui.text.input.PasswordVisualTransformation
import androidx.compose.ui.tooling.preview.Preview
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp
import androidx.core.content.ContextCompat
import
com.example.emailapplication.ui.theme.EmailApplicationTheme

class RegisterActivity : ComponentActivity() {
    private lateinit var databaseHelper: UserDatabaseHelper
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        databaseHelper = UserDatabaseHelper(this)
        setContent {

            RegistrationScreen(this, databaseHelper)
        }
    }
}

@Composable
fun RegistrationScreen(context: Context, databaseHelper: 
UserDatabaseHelper) {




    var username by remember { mutableStateOf("") }
    var password by remember { mutableStateOf("") }
    var email by remember { mutableStateOf("") }
    var error by remember { mutableStateOf("") }

    Column(
        modifier = Modifier.fillMaxSize().background(Color.White),
        horizontalAlignment = Alignment.CenterHorizontally,
        verticalArrangement = Arrangement.Center
    ) {
        Image(
            painterResource(id = R.drawable.email_signup), 
contentDescription = "",
            modifier = Modifier.height(300.dp)
        )
        Text(
            fontSize = 36.sp,
            fontWeight = FontWeight.ExtraBold,
            fontFamily = FontFamily.Cursive,
            text = "Register"
        )
```

```
Spacer(modifier = Modifier.height(10.dp))
TextField(
    value = username,
    onValueChange = { username = it },
    label = { Text("Username") },
    modifier = Modifier
        .padding(10.dp)
        .width(280.dp)

)

TextField(
    value = email,
    onValueChange = { email = it },
    label = { Text("Email") },
    modifier = Modifier
        .padding(10.dp)
        .width(280.dp)
)

TextField(
    value = password,
    onValueChange = { password = it },
    label = { Text("Password") },
    visualTransformation = PasswordVisualTransformation(),
    modifier = Modifier
        .padding(10.dp)
        .width(280.dp)
)
```

```
        if (error.isNotEmpty()) {
            Text(
                text = error,
                color = MaterialTheme.colors.error,
                modifier = Modifier.padding(vertical = 16.dp)
            )
        }

        Button(
            onClick = {
                if (username.isNotEmpty() && password.isNotEmpty()
&& email.isNotEmpty()) {
                    val user = User(
                        id = null,
                        firstName = username,
                        lastName = null,
                        email = email,
                        password = password
                    )
                    databaseHelper.insertUser(user)
                    error = "User registered successfully"
                    // Start LoginActivity using the current context
                    context.startActivity(
                        Intent(
                            context,
                            LoginActivity::class.java
                        )
                    )
                } else {
                    error = "Please fill all fields"
                }
            },
            colors = ButtonDefaults.buttonColors(backgroundColor =
Color(0xFFd3e5ef)),
            modifier = Modifier.padding(top = 16.dp)
        ) {
            Text(text = "Register")
        }
        Spacer(modifier = Modifier.width(10.dp))
        Spacer(modifier = Modifier.height(10.dp))

        Row() {
            Text(
                modifier = Modifier.padding(top = 14.dp), text = "Have
an account?"
            )
            TextButton(onClick = {
                context.startActivity(
                    Intent(
                        context,
                        LoginActivity::class.java
                    )
                )
            })

            {
                Spacer(modifier = Modifier.width(10.dp))
                Text(color = Color(0xFF31539a),text = "Log in")
            }
        }
    }
}
private fun startLoginActivity(context: Context) {
    val intent = Intent(context, LoginActivity::class.java)
    ContextCompat.startActivity(context, intent, null)
}

//Creating MainActivity.kt file
//MainActivity.kt

package com.example.emailapplication

import android.content.Context
import android.content.Intent
import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.compose.foundation.Image
import androidx.compose.foundation.background
import androidx.compose.foundation.layout.*
import androidx.compose.material.*
import androidx.compose.runtime.Composable
import androidx.compose.ui.Alignment
import androidx.compose.ui.Modifier
import androidx.compose.ui.graphics.Color
import androidx.compose.ui.layout.ContentScale
import androidx.compose.ui.res.painterResource
import androidx.compose.ui.text.font.FontWeight
import androidx.compose.ui.tooling.preview.Preview
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp
import androidx.core.content.ContextCompat
import androidx.core.content.ContextCompat.startActivity
import
com.example.emailapplication.ui.theme.EmailApplicationTheme

class MainActivity : ComponentActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContent {
                // A surface container using the 'background' color from
the theme
                Surface(
                    modifier =
Modifier.fillMaxSize().background(Color.White),
                ) {
                    Email(this)
                }


        }
    }
}

@Composable
fun Email(context: Context) {
    Text(
        text = "Home Screen",
        modifier = Modifier.padding(top = 74.dp, start = 100.dp,
bottom = 24.dp),
        color = Color.Black,
        fontWeight = FontWeight.Bold,
        fontSize = 32.sp
    )

    Column(
        horizontalAlignment = Alignment.CenterHorizontally,
        verticalArrangement = Arrangement.Center
    ) {
        Image(
            painterResource(id = R.drawable.home_screen),
contentDescription = ""
        )



        Button(onClick = {
            context.startActivity(
                Intent(
                    context,
                    SendMailActivity::class.java
                )
            )
        },
            colors = ButtonDefaults.buttonColors(backgroundColor =
Color(0xFFadbef4))
        ) {
            Text(
                text = "Send Email",
                modifier = Modifier.padding(10.dp),
                color = Color.Black,
                fontSize = 15.sp
            )
        }

        Spacer(modifier = Modifier.height(20.dp))

        Button(onClick = {
            context.startActivity(
                Intent(
                    context,
                    ViewMailActivity::class.java
                )
            )
        },
            colors = ButtonDefaults.buttonColors(backgroundColor =
Color(0xFFadbef4))
        ) {
            Text(
                text = "View Emails",
                modifier = Modifier.padding(10.dp),
                color = Color.Black,
                fontSize = 15.sp
            )
        }



    }
}
```

```
//Creating SendMailActivity.kt file

package com.example.emailapplication

import android.annotation.SuppressLint
import android.content.Context
import android.content.Intent
import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.compose.foundation.layout.*
import androidx.compose.material.*
import androidx.compose.runtime.*
import androidx.compose.ui.Alignment
import androidx.compose.ui.Modifier
import androidx.compose.ui.graphics.Color
import androidx.compose.ui.platform.LocalContext
import androidx.compose.ui.text.TextStyle
import androidx.compose.ui.text.font.FontWeight
import androidx.compose.ui.text.style.TextAlign
import androidx.compose.ui.tooling.preview.Preview
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp
import
com.example.emailapplication.ui.theme.EmailApplicationTh eme

class SendMailActivity : ComponentActivity() {
    private lateinit var databaseHelper: EmailDatabaseHelper
    @SuppressLint("UnusedMaterialScaffoldPaddingParameter")
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        databaseHelper = EmailDatabaseHelper(this)
        setContent {

            Scaffold(
                // in scaffold we are specifying top bar.
                topBar = {
                    // inside top bar we are specifying
                    // background color.
                    TopAppBar(backgroundColor = Color(0xFFadbef4),
modifier = Modifier.height(80.dp),
                        // along with that we are specifying
                        // title for our top bar.
                        title = {
                            // in the top bar we are specifying
                            // title as a text
                            Text(
                                // on below line we are specifying
                                // text to display in top app bar.
                                text = "Send Mail",
                                fontSize = 32.sp,
                                color = Color.Black,

                                // on below line we are specifying
                                // modifier to fill max width.
                                modifier = Modifier.fillMaxWidth(),

                                // on below line we are
                                // specifying text alignment.
                                textAlign = TextAlign.Center,
                            )
                        }
                    )
                }
            ) {
                // on below line we are
                // calling method to display UI.
                openEmailer(this,databaseHelper)
            }
        }
    }
}
@Composable
fun openEmailer(context: Context, databaseHelper:
EmailDatabaseHelper)  {

    // in the below line, we are
    // creating variables for URL
    var recevierMail by remember {mutableStateOf("") }
    var subject by remember {mutableStateOf("") }
    var body by remember {mutableStateOf("") }
    var error by remember { mutableStateOf("") }

    // on below line we are creating
    // a variable for a context
    val ctx = LocalContext.current

    // on below line we are creating a column
    Column(
        // on below line we are specifying modifier
        // and setting max height and max width
        // for our column
        modifier = Modifier
            .fillMaxSize()
            .padding(top = 55.dp, bottom = 25.dp, start = 25.dp, end =
25.dp),
        horizontalAlignment = Alignment.Start
    ) {

        // on the below line, we are
        // creating a text field.
        Text(text = "Receiver Email-Id",
            fontWeight = FontWeight.Bold,
            fontSize = 16.sp)
        TextField(
            // on below line we are specifying
            // value for our  text field.
            value = recevierMail,

            // on below line we are adding on value
            // change for text field.
            onValueChange = { recevierMail = it },

            // on below line we are adding place holder as text
            label = { Text(text = "Email address") },
            placeholder = { Text(text = "abc@gmail.com") },

            // on below line we are adding modifier to it
            // and adding padding to it and filling max width
            modifier = Modifier
                .padding(16.dp)
                .fillMaxWidth(),

            // on below line we are adding text style
            // specifying color and font size to it.
            textStyle = TextStyle(color = Color.Black, fontSize =
15.sp),

            // on below line we are
            // adding single line to it.
            singleLine = true,
        )
        // on below line adding a spacer.
        Spacer(modifier = Modifier.height(10.dp))

        Text(text = "Mail Subject",
            fontWeight = FontWeight.Bold,
            fontSize = 16.sp)
        // on the below line, we are creating a text field.
        TextField(
            // on below line we are specifying
            // value for our  text field.
            value = subject,

            // on below line we are adding on value change
            // for text field.
            onValueChange = { subject = it },

            // on below line we are adding place holder as text
            placeholder = { Text(text = "Subject") },

            // on below line we are adding modifier to it
            // and adding padding to it and filling max width
            modifier = Modifier
                .padding(16.dp)
                .fillMaxWidth(),

            // on below line we are adding text style
            // specifying color and font size to it.
            textStyle = TextStyle(color = Color.Black, fontSize =
15.sp),

            // on below line we are
            // adding single line to it.
            singleLine = true,
        )

        // on below line adding a spacer.
        Spacer(modifier = Modifier.height(10.dp))

        Text(text = "Mail Body",
            fontWeight = FontWeight.Bold,
            fontSize = 16.sp)
        // on the below line, we are creating a text field.
        TextField(
            // on below line we are specifying
            // value for our  text field.
            value = body,
            // on below line we are adding on value
            // change for text field.
            onValueChange = { body = it },

            // on below line we are adding place holder as text
            placeholder = { Text(text = "Body") },

            // on below line we are adding modifier to it
            // and adding padding to it and filling max width
            modifier = Modifier
                .padding(16.dp)
                .fillMaxWidth(),

            // on below line we are adding text style
            // specifying color and font size to it.
            textStyle = TextStyle(color = Color.Black, fontSize =
15.sp),

            // on below line we are
            // adding single line to it.
            singleLine = true,
        )

        // on below line adding a spacer.
        Spacer(modifier = Modifier.height(20.dp))

        // on below line adding a
        // button to send an email
        Button(onClick = {
            if( recevierMail.isNotEmpty() && subject.isNotEmpty() &&
body.isNotEmpty()) {
                val email = Email(
                    id = null,
                    recevierMail = recevierMail,
                    subject = subject,
                    body = body

                )
                databaseHelper.insertEmail(email)
                error = "Mail Saved"
            } else {
                error = "Please fill all fields"
            }

            // on below line we are creating
            // an intent to send an email
            val i = Intent(Intent.ACTION_SEND)

            // on below line we are passing email address,
            // email subject and email body
            val emailAddress = arrayOf(recevierMail)
            i.putExtra(Intent.EXTRA_EMAIL,emailAddress)
            i.putExtra(Intent.EXTRA_SUBJECT,subject)
            i.putExtra(Intent.EXTRA_TEXT,body)

            // on below line we are
            // setting type of intent
            i.setType("message/rfc822")
            // on the below line we are starting our activity to open
email application.
            ctx.startActivity(Intent.createChooser(i,"Choose an Email
client : "))

        },
            colors = ButtonDefaults.buttonColors(backgroundColor =
Color(0xFFd3e5ef))
        ) {
            // on the below line creating a text for our button.
            Text(
                // on below line adding a text ,
                // padding, color and font size.
                text = "Send Email",
                modifier = Modifier.padding(10.dp),
                color = Color.Black,
                fontSize = 15.sp
            )
        }
    }
}

//Creating ViewMailActivity.kt file

package com.example.emailapplication

import android.annotation.SuppressLint
import android.os.Bundle
import android.util.Log
import androidx.activity.ComponentActivity
import androidx.activity.compose.setContent
import androidx.compose.foundation.Image
import androidx.compose.foundation.layout.*
import androidx.compose.foundation.layout.R
import androidx.compose.foundation.lazy.LazyColumn
import androidx.compose.foundation.lazy.LazyRow
import androidx.compose.foundation.lazy.items
import androidx.compose.material.*
import androidx.compose.runtime.Composable
import androidx.compose.ui.Modifier
import androidx.compose.ui.graphics.Color
import androidx.compose.ui.layout.ContentScale
import androidx.compose.ui.res.painterResource
import androidx.compose.ui.text.font.FontWeight
import androidx.compose.ui.text.style.TextAlign
import androidx.compose.ui.tooling.preview.Preview
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp
import
com.example.emailapplication.ui.theme.EmailApplicationTheme

class ViewMailActivity : ComponentActivity() {
    private lateinit var emailDatabaseHelper: EmailDatabaseHelper
    @SuppressLint("UnusedMaterialScaffoldPaddingParameter")
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        emailDatabaseHelper = EmailDatabaseHelper(this)
        setContent {

            Scaffold(
                // in scaffold we are specifying top bar.
                topBar = {
                    // inside top bar we are specifying
                    // background color.
                    TopAppBar(backgroundColor = Color(0xFFadbef4),
modifier = Modifier.height(80.dp),
                        // along with that we are specifying
                        // title for our top bar.
                        title = {
                            // in the top bar we are specifying
                            // title as a text
                            Text(
                                // on below line we are specifying
                                // text to display in top app bar.
                                text = "View Mails",
                                fontSize = 32.sp,
                                color = Color.Black,

                                // on below line we are specifying
                                // modifier to fill max width.
                                modifier = Modifier.fillMaxWidth(),

                                // on below line we are
                                // specifying text alignment.
                                textAlign = TextAlign.Center,
                            )
                        }
                    )
                }
            ) {
                val data = emailDatabaseHelper.getAllEmails();
                Log.d("swathi", data.toString())
                val email = emailDatabaseHelper.getAllEmails()
                ListListScopeSample(email)
            }
        }
    }
}
@Composable
fun ListListScopeSample(email: List<Email>) {
    LazyRow(
        modifier = Modifier
            .fillMaxSize(),
        horizontalArrangement = Arrangement.SpaceBetween
    ) {
        item {

            LazyColumn {
                items(email) { email ->
                    Column(
                        modifier = Modifier.padding(
                            top = 16.dp,
                            start = 48.dp,
                            bottom = 20.dp
                        )
                    ) {
                        Text("Receiver_Mail: ${email.recevierMail}",
fontWeight = FontWeight.Bold)
                        Text("Subject: ${email.subject}")
                        Text("Body: ${email.body}")
                    }
                }
            }
        }

    }
}
```

//Modifying AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools" >

    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:supportsRtl="true"
        android:theme="@style/Theme.EmailApplication"
        tools:targetApi="31" >
        <activity
            android:name=".RegisterActivity"
            android:exported="false"
            android:label="@string/title_activity_register"
            android:theme="@style/Theme.EmailApplication" />
        <activity
```

```
            android:name=".MainActivity"
            android:exported="false"
            android:label="MainActivity"
            android:theme="@style/Theme.EmailApplication" />
        <activity
            android:name=".ViewMailActivity"
            android:exported="false"
            android:label="@string/title_activity_view_mail"
            android:theme="@style/Theme.EmailApplication" />
        <activity
            android:name=".SendMailActivity"
            android:exported="false"
            android:label="@string/title_activity_send_mail"
            android:theme="@style/Theme.EmailApplication" />
        <activity
            android:name=".LoginActivity"
            android:exported="true"
            android:label="@string/app_name"
            android:theme="@style/Theme.EmailApplication" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category
android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>
```