

Compose Input: A Demonstration of Text Input and Validation with Android Compose

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Description

"Compose Input: A Demonstration of Text Input and Validation with Android Compose" refers to showcasing how to implement and manage user input fields using **Jetpack Compose**, Google's modern toolkit for building native UI in Android applications. This topic typically includes demonstrating how to:

1. Create Text Input Fields

- Use the `TextField` or `OutlinedTextField` components to allow users to enter text.
- Customize these fields with labels, placeholders, and icons.

2. Handle State and Input Changes

- Utilize `remember` and `mutableStateOf` to manage the state of input fields.
- Update UI dynamically as the user types.

3. Implement Validation

- Validate user inputs such as email formats, passwords, or other criteria.
- Display error messages or feedback directly below the input field if validation fails.

4. Enhance Usability

- Add features like:
 - Input masking (e.g., phone numbers or credit card formatting).
 - Keyboard actions to move between fields or submit forms.
 - Clear buttons or focus management for user convenience.

5. Styling and Customization

- Apply custom themes and styles to input fields.
- Adjust colors, fonts, and dimensions to fit the app's design.

AdminActivity.kt

```
package com.example.surveyapplication

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.lazy.LazyColumn
import androidx.compose.foundation.lazy.LazyRow
import androidx.compose.foundation.lazy.items
import androidx.compose.material.MaterialTheme
import androidx.compose.material.Surface
import androidx.compose.material.Text
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.tooling.preview.Preview
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp
import com.example.surveyapplication.ui.theme.SurveyApplicationTheme

class AdminActivity : ComponentActivity() {
    private lateinit var dbHelper: SurveyDatabaseHelper
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        dbHelper = SurveyDatabaseHelper(this)
        setContent {
            val data = dbHelper.getAllSurveys()
            Log.d("swathi", data.toString())
            val survey = dbHelper.getAllSurveys()
            ListListScopeSample(survey)
        } } }
```

```
@Composable
fun ListListScopeSample(survey: List<Survey>) {

    Image(
        painterResource(id = R.drawable.background), contentDescription = "",
        alpha = 0.1F,
        contentScale = ContentScale.FillHeight,
        modifier = Modifier.padding(top = 40.dp) )

    Text(
        text = "Survey Details",
        modifier = Modifier.padding(top = 24.dp, start = 106.dp, bottom = 24.dp),
        fontSize = 30.sp,
        color = Color(0xFF25b897) )
    Spacer(modifier = Modifier.height(30.dp))
    LazyRow(
        modifier = Modifier
            .fillMaxSize()
            .padding(top = 80.dp),
        horizontalArrangement = Arrangement.SpaceBetween ) {
        item {
            LazyColumn {
                items(survey) { survey ->
                    Column(
                        modifier = Modifier.padding(
                            top = 16.dp,
                            start = 48.dp,
                            bottom = 20.dp
                        )
                    ) {
                        Text("Name: ${survey.name}")
                        Text("Age: ${survey.age}")
                        Text("Mobile_Number: ${survey.mobileNumber}")
                        Text("Gender: ${survey.gender}")
                        Text("Diabetics: ${survey.diabetics}")
                    }
                }
            }
        }
    }
}
```

LoginActivity.kt

```
package com.example.surveyapplication

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.tooling.preview.Preview
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp
import androidx.core.content.ContextCompat
import com.example.surveyapplication.ui.theme.SurveyApplicationTheme

class LoginActivity : ComponentActivity() {
    private lateinit var dbHelper: UserDatabaseHelper
    override fun onCreate(savedInstanceState: Bundle?) { super.onCreate(savedInstanceState)
        dbHelper = UserDatabaseHelper(this)
        setContent { LoginScreen(this, dbHelper) } }
    @Composable
    fun LoginScreen(context: Context, dbHelper: 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.survey__login), contentDescription = "")
    Text(
        fontSize = 36.sp,
        fontWeight = FontWeight.ExtraBold,
        fontFamily = FontFamily.Cursive,
        color = Color(0xFF25b897),
        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()
            }
            if (user != null && user.password == "admin") {
                error = "Successfully log in"
                context.startActivity(
                    Intent(
                        context,
                        AdminActivity::class.java
                    )
                )
            }
        } else {
            error = "Invalid username or password"
        } else {
            error = "Please fill all fields"
        },
        colors = ButtonDefaults.buttonColors(backgroundColor = Color(0xFF84adb8)),
        modifier = Modifier.padding(top = 16.dp)
    ) {
        Text(text = "Login")
    }
Row {
    TextButton(onClick = {context.startActivity(
        Intent(
            context,
            RegisterActivity::class.java
        )
    )}) {
        { Text(color = Color(0xFF25b897),text = "Register") }
    }
    TextButton(onClick = {
        Spacer(modifier = Modifier.width(60.dp))
        Text(color = Color(0xFF25b897),text = "Forget password?")
    }) {
        {
            {
            }
        }
    }
}
private fun startMainPage(context: Context) {
    val intent = Intent(context, MainActivity::class.java)
    ContextCompat.startActivity(context, intent, null)
}

```

MainActivity.kt

```
package com.example.surveyapplication

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.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.style.TextAlign
import androidx.compose.ui.tooling.preview.Preview
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp
import com.example.surveyapplication.ui.theme.SurveyApplicationTheme

class MainActivity : ComponentActivity() {
    private lateinit var dbHelper: SurveyDatabaseHelper
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        dbHelper = SurveyDatabaseHelper(this)
        setContent {
            FormScreen(this, dbHelper)
        }
    }
}
```



```
@Composable
fun FormScreen(context: Context, dbHelper: SurveyDatabaseHelper) {

    Image(
        painterResource(id = R.drawable.background), contentDescription = "",
        alpha = 0.1f,
        contentScale = ContentScale.FillHeight,
        modifier = Modifier.padding(top = 40.dp)
    )

    // Define state for form fields
    var name by remember { mutableStateOf("") }
    var age by remember { mutableStateOf("") }
    var mobileNumber by remember { mutableStateOf("") }
    var genderOptions = listOf("Male", "Female", "Other")
    var selectedGender by remember { mutableStateOf("") }
    var error by remember { mutableStateOf("") }
    var diabetesOptions = listOf("Diabetic", "Not Diabetic")
    var selectedDiabetics by remember { mutableStateOf("") }

    Column(
        modifier = Modifier.padding(24.dp),
        horizontalAlignment = Alignment.Start,
        verticalArrangement = Arrangement.SpaceEvenly
    ) {

        Text(
            fontSize = 36.sp,
            textAlign = TextAlign.Center,
            text = "Survey on Diabetics",
            color = Color(0xFF25b897)
        )
    }
}
```

```
Spacer(modifier = Modifier.height(24.dp))
Text(text = "Name :", fontSize = 20.sp)
TextField(
    value = name,
    onChange = { name = it },
)
Spacer(modifier = Modifier.height(14.dp))
Text(text = "Age :", fontSize = 20.sp)
TextField(
    value = age,
    onChange = { age = it },
)
Spacer(modifier = Modifier.height(14.dp))
Text(text = "Mobile Number :", fontSize = 20.sp)
TextField(
    value = mobileNumber,
    onChange = { mobileNumber = it },
)
Spacer(modifier = Modifier.height(14.dp))
Text(text = "Gender :", fontSize = 20.sp)
RadioGroup(
    options = genderOptions,
    selectedOption = selectedGender,
    onSelectedChange = { selectedGender = it }
)
Spacer(modifier = Modifier.height(14.dp))

Text(text = "Diabetics :", fontSize = 20.sp)
RadioGroup(
    options = diabeticsOptions,
    selectedOption = selectedDiabetics,
    onSelectedChange = { selectedDiabetics = it }
)
Text(
    text = error,
    textAlign = TextAlign.Center,
    modifier = Modifier.padding(bottom = 16.dp)
)
```

```
// Display Submit button
Button(
    onClick = { if (name.isNotEmpty() && age.isNotEmpty() && mobileNumber.isNotEmpty() && genderOptions.isNotEmpty() && diabeticsOptions.isNotEmpty()) {
        val survey = Survey(
            id = null,
            name = name,
            age = age,
            mobileNumber = mobileNumber,
            gender = selectedGender,
            diabetics = selectedDiabetics
        )
        databaseHelper.insertSurvey(survey)
        error = "Survey Completed"
    } else {
        error = "Please fill all fields"
    },
    colors = ButtonDefaults.buttonColors(backgroundColor = Color(0xFF84adb8)),
    modifier = Modifier.padding(start = 70.dp).size(height = 60.dp, width = 200.dp)
) {
    Text(text = "Submit")
}
```

```
@Composable
fun RadioGroup(
    options: List<String>,
    selectedOption: String?,
    onSelectedChange: (String) -> Unit) {
    Column {
        options.forEach { option ->
            Row(
                Modifier
                    .fillMaxWidth()
                    .padding(horizontal = 5.dp)
            ) {
                RadioButton(
                    selected = option == selectedOption,
                    onClick = { onSelectedChange(option) }
                )
                Text(
                    text = option,
                    style = MaterialTheme.typography.body1.merge(),
                    modifier = Modifier.padding(top = 10.dp),
                    fontSize = 17.sp
                )
            }
        }
    }
}
```

RegisterActivity.kt

```
package com.example.surveyapplication

import android.content.Context
import android.content.Intent
import android.os.Bundle
import androidx.activity.ComponentActivity
import androidx.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.tooling.preview.Preview
import androidx.compose.ui.unit.dp
import androidx.compose.ui.unit.sp
import androidx.core.content.ContextCompat
import com.example.surveyapplication.ui.theme.SurveyApplicationTheme

class RegisterActivity : ComponentActivity() {
    private lateinit var dbHelper: UserDatabaseHelper
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        dbHelper = UserDatabaseHelper(this)
        setContent {
            RegistrationScreen(this, dbHelper)
        }
    }
}
```

```
@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.survey_signup), contentDescription = "")
        Text(
            fontSize = 36.sp,
            fontWeight = FontWeight.ExtraBold,
            fontFamily = FontFamily.Cursive,
            color = Color(0xFF25b897),
            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,
    onChange = { 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(0xFF84adb8)),
        modifier = Modifier.padding(top = 16.dp),
    ) {
        Text(text = "Register")
    }
)
Spacer(modifier = Modifier.width(10.dp))
Spacer(modifier = Modifier.height(10.dp))

```



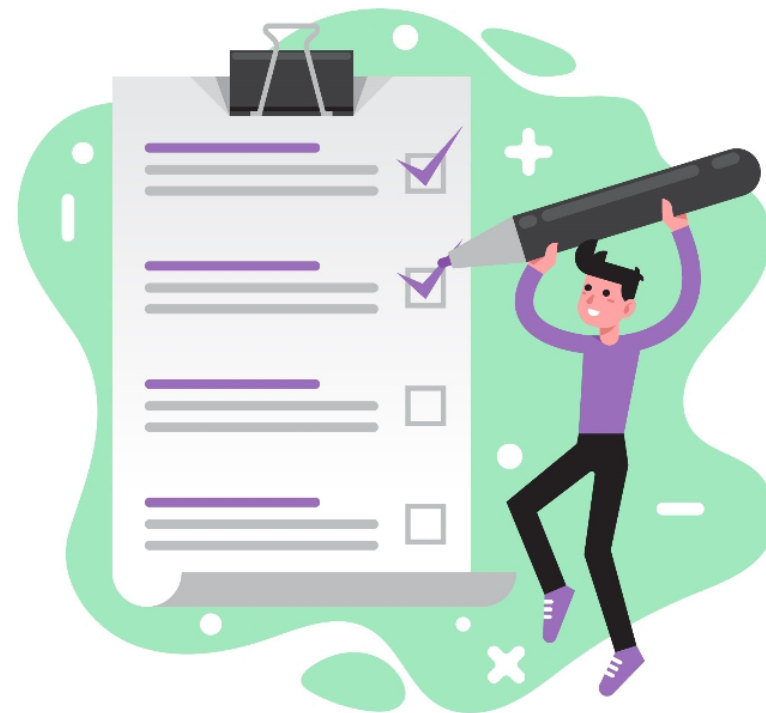
```
Row() {
    Text(
        modifier = Modifier.padding(top = 14.dp), text = "Have an account?"
    )
    TextButton(onClick = {
        context.startActivity(
            Intent(
                context,
                LoginActivity::class.java
            )
        )
    })

    {
        Spacer(modifier = Modifier.width(10.dp))
        Text(color = Color(0xFF25b897), text = "Log in")
    }
}

}

}

private fun startLoginActivity(context: Context) {
    val intent = Intent(context, LoginActivity::class.java)
    ContextCompat.startActivity(context, intent, null)
}
```



Register

Register

Have an account? [Log in](#)

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Login

Username

Password

Login

Register

Forget password?

Survey Details

Name: Suresh
Age: 19
Mobile_Number: 9354927361
Gender: Male
Diabelics: Diabetic

Name: kabilan
Age: 19
Mobile_Number: 935492727
Gender: Male
Diabelics: Diabetic

Name: suis
Age: 43
Mobile_Number: 8652975579
Gender: Male
Diabelics: Not Diabetic


Name: suis
Age: 43
Mobile_Number: 8652975579
Gender: Male
Diabelics: Not Diabetic

Name: jake
Age: 20
Mobile_Number: 5293763926
Gender: Male
Diabelics: Diabetic

Name: ishu
Age: 20
Mobile_Number: 52937639736
Gender: Female
Diabelics: Diabetic


Name: arul
Age: 21
Mobile_Number: 62926693762
Gender: Male
Diabelics: Diabetic

10:25


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 77

Survey on Diabetics

Name :

a

Age :

Mobile Number :

Gender :


☐ Male

☐ Female

☐ Other

Diabetics :


☐ Diabetic



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