Compose Input: A Demonstration of Text Input And Validation With Android Compose

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ABSTRACT

This project demonstrates building a survey app using Android's Jetpack Compose UI toolkit, aimed at providing hands-on experience in Compose-based UI design and database integration. Users register, log in, and answer survey questions, while administrators have access to view all data. The project workflow includes setting up the project in Android Studio, adding dependencies, creating database structures, building the app’s UI, and configuring the AndroidManifest.xml. By completing this, developers will understand Compose UI fundamentals, data handling, and app structuring in Android, making it an ideal introduction to app development using modern Android tools and practices.

Description

This project involves creating a survey app using Android's Jetpack Compose UI toolkit. It enables users to register, log in, and answer survey questions, with their responses securely stored in a database. An admin interface allows administrators to view and manage the survey data.

Key Features:

- **User Registration & Login**: Users can create an account and log in to access the survey.
- **Survey Participation**: Users answer a series of questions, with responses stored in a database.
- **Admin Interface**: Admins can log in to view and manage all collected survey data.
- **Database Integration**: Secure data storage for survey responses.
- **UI Development**: Designed using Jetpack Compose for a modern and responsive user interface.

MainActivity.kt:

```
package com.example.surveyapplication

import android.content.Context
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 databaseHelper: SurveyDatabaseHelper
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        databaseHelper = SurveyDatabaseHelper(this)
        setContent {
            FormScreen(this, databaseHelper)
        }
    }
}
```

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

    // Define state for form fields
    var name by remember { mutableStateOf("") }
    var age by remember { mutableStateOf("") }
    var mobileNumber by remember { mutableStateOf("") }
    var genderOptions = listOf("Rarely", "Sometimes", "Frequently")
    var selectedGender by remember { mutableStateOf("") }
    var error by remember { mutableStateOf("") }
    var diabeticsOptions = listOf("Yes", "No")
    var selectedDiabetics by remember { mutableStateOf("") }

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

        Text(
            fontSize = 25.sp,
            textAlign = TextAlign.Center,
            text = "Survey on Sleep Patterns and Health",
            color = Color(0xFF1976D2)  // Blue header color
        )

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

        Text(text = "What is your full name?", fontSize = 15.sp, color = Color.Black)  // Black text color
        TextField(
            value = name,
            onValueChange = { name = it },
            colors = TextFieldDefaults.textFieldColors(
                backgroundColor = Color(0xFFBBDEFB),
                focusedIndicatorColor = Color(0xFF2196F3),
                unfocusedIndicatorColor = Color(0xFF2196F3)
            ),
            modifier = Modifier.fillMaxWidth().padding(8.dp)
        )
```

```
@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 = 15.sp,
                    color = Color.Black  // Black text color for options
                )
            }
        }
    }
```

LoginActivity.kt:

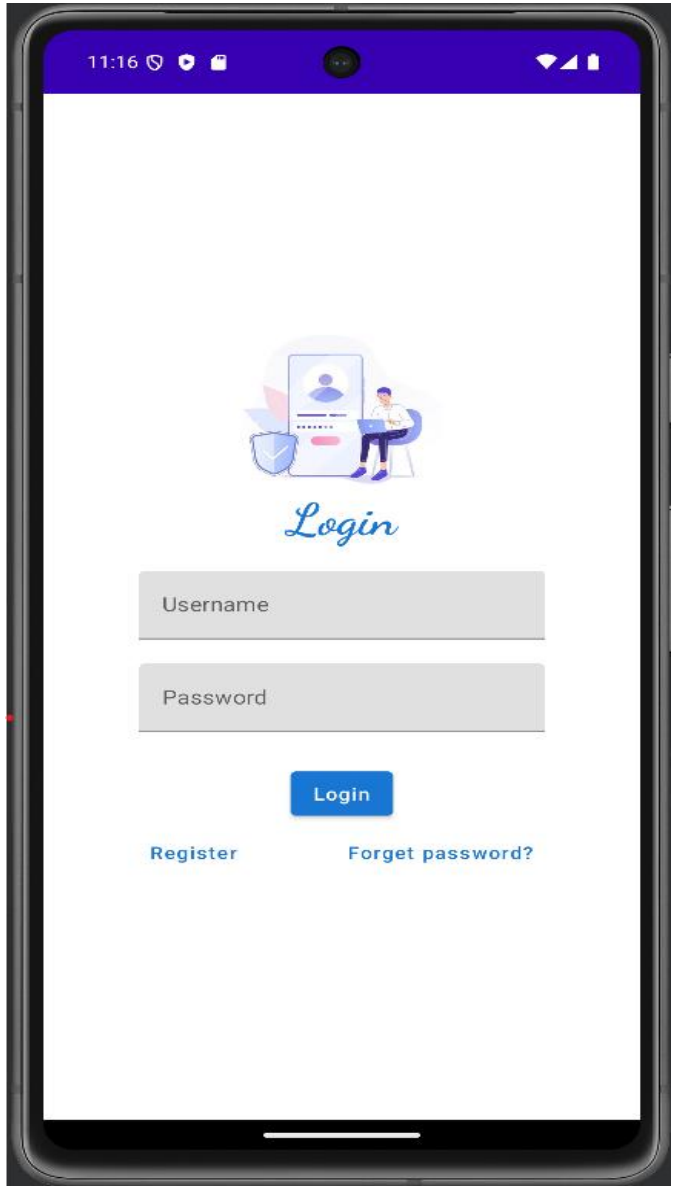
```
package com.example.surveyapplication

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
import androidx.compose.ui.text.input.PasswordVisualTransformation

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

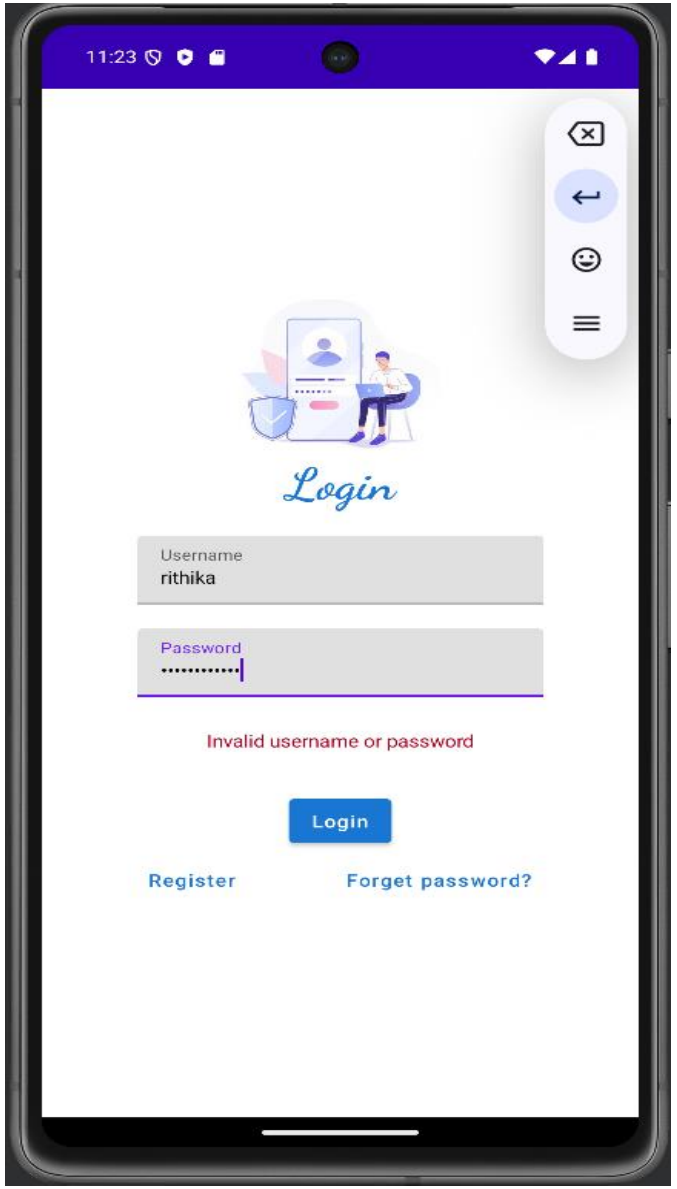
```
@Composable
fun LoginScreen(context: Context, databaseHelper: UserDatabaseHelper) {

    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.survey_login), contentDescription = "")

        Text(
            fontSize = 36.sp,
            fontWeight = FontWeight.ExtraBold,
            fontFamily = FontFamily.Cursive,
            color = Color(0xFF1976D2),  // Blue color for heading
            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)
        )
```

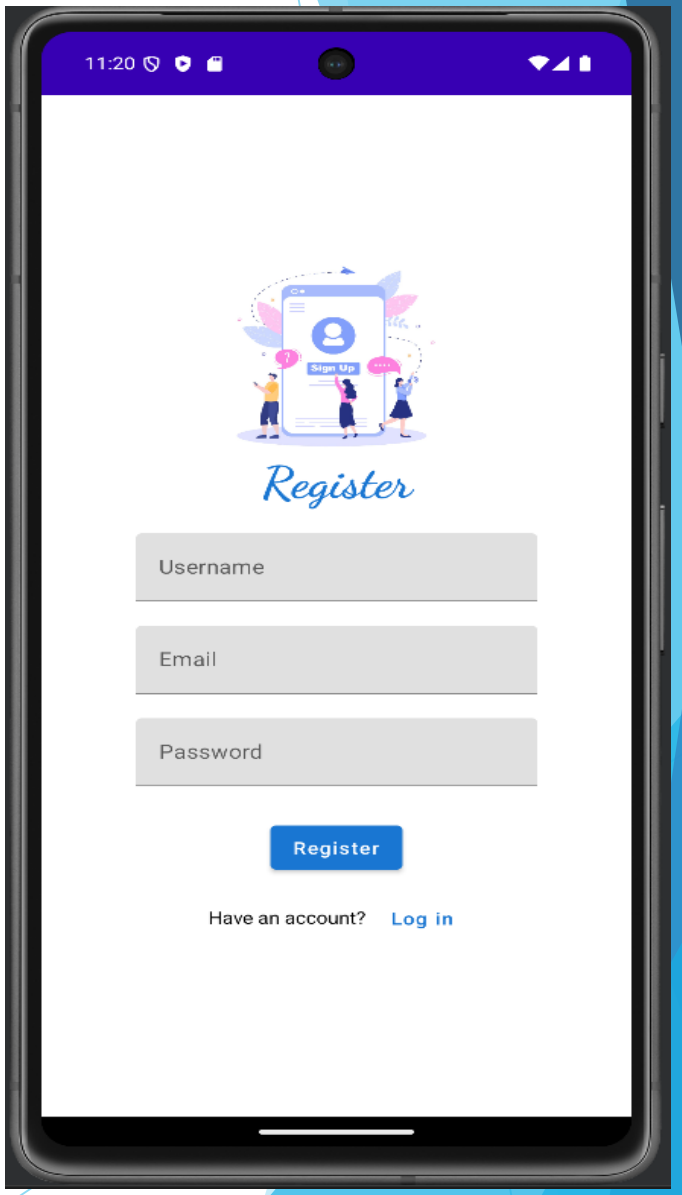
RegistrationActivity.kt:

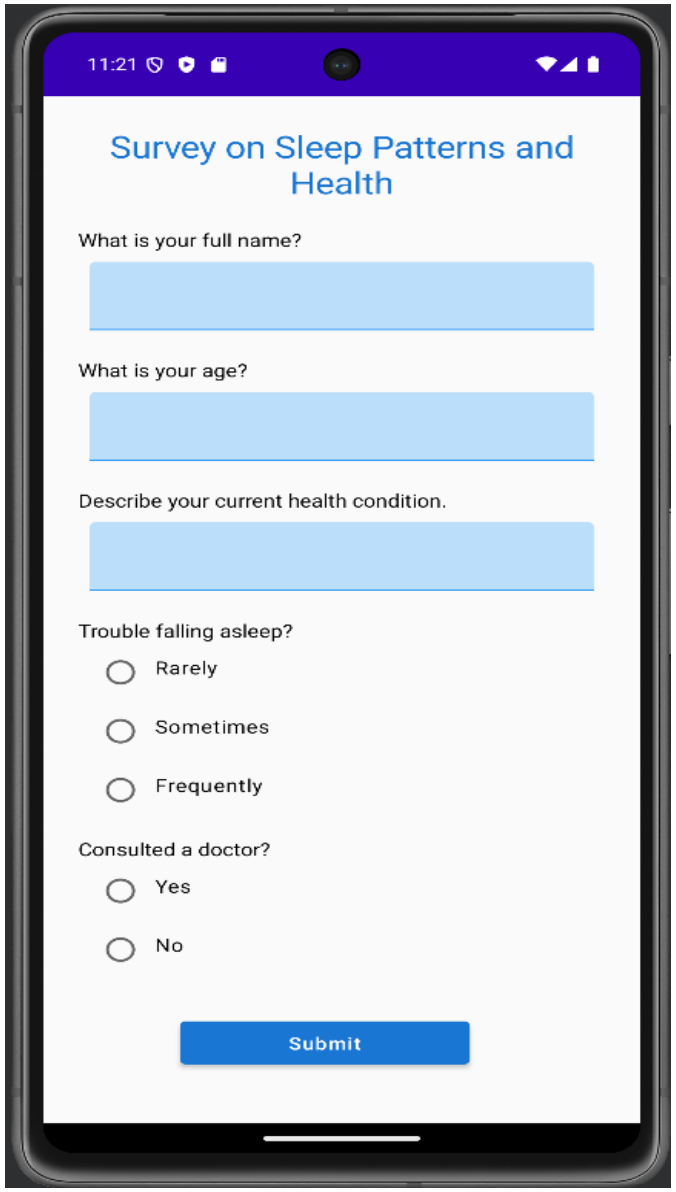
```
package com.example.surveyapplication

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
import androidx.compose.ui.text.input.PasswordVisualTransformation

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

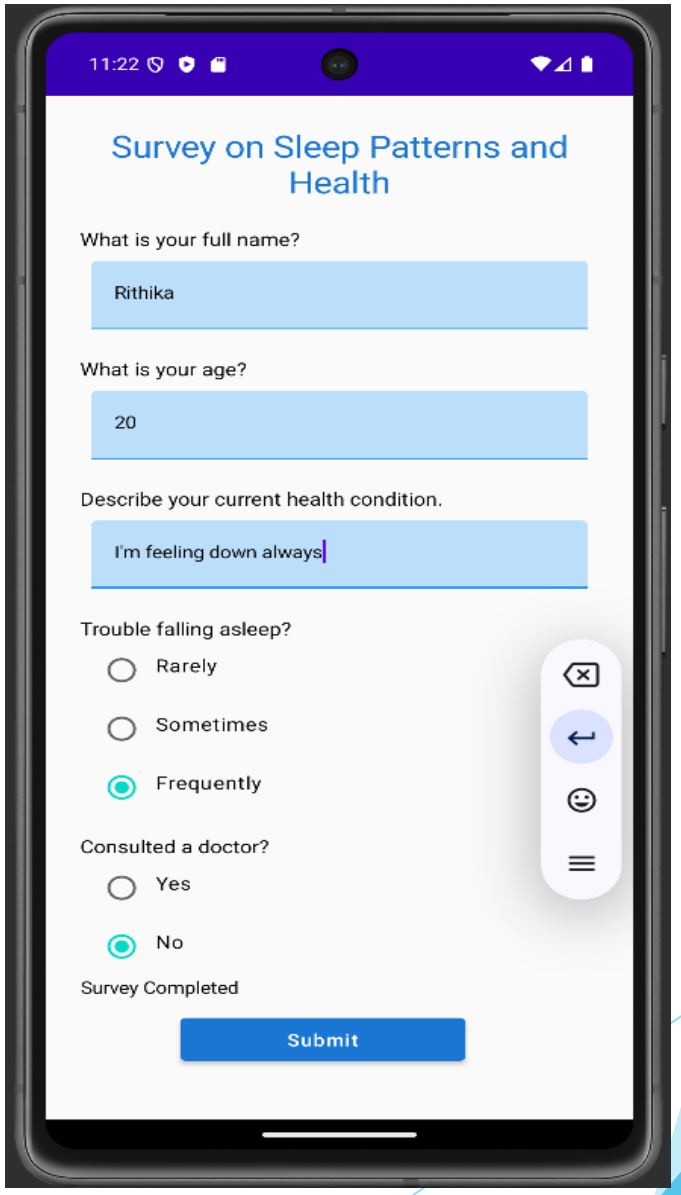
```
@Composable
fun RegistrationScreen(context: Context, databaseHelper: UserDatabaseHelper) {
    var username by remember { mutableStateOf("") }
    var password by remember { mutableStateOf("") }
    var email by remember { mutableStateOf("") }
    var error by remember { mutableStateOf("") }

    Column(
        modifier = Modifier
            .fillMaxSize()
            .background(Color.White),
        horizontalAlignment = Alignment.CenterHorizontally,
        verticalArrangement = Arrangement.Center
    ) {
        Image(painterResource(id = R.drawable.survey_signup), contentDescription = "", modifier = Modifier.size(150.dp))

        Text(
            fontSize = 36.sp,
            fontWeight = FontWeight.ExtraBold,
            fontFamily = FontFamily.Cursive,
            color = Color(0xFF1976D2),  // Blue color for heading
            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)
        )
```


11:16
Login
Username
Password
Login
Register
Forget password?


11:23
Login
Username
rithika
Password
Invalid username or password
Login
Register
Forget password?


11:20
Sign Up
Register
Username
Email
Password
Register
Have an account?
Log in


11:21
Survey on Sleep Patterns and Health
What is your full name?
What is your age?
Describe your current health condition.
Trouble falling asleep?
Rarely
Sometimes
Frequently
Consulted a doctor?
Yes
No
Submit


11:22
Survey on Sleep Patterns and Health
What is your full name?
Rithika
What is your age?
20
Describe your current health condition.
I'm feeling down always
Trouble falling asleep?
Rarely
Sometimes
Frequently
Consulted a doctor?
Yes
No
Survey Completed
Submit