

Experiment	4
Aim	Develop an app for TPO Office at SPIT
Objective	 To Create TPO App using UI Component To Develop SideDrawer Navigation To Use 60-30-10 rule
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Date of Submission	19/02/2025

Technology used	Flutter
Task	Develop an app for TPO with the following requirement (Use side navigation drawer):
	1. Registration Form (Name, E-mail id, Contact, Roll no, HSC (Which College, Year of Passing, total, out of, should calculate percentage), SSC marks (Which College, Year of Passing, total, out of, should calculate percentage), Marks in sem 1-5 (CGPA and Percentage), upload Resume, Any Additional Courses).
	2. User should be able to view the uploaded Resume. (optional)
	3. Company details should be visible to the user. (Name of the company, Location, Range of the salary be given for internship/Placement, Short Profile).
	4. Student should be able to view their own details.
Code with proper label	Main.dart Code:



```
import 'package:flutter/material.dart';
import 'home_page.dart';
import 'registration form page.dart';
import 'student details page.dart';
import 'company_page.dart';
void main() {
runApp(MyApp());
class MyApp extends StatelessWidget {
 @override
 Widget build(BuildContext context) {
  return MaterialApp(
   debugShowCheckedModeBanner: false,
   title: 'TPO App',
   theme: ThemeData(
    primarySwatch: Colors.blue,
   ),
   home: HomePage(),
   routes: {
    '/home': (context) => HomePage(),
    '/registration': (context) => RegistrationFormPage(),
    '/studentDetails': (context) => StudentDetailsPage(),
    '/company': (context) => CompanyPage(),
   },
```



```
Home_page.dart Code:
import 'package:flutter/material.dart';
import 'package:google fonts/google fonts.dart'; // Import Google Fonts
class HomePage extends StatelessWidget {
 @override
 Widget build(BuildContext context) {
  return Scaffold(
   appBar: AppBar(
    title: Text('Welcome to TPO'),
   ),
   drawer: AppDrawer(),
   body: Center(
    child: Column(
     mainAxisAlignment: MainAxisAlignment.center,
     children: [
       // TPO!!! in a big, stylish, and funky font
       Text(
        'TPO!!!',
        style: GoogleFonts.pacifico(
         fontSize: 72,
         fontWeight: FontWeight.bold,
         color: Colors.blue,
        ),
       SizedBox(height: 20),
```



```
// Tagline
       Text(
        'Where students are laboured LEGALLY!!!',
        style: GoogleFonts.lato(
         fontSize: 20,
         fontStyle: FontStyle.italic,
         color: Colors.grey[700],
        ),
class AppDrawer extends StatelessWidget {
 @override
 Widget build(BuildContext context) {
 return Drawer(
   child: ListView(
    padding: EdgeInsets.zero,
    children: <Widget>[
     DrawerHeader(
       decoration: BoxDecoration(
        color: Colors.blue,
      ),
```



```
child: Text(
  'Welcome to TPO',
  style: TextStyle(
   color: Colors.white,
   fontSize: 24,
  ),
 ),
),
ListTile(
 leading: Icon(Icons.home),
 title: Text('Home'),
 onTap: () {
  Navigator.pushReplacementNamed(context, '/home');
 },
),
ListTile(
 leading: Icon(Icons.app registration),
 title: Text('Registration Form'),
 onTap: () {
  Navigator.pushReplacementNamed(context, '/registration');
 },
),
ListTile(
 leading: Icon(Icons.person),
 title: Text('Student Details'),
 onTap: () {
  Navigator.pushReplacementNamed(context, '/studentDetails');
```



```
},
      ),
     ListTile(
       leading: Icon(Icons.business),
       title: Text('Company'),
       onTap: () {
        Navigator.pushReplacementNamed(context, '/company');
       },
      ),
    ],
Registration form page.dart Code:
import 'package:flutter/material.dart';
import 'global_data.dart'; // Import the global list
import 'home page.dart';
class RegistrationFormPage extends StatefulWidget {
 @override
 RegistrationFormPageState createState() =>
RegistrationFormPageState();
class RegistrationFormPageState extends State<RegistrationFormPage> {
```



```
final formKey = GlobalKey<FormState>();
final nameController = TextEditingController();
final emailController = TextEditingController();
final contactController = TextEditingController();
final rollNoController = TextEditingController();
final hscCollegeController = TextEditingController();
final hscMarksController = TextEditingController();
final hscOutOfController = TextEditingController();
final bachelorCourseController = TextEditingController();
final _bachelorCollegeController = TextEditingController();
double percentage = 0.0;
void calculatePercentage() {
 if ( hscMarksController.text.isNotEmpty &&
hscOutOfController.text.isNotEmpty) {
  double marks = double.parse( hscMarksController.text);
  double outOf = double.parse( hscOutOfController.text);
  setState(() {
   percentage = (\text{marks / outOf}) * 100;
  });
 } else {
  setState(() {
   _{\rm percentage} = 0.0;
  });
```



```
// Validate Contact Number
String? validateContact(String? value) {
 if (value == null || value.isEmpty) {
  return 'Contact number is required';
 if (value.length != 10 \parallel !RegExp(r'^[0-9]+\$').hasMatch(value)) 
  return 'Contact number must be 10 digits';
 return null;
// Validate Roll No (UCID)
String? validateRollNo(String? value) {
 if (value == null || value.isEmpty) {
  return 'Roll No is required';
 if (!RegExp(r'^[0-9]+\$').hasMatch(value)) {
  return 'Roll No must contain only numbers';
 return null;
// Validate Marks Obtained and Out Of
String? validateMarks(String? value) {
 if (value == null || value.isEmpty) {
  return 'This field is required';
```



```
if (!RegExp(r'^[0-9]+$').hasMatch(value)) {
  return 'This field must contain only numbers';
 return null;
// Validate Email ID
String? validateEmail(String? value) {
if (value == null || value.isEmpty) {
  return 'Email ID is required';
 if (!RegExp(r'^[\w-\.]+@([\w-]+\.)+[\w-]{2,4}\$').hasMatch(value)) \ \{
  return 'Enter a valid email address';
 return null;
void register() {
 if ( formKey.currentState!.validate()) {
  // Save data to a map
  Map<String, dynamic> studentData = {
   'Name': nameController.text,
   'Email ID': emailController.text,
   'Contact': contactController.text,
   'Roll No': _rollNoController.text,
   'HSC College': hscCollegeController.text,
   'HSC Marks Obtained': hscMarksController.text,
```



```
'HSC Out Of: _hscOutOfController.text,
 'Percentage': percentage.toStringAsFixed(2),
 'Bachelor Course': bachelor Course Controller.text,
 'Bachelor College': bachelor College Controller.text,
};
// Add student data to the global list
students.add(studentData);
// Clear form fields
formKey.currentState!.reset();
setState(() {
 _{\text{percentage}} = 0.0;
});
// Show success message
ScaffoldMessenger.of(context).showSnackBar(
 SnackBar(content: Text('Registration Successful!')),
);
// Navigate to Student Details Page
Navigator.pushNamed(
 context,
 '/studentDetails',
);
```



```
@override
 Widget build(BuildContext context) {
  return Scaffold(
   appBar: AppBar(
    title: Text('Welcome to TPO'),
   ),
   drawer: AppDrawer(),
   body: Padding(
    padding: const EdgeInsets.all(16.0),
    child: Form(
     key: formKey,
     child: ListView(
       children: [
        buildTextField('Name', nameController, TextInputType.name),
        buildTextField('Email ID', emailController,
TextInputType.emailAddress, validator: validateEmail),
        buildTextField('Contact', contactController,
TextInputType.phone, validator: validateContact),
         buildTextField('Roll No', rollNoController,
TextInputType.number, validator: validateRollNo),
         buildTextField('HSC College', hscCollegeController,
TextInputType.text),
        buildTextField('HSC Marks Obtained', hscMarksController,
TextInputType.number, validator: validateMarks, onChanged: ( ) =>
calculatePercentage()),
         buildTextField('HSC Out Of', hscOutOfController,
TextInputType.number, validator: validateMarks, onChanged: ( ) =>
 calculatePercentage()),
```



```
buildReadOnlyField('Percentage',
percentage.toStringAsFixed(2)),
        buildTextField('Bachelor Course', bachelorCourseController,
TextInputType.text),
         buildTextField('Bachelor College', bachelorCollegeController,
TextInputType.text),
        SizedBox(height: 20),
        ElevatedButton(
         onPressed: register,
         child: Text('Register'),
        ),
       ],
  );
 Widget buildTextField(String label, TextEditingController controller,
TextInputType keyboardType, {Function(String)? onChanged, String?
Function(String?)? validator}) {
  return Column(
   crossAxisAlignment: CrossAxisAlignment.start,
   children: [
    Text(label),
    TextFormField(
     controller: controller,
     keyboardType: keyboardType,
     decoration: InputDecoration(
```



```
hintText: 'Enter $label',
    ),
    validator: validator,
    onChanged: onChanged,
   ),
   SizedBox(height: 10),
  ],
 );
Widget buildReadOnlyField(String label, String value) {
return Column(
  crossAxisAlignment: CrossAxisAlignment.start,
  children: [
   Text(label),
   TextFormField(
    readOnly: true,
    decoration: InputDecoration(
     hintText: value,
    ),
   ),
   SizedBox(height: 10),
  ],
```



```
Global data.dart Code:
List<Map<String, dynamic>> students = [];
List<Map<String, dynamic>> companies = [];
Student details page.dart Code:
import 'package:flutter/material.dart';
import 'global data.dart'; // Import the global list
import 'home page.dart';
class StudentDetailsPage extends StatefulWidget {
 @override
 _StudentDetailsPageState createState() => _StudentDetailsPageState();
class StudentDetailsPageState extends State<StudentDetailsPage> {
 void deleteStudent(int index) {
  setState(() {
   students.removeAt(index);
  });
 @override
 Widget build(BuildContext context) {
  return Scaffold(
   appBar: AppBar(
    title: Text('Welcome to TPO'),
   ),
```



```
drawer: AppDrawer(),
   body: students.isEmpty
      ? Center(child: Text('No student details available'))
      : ListView.builder(
        padding: EdgeInsets.all(16),
        itemCount: students.length,
        itemBuilder: (context, index) {
         final student = students[index];
         return Card(
           margin: EdgeInsets.only(bottom: 16),
           child: Padding(
            padding: const EdgeInsets.all(16.0),
            child: Column(
             crossAxisAlignment: CrossAxisAlignment.start,
             children: [
              Text('Name: ${student['Name']}', style: TextStyle(fontSize:
16)),
              SizedBox(height: 8),
              Text('Email ID: ${student['Email ID']}', style:
TextStyle(fontSize: 16)),
              SizedBox(height: 8),
              Text('Roll No: ${student['Roll No']}', style:
TextStyle(fontSize: 16)),
              SizedBox(height: 8),
              Text('Contact: ${student['Contact']}', style:
TextStyle(fontSize: 16)),
              SizedBox(height: 8),
              Text('HSC College: ${student['HSC College']}', style:
TextStyle(fontSize: 16)),
```



```
SizedBox(height: 8),
              Text('HSC Marks: ${student['HSC Marks
Obtained']}/${student['HSC Out Of']}', style: TextStyle(fontSize: 16)),
              SizedBox(height: 8),
              Text('Percentage: ${student['Percentage']}%', style:
TextStyle(fontSize: 16)),
              SizedBox(height: 8),
              Text('Bachelor Course: ${student['Bachelor Course']}', style:
TextStyle(fontSize: 16)),
              SizedBox(height: 8),
              Text('Bachelor College: ${student['Bachelor College']}',
style: TextStyle(fontSize: 16)),
              SizedBox(height: 16),
              Align(
                alignment: Alignment.centerRight,
                child: ElevatedButton(
                 onPressed: () => _deleteStudent(index),
                 child: Text('Delete'),
                 style: ElevatedButton.styleFrom(
                  backgroundColor: Colors.red,
                  foregroundColor: Colors.white,
                 ),
             ],
         );
```



```
},
       ),
  );
Company_page.dart Code:
import 'package:flutter/material.dart';
import 'global data.dart'; // Import the global list
import 'home page.dart';
class CompanyPage extends StatefulWidget {
 @override
 CompanyPageState createState() => _CompanyPageState();
class CompanyPageState extends State<CompanyPage> {
 final companyNameController = TextEditingController();
 final companyDetailsController = TextEditingController();
 final _jobRoleController = TextEditingController();
 final jobRequirementController = TextEditingController();
 void addCompany() {
  showDialog(
   context: context,
   builder: (context) {
    return AlertDialog(
```



```
title: Text('Add Company'),
content: SingleChildScrollView(
 child: Column(
  mainAxisSize: MainAxisSize.min,
  children: [
   buildTextField('Company Name', companyNameController),
   buildTextField('Company Details', companyDetailsController),
   _buildTextField('Job Role', _jobRoleController),
   buildTextField('Job Requirement', jobRequirementController),
  ],
 ),
),
actions: [
 TextButton(
  onPressed: () {
   Navigator.pop(context); // Close the dialog
  },
  child: Text('Cancel'),
 ),
 TextButton(
  onPressed: () {
   if ( companyNameController.text.isNotEmpty &&
      companyDetailsController.text.isNotEmpty &&
     jobRoleController.text.isNotEmpty &&
     _jobRequirementController.text.isNotEmpty) {
    // Save company data to a map
    Map<String, dynamic> companyData = {
```



```
'Company Name': _companyNameController.text,
    'Company Details': companyDetailsController.text,
    'Job Role': jobRoleController.text,
    'Job Requirement': jobRequirementController.text,
   };
   // Add company data to the global list
   setState(() {
    companies.add(companyData);
   });
   // Clear text fields
   companyNameController.clear();
   _companyDetailsController.clear();
   jobRoleController.clear();
   jobRequirementController.clear();
   // Close the dialog
   Navigator.pop(context);
  } else {
   ScaffoldMessenger.of(context).showSnackBar(
    SnackBar(content: Text('Please fill all fields')),
   );
 child: Text('Create'),
),
```



```
],
   );
 );
void _deleteCompany(int index) {
setState(() {
  companies.removeAt(index);
 });
@override
Widget build(BuildContext context) {
 return Scaffold(
  appBar: AppBar(
   title: Text('Welcome to TPO'),
   actions: [
    IconButton(
     onPressed: _addCompany,
     icon: Icon(Icons.add),
     tooltip: 'Add Company', // Tooltip for the button
    ),
   ],
  drawer: AppDrawer(),
  body: companies.isEmpty
```



```
? Center(child: Text('No company details available'))
      : ListView.builder(
        padding: EdgeInsets.all(16),
        itemCount: companies.length,
        itemBuilder: (context, index) {
         final company = companies[index];
         return Card(
          margin: EdgeInsets.only(bottom: 16),
          child: Padding(
            padding: const EdgeInsets.all(16.0),
            child: Column(
             crossAxisAlignment: CrossAxisAlignment.start,
             children: [
              Text('Company Name: ${company['Company Name']}',
style: TextStyle(fontSize: 16)),
              SizedBox(height: 8),
              Text('Company Details: ${company['Company Details']}',
style: TextStyle(fontSize: 16)),
              SizedBox(height: 8),
              Text('Job Role: ${company['Job Role']}', style:
TextStyle(fontSize: 16)),
              SizedBox(height: 8),
              Text('Job Requirement: ${company['Job Requirement']}',
style: TextStyle(fontSize: 16)),
              SizedBox(height: 16),
              Align(
               alignment: Alignment.centerRight,
               child: ElevatedButton(
```



```
onPressed: () => deleteCompany(index),
                child: Text('Delete'),
               style: ElevatedButton.styleFrom(
                 backgroundColor: Colors.red,
                 foregroundColor: Colors.white,
               ),
        );
       },
 );
Widget buildTextField(String label, TextEditingController controller) {
 return Column(
  crossAxisAlignment: CrossAxisAlignment.start,
  children: [
   Text(label),
   TextFormField(
    controller: controller,
    decoration: InputDecoration(
     hintText: 'Enter $label',
    ),
```



```
),
    SizedBox(height: 10),
   ],
  );
import 'package:flutter/material.dart';
import 'global data.dart'; // Import the global list
import 'home page.dart';
class CompanyPage extends StatefulWidget {
 @override
 CompanyPageState createState() => CompanyPageState();
class CompanyPageState extends State<CompanyPage> {
 final companyNameController = TextEditingController();
 final companyDetailsController = TextEditingController();
 final jobRoleController = TextEditingController();
 final jobRequirementController = TextEditingController();
 void addCompany() {
  showDialog(
   context: context,
   builder: (context) {
    return AlertDialog(
     title: Text('Add Company'),
```



```
content: SingleChildScrollView(
 child: Column(
  mainAxisSize: MainAxisSize.min,
  children: [
   buildTextField('Company Name', companyNameController),
   buildTextField('Company Details', companyDetailsController),
   _buildTextField('Job Role', _jobRoleController),
   buildTextField('Job Requirement', jobRequirementController),
  ],
 ),
),
actions: [
 TextButton(
  onPressed: () {
   Navigator.pop(context); // Close the dialog
  },
  child: Text('Cancel'),
 ),
 TextButton(
  onPressed: () {
   if ( companyNameController.text.isNotEmpty &&
      companyDetailsController.text.isNotEmpty &&
      jobRoleController.text.isNotEmpty &&
     jobRequirementController.text.isNotEmpty) {
    // Save company data to a map
    Map<String, dynamic> companyData = {
     'Company Name': companyNameController.text,
```



```
'Company Details': _companyDetailsController.text,
      'Job Role': jobRoleController.text,
      'Job Requirement': jobRequirementController.text,
     };
    // Add company data to the global list
    setState(() {
      companies.add(companyData);
     });
    // Clear text fields
     _companyNameController.clear();
     companyDetailsController.clear();
     _jobRoleController.clear();
    jobRequirementController.clear();
    // Close the dialog
    Navigator.pop(context);
    } else {
    ScaffoldMessenger.of(context).showSnackBar(
      SnackBar(content: Text('Please fill all fields')),
    );
  child: Text('Create'),
 ),
],
```



```
);
  },
 );
void _deleteCompany(int index) {
setState(() {
  companies.removeAt(index);
 });
@override
Widget build(BuildContext context) {
return Scaffold(
  appBar: AppBar(
   title: Text('Welcome to TPO'),
   actions: [
    IconButton(
      onPressed: addCompany,
      icon: Icon(Icons.add),
      tooltip: 'Add Company', // Tooltip for the button
    ),
   ],
  ),
  drawer: AppDrawer(),
  body: companies.isEmpty
    ? Center(child: Text('No company details available'))
```



```
: ListView.builder(
        padding: EdgeInsets.all(16),
        itemCount: companies.length,
        itemBuilder: (context, index) {
         final company = companies[index];
         return Card(
          margin: EdgeInsets.only(bottom: 16),
          child: Padding(
            padding: const EdgeInsets.all(16.0),
            child: Column(
             crossAxisAlignment: CrossAxisAlignment.start,
             children: [
              Text('Company Name: ${company['Company Name']}',
style: TextStyle(fontSize: 16)),
              SizedBox(height: 8),
              Text('Company Details: ${company['Company Details']}',
style: TextStyle(fontSize: 16)),
              SizedBox(height: 8),
              Text('Job Role: ${company['Job Role']}', style:
TextStyle(fontSize: 16)),
              SizedBox(height: 8),
              Text('Job Requirement: ${company['Job Requirement']}',
style: TextStyle(fontSize: 16)),
              SizedBox(height: 16),
              Align(
               alignment: Alignment.centerRight,
               child: ElevatedButton(
                 onPressed: () => _deleteCompany(index),
```



```
child: Text('Delete'),
                style: ElevatedButton.styleFrom(
                 backgroundColor: Colors.red,
                 foregroundColor: Colors.white,
                ),
      ),
 );
Widget buildTextField(String label, TextEditingController controller) {
return Column(
  cross Axis Alignment: Cross Axis Alignment. start,\\
  children: [
   Text(label),
   TextFormField(
    controller: controller,
    decoration: InputDecoration(
      hintText: 'Enter $label',
    ),
   ),
```



SizedBox(height: 10),
],
);
}
}



Screenshots		
	■ Welcome to TPO	
	TPO!!!	
	T :: 5'	
	Training Placement Officers!!!	







Name	
Enter Name	
Email ID	
Enter Email ID	
Contact	
Enter Contact	
Roll No	
Enter Roll No	
HSC College	
Enter HSC College	
HSC Marks Obtained	
Enter HSC Marks Obtained	
HSC Out Of	
Enter HSC Out Of	
Percentage	
0.00	
Bachelor Course	

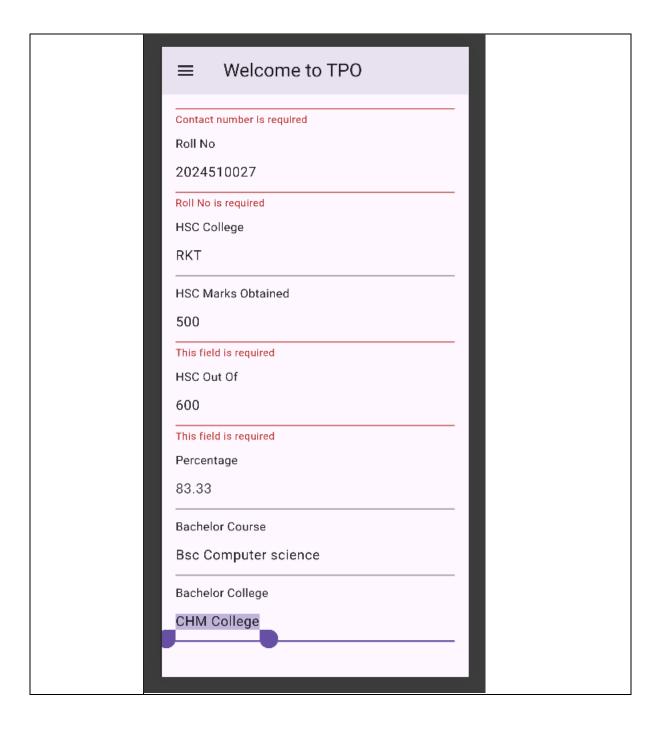


■ Welcome to TPO	
Enter Contact	
Roll No	
Enter Roll No	
HSC College	
Enter HSC College	
HSC Marks Obtained	
Enter HSC Marks Obtained	
HSC Out Of	
Enter HSC Out Of	
Percentage	
0.00	
Bachelor Course	
Enter Bachelor Course	
Bachelor College	
Enter Bachelor College	
Register	



ı	≡ Welcome to TPO
	Enter Contact
	Contact number is required Roll No
	Enter Roll No
	Roll No is required HSC College
	Enter HSC College
	HSC Marks Obtained Enter HSC Marks Obtained
	This field is required HSC Out Of
	Enter HSC Out Of
	This field is required Percentage
	0.00
ı	Bachelor Course Enter Bachelor Course
	Bachelor College
	Enter Rachelor College

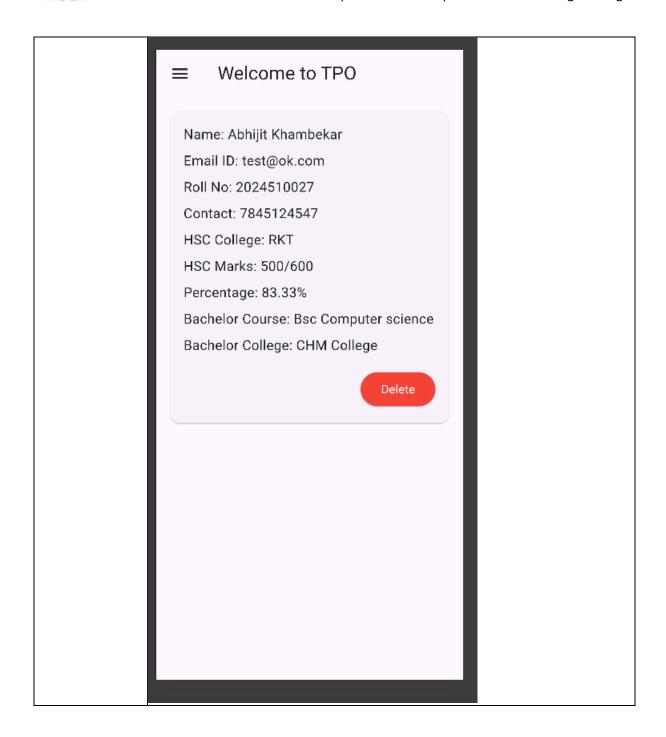






■ Welcome to TPO	
Name	
Abhijit Khambekar	
Email ID	
test@ok.com	
Email ID is required	
Contact	
7845124547	
Contact number is required	
Roll No	
2024510027	
Roll No is required	
HSC College	
RKT	
HSC Marks Obtained	
500	
This field is required	
HSC Out Of	
600	
This field is required	
-	





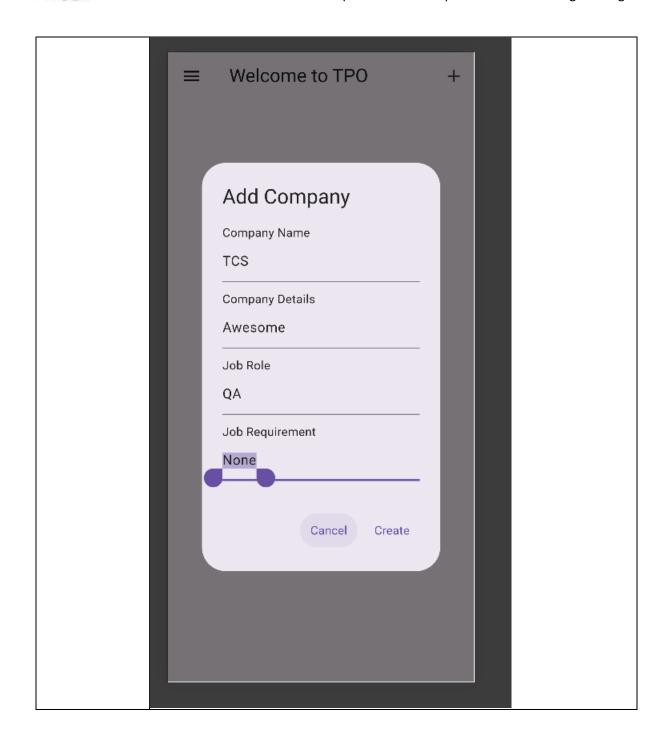




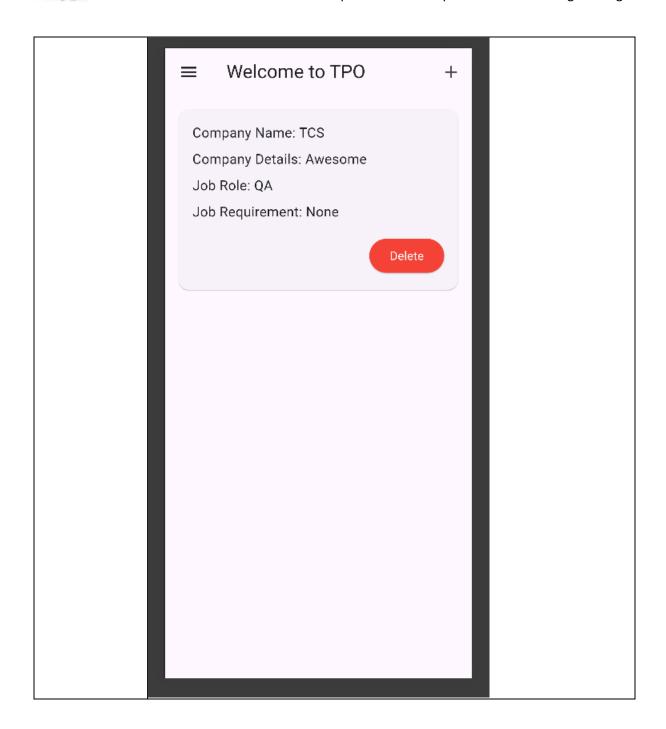




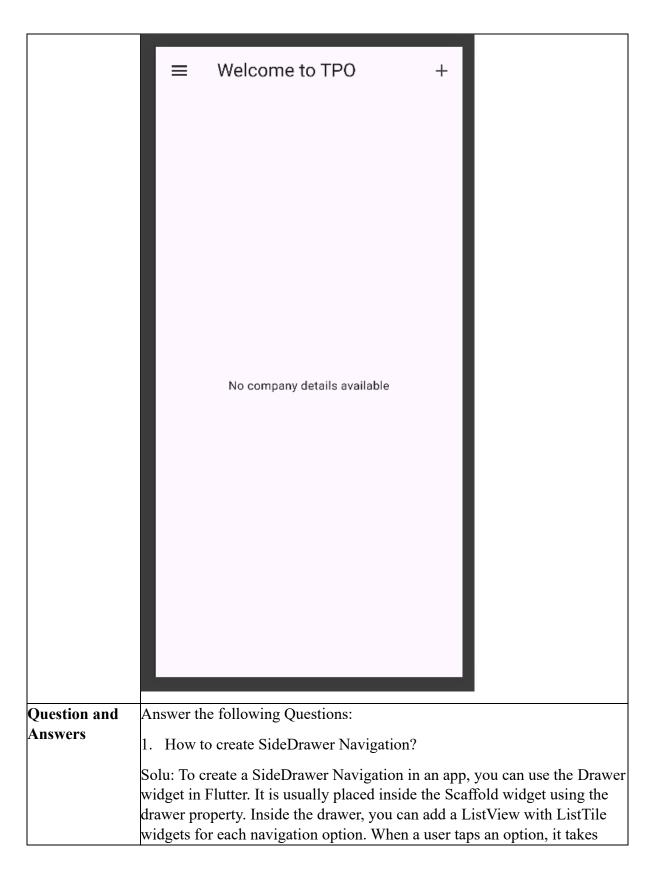














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them to the corresponding page using Navigator.push(). You can also add a DrawerHeader to display a title or user info at the top.

2. How did you use 60-30-10 rule in your application?

Solu: The 60-30-10 rule helps maintain a balanced color scheme in an app. In my application, I used 60% for the primary background color, 30% for secondary elements like buttons and cards, and 10% for accent colors like icons and highlights. This makes the UI look clean and organized. The primary color creates the base, the secondary color supports it, and the accent color adds contrast. This approach improves both appearance and

3. Which new elements did you use for creating UI components?

Solu: I used several new UI components while creating the app. These include the Card widget for organizing content, the Snackbar for showing quick messages, and the AlertDialog for important notifications. I also used the ListTile widget for easy navigation options. The TextFormField with input validation helped make the forms more user-friendly and secure.

Conclusion

user experience.

Learned how to create a Side Navigation Drawer, Use of Google fonts, and how to store data temporary.