FLUTTER APPLICATION DEVELOPMENT LAB

LAB CYCLE – 2

Lab No: 2

Title

Design and develop Flutter applications to demonstrate basic UI components, user input handling, navigation, and layouts.

Objective

To familiarize students with Flutter widgets, Dart programming basics, form handling, navigation, and layout design.

Software Requirements

- Flutter SDK

- Android Studio

- Android Emulator or Physical Device

Program 1

Aim

To design a Flutter application that accepts two numbers from the user and displays their sum.

Algorithm

1. Create two text input fields.

2. Accept numeric input.

3. Perform addition on button click.

4. Display the result.

Code Snippet

```
TextEditingController n1 = TextEditingController();

TextEditingController n2 = TextEditingController();

int result = 0;

ElevatedButton(

  onPressed: () {

    setState(() {

      result = int.parse(n1.text) + int.parse(n2.text);

    });

  },

  child: Text("Add"),

),

Text("Result: $result")
```

Outcome

The app successfully calculates and displays the sum of two numbers.

Program 2

Aim

To create a Flutter application that collects user details and displays them using a Snackbar.

Algorithm

1. Accept name and email from user.

2. Validate inputs.

3. Display details using Snackbar.

Code Snippet

```
ScaffoldMessenger.of(context).showSnackBar(

  SnackBar(

    content: Text("Name: $name, Email: $email"),

  ),

);

ScaffoldMessenger.of(context).showSnackBar(

  SnackBar(

    content: Text("Name: $name, Email: $email"),

  ),

);
```

Outcome

User details are collected and displayed interactively.

Program 3

Aim

To demonstrate navigation between two screens in Flutter.

Algorithm

1. Create two screens.

2. Navigate using Navigator.

3. Pass data between screens.

Code Snippet

Navigator.push(

  context,

  MaterialPageRoute(

    builder: (context) => SecondScreen(data: "Hello Flutter"),

  ),

);

Outcome

Data is successfully passed between screens.

Program 4

Aim

To display a list of items using ListView.

Algorithm

1. Create a list of strings.

2. Display items using ListView.builder.

Code Snippet

ListView.builder(

  itemCount: items.length,

```
    itemBuilder: (context, index) {

      return ListTile(

        title: Text(items[index]),

      );

    },

  );
```

Outcome

A scrollable list of items is displayed.

Program 5

Aim

To design a Flutter application demonstrating different layouts.

Algorithm

1. Use Row and Column widgets.

2. Align UI components properly.

Code Snippet

```
Column(

  children: [

    Text("Flutter Layout"),

    Row(

      mainAxisAlignment: MainAxisAlignment.spaceEvenly,

      children: [

        Icon(Icons.home),
```

```
      Icon(Icons.settings),

    ],

  ),

 ],

);
```

Outcome

Flutter layout widgets are used effectively.

Exercise Questions

1. Write a Flutter program to create a **simple user profile** which includes the user's professional details such as name, designation, company, and experience.

2. Write a Flutter program to create a **registration form**:
    a. The form should include email ID, mobile number, and password fields.
    b. Perform validation for email ID and mobile number.
    c. Display a customized **SnackBar** message based on user input.

Additional Question

1. Write a Flutter program to display the following table using `Table` widget:

Name	Age	Department
A	20	CSE
B	21	IT

Result

Thus, Flutter applications demonstrating UI components, navigation, layout management, and event handling were successfully developed and executed.