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Aim: To include icons, images, fonts in flutter app.

Theory:

Flutter, Google's UI toolkit, offers a rich set of features and widgets for building cross-platform apps with high performance and native-like experiences. Its hot reload feature allows rapid development and debugging. Widgets like MaterialApp provide a consistent look and feel across platforms. Core layout widgets such as Column and Row enable flexible UI designs. Material Design and Cupertino widgets ensure native-like experiences on Android and iOS. Customization options like themes, animations, and gestures enhance user interactions. With access to device APIs, plugins, and third-party libraries, Flutter empowers developers to create beautiful, responsive, and feature-rich apps for mobile, web, and desktop platforms.

Flutter Widgets:

Icon:

An icon is a graphic image representing an application or any specific entity containing meaning for the user. It can be selectable and non-selectable. Flutter provides an Icon Widget to create icons in our applications. We can create icons in Flutter, either using inbuilt icons or with the custom icons. Flutter provides the list of all icons in the Icons class.

Images:

When you create an app in Flutter, it includes both code and assets (resources). An asset is a file, which is bundled and deployed with the app and is accessible at runtime. The asset can include static data, configuration files, icons, and images. The Flutter supports many image formats, such as JPEG, WebP, PNG, GIF, animated WebP/GIF, BMP, and WBMP. Displaying images is the fundamental concept of most of the mobile apps. Flutter has an Image widget that allows displaying different types of images in the mobile application.

How to display the image in Flutter:

To display an image in Flutter, do the following steps:

Step 1: First, we need to create a new folder inside the root of the Flutter project and named it assets. We can also give it any other name if you want.

Step 2: Next, inside this folder, add one image manually.

Step 3: Update the pubspec.yaml file.

```
assets:
 - assets/bmi_logo.png
- assets/bmi_result_image.png
```

Add them in flutter: in the pubsec.yaml file

Display images from the internet:

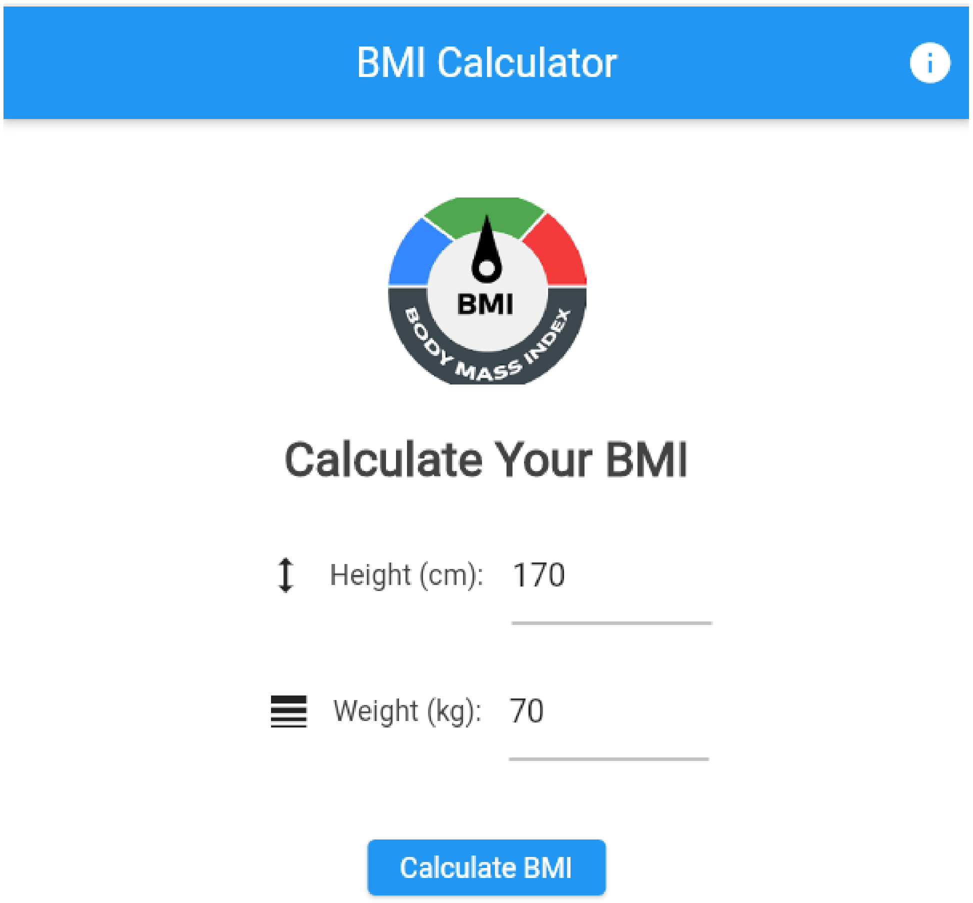
Displaying images from the internet or network is very simple. Flutter provides a built-in method Image.network to work with images from a URL. The Image.network method also allows you to use some optional properties, such as height, width, color, fit, and many more. We can use the following syntax to display an image from the internet.

Code:

main.dart

```
import 'package:flutter/material.dart';

void main() {
  runApp(BMICalculatorApp());
}

class BMICalculatorApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      debugShowCheckedModeBanner: false,
      title: 'BMI Calculator',
      theme: ThemeData(
        primaryColor: Colors.blue,
        scaffoldBackgroundColor: Colors.white,
        textTheme: TextTheme(
          bodyText2: TextStyle(color: Colors.grey[800]),
        ),
      ),
      home: BMICalculatorScreen(),
    );
  }
}

class BMICalculatorScreen extends StatefulWidget {
  @override
  _BMICalculatorScreenState createState() => _BMICalculatorScreenState();
}

class _BMICalculatorScreenState extends State<BMICalculatorScreen> {
  // Variables to store user input data
  double _height = 170.0; // Initial height in centimeters
  double _weight = 70.0; // Initial weight in kilograms

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text('BMI Calculator'),
        centerTitle: true,
        actions: [
          IconButton(
            icon: Icon(Icons.info),
            onPressed: () {
              // Handle info icon press
            },
          ),
        ],
      ),
      body: Padding(
        padding: EdgeInsets.all(16.0),
        child: Column(
          crossAxisAlignment: CrossAxisAlignment.center,
          children: [
            SizedBox(height: 20.0),
            Image.asset(
              'assets/bmi_logo.png', // Path to your image asset
              height: 100.0,
              width: 100.0,
            ),
            SizedBox(height: 20.0),
            Text(
              'Calculate Your BMI',
              style: TextStyle(
                fontSize: 24.0,
                fontWeight: FontWeight.bold,
              ),
            ),
            SizedBox(height: 20.0),
            Row(
              mainAxisAlignment: MainAxisAlignment.center,
              children: [
                Icon(Icons.height),
                SizedBox(width: 10.0),
                Text('Height (cm): '),
                SizedBox(width: 10.0),
                Container(
                  width: 100.0,
                  child: TextFormField(
                    keyboardType: TextInputType.number,
                    initialValue: _height.toString(),
                    onChanged: (value) {
                      setState(() {
                        _height = double.tryParse(value) ?? 0.0;
                      });
                    },
                  ),
                ),
              ],
            ),
            SizedBox(height: 20.0),
            Row(
              mainAxisAlignment: MainAxisAlignment.center,
              children: [
                Icon(Icons.line_weight),
                SizedBox(width: 10.0),
                Text('Weight (kg): '),
                SizedBox(width: 10.0),
                Container(
                  width: 100.0,
                  child: TextFormField(
                    keyboardType: TextInputType.number,
                    initialValue: _weight.toString(),
                    onChanged: (value) {
                      setState(() {
                        _weight = double.tryParse(value) ?? 0.0;
                      });
                    },
                  ),
                ),
              ],
            ),
            SizedBox(height: 40.0),
            ElevatedButton(
              onPressed: () {
                // Calculate BMI logic here
                double bmi = _weight / ((_height / 100) * (_height / 100));
                // Navigate to BMI result screen
                Navigator.push(
                  context,
                  MaterialPageRoute(
                    builder: (context) => BMIResultScreen(bmi: bmi),
                  ),
                );
              },
              child: Text('Calculate BMI'),
            ),
          ],
        ),
      ),
    );
   }
  }

  class BMIResultScreen extends StatelessWidget {
    final double bmi;

    BMIResultScreen({required this.bmi});

    @override
    Widget build(BuildContext context) {
      return Scaffold(
        appBar: AppBar(
          title: Text('BMI Result'),
          centerTitle: true,
        ),
        body: Center(
          child: Column(
            mainAxisAlignment: MainAxisAlignment.center,
            children: [
            Text(
              'Your BMI: ${bmi.toStringAsFixed(2)}',
              style: TextStyle(fontSize: 24.0, fontWeight: FontWeight.bold),
            ),
            SizedBox(height: 20.0),
            Image.asset(
              'assets/bmi_result_image.png', // Path to your image asset
              height: 150.0,
              width: 150.0,
            ),
            SizedBox(height: 20.0),
            // Add more UI elements based on BMI result for additional information
  or recommendations
          ],
        ),
      ),
    );
    }
  }
```

Output:



Explanation:

1. Import Statements: The code begins with import statements, importing necessary packages from the Flutter framework.

2. Main Function: The `main()` function is the entry point of the application. It calls the `runApp()` function to start the application by passing an instance of `BMICalculatorApp`.

3. BMICalculatorApp Class: This class extends `StatelessWidget` and represents the entire BMI calculator application. It defines the app's theme and sets the home screen to `BMICalculatorScreen`.

   - MaterialApp Widget: This widget provides the basic structure for a Material Design Flutter app. It sets the app's title, theme, and home screen.

4. BMICalculatorScreen Class: This class extends `StatefulWidget` and represents the screen where users can input their height and weight to calculate their BMI. It contains:

   - State Management: `_BMICalculatorScreenState` manages the state of the screen. It stores the user's input for height and weight.

   - Scaffold Widget: The `Scaffold` widget provides the basic structure of the screen, including an `AppBar` and a body.

   - Padding and Column Widgets: These widgets are used to provide spacing and organize the layout vertically.

   - Text Widgets: Display textual content such as the title and labels for height and weight inputs.

   - TextFormField Widgets: Allow users to input their height and weight. The `onChanged` callback updates the corresponding state variables when the user enters new values.

   - ElevatedButton Widget: Represents a button that triggers the BMI calculation when pressed. It navigates to the `BMIResultScreen` passing the calculated BMI as a parameter.

5. BMIResultScreen Class: This class extends `StatelessWidget` and represents the screen where the BMI result is displayed. It takes the calculated BMI as input and displays it along with any additional information or recommendations.

   - Scaffold Widget: Provides the basic structure of the screen, including an `AppBar` and a body.

   - Center and Column Widgets: These widgets are used to center the content vertically and organize the layout vertically.

   - Text Widget: Displays the calculated BMI with a specified format.

   - Image.asset Widget: Displays an image asset stored in the app's `assets` folder. It takes the path to the image asset as input.

Conclusion:

Hence, in this experiment, we have added images and icons on our UI designed. Also, we have downloaded fonts and inserted in the assets folder and updated the pubspec.yaml to access the assets folder in main.dart(). The output is updated successfully.