EXPERIMENT NO: 03

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Aim:

To implement icons, images, and custom fonts in a Flutter application to enhance its visual aesthetics and user experience.

Theory:

Flutter is a powerful open-source UI framework that enables developers to create natively compiled applications for mobile, web, and desktop platforms from a single codebase. One of Flutter's key advantages is its ability to provide highly customizable user interfaces, making it easier to build visually appealing applications.

In app development, icons, images, and fonts play a crucial role in improving usability and design consistency. These elements help in conveying information effectively and reinforcing branding. Flutter offers seamless integration of these visual components, enhancing both functionality and user engagement.

Importance of Visual Elements in Flutter

- **Enhanced User Experience:** Icons and images make the app more intuitive and visually engaging.
- **Information Conveyance:** Icons provide quick representation, reducing the need for lengthy text descriptions.
- **Branding and Personalization:** Custom fonts and images create a unique brand identity, making the app stand out.

Flutter supports multiple image formats (JPEG, PNG, WebP, GIF, etc.) and allows the integration of icons and fonts effortlessly. Below are the methods to incorporate these elements into a Flutter application:

1. Adding Images in Flutter

Flutter supports **local** and **network images** for UI components.

Local Images

Images stored within the project can be used in the application by defining them in the asset folder and declaring them in the configuration file. Supported image formats include **PNG, JPG, GIF, SVG**, and more.

Network Images

Flutter allows fetching images from external sources using URLs. Cached images can be utilized for improved performance.

2. Adding Custom Fonts in Flutter

Custom fonts allow developers to enhance the UI design and branding of their applications.

Steps to Add Custom Fonts:

1. The font files need to be downloaded and stored in the project directory.
2. These fonts must be declared in the project configuration file.
3. Once declared, the fonts can be applied to text widgets for a distinct appearance.

3. Using Icons in Flutter

Icons play a crucial role in UI clarity and usability. Flutter supports both **built-in Material Icons** and **custom icons**.

Built-in Icons (Material Icons)

Flutter provides a collection of icons that are integrated within the framework, requiring no additional setup.

Custom Icons (SVG, PNG, Font Icons)

Developers can integrate custom icons in various formats, such as **SVG, PNG**, or **Font-Based Icons** like FontAwesome. These icons enhance visual consistency and allow for a personalized UI experience.

Code Snippets: home_screen.dart

```dart
import 'package:flutter/material.dart';
import 'package:snapchat_clone_ui/screens/camera_screen.dart';
import 'package:snapchat_clone_ui/screens/chat_screen.dart';
import 'package:snapchat_clone_ui/screens/location_screen.dart';
import 'package:snapchat_clone_ui/screens/reels_screen.dart';
import 'package:snapchat_clone_ui/screens/stories_screen.dart';
import 'initial_screen.dart';

class HomeScreen extends StatefulWidget {
  @override
  State<HomeScreen> createState() => _HomeScreenState();
}

class _HomeScreenState extends State<HomeScreen> {
  int _selectedIndex = 0;
  static const List<Widget> _widgetOptions = <Widget>[
    LocationScreen(),
    ChatScreen(),
    CameraScreen(),
    StoriesScreen(),
    ReelScreen(),
  ];

  void _onItemTapped(int index) {
    setState(() {
      _selectedIndex = index;
    });
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: Colors.white,
      body: SafeArea(child: _widgetOptions[_selectedIndex]),
      bottomNavigationBar: BottomNavigationBar(
        items: <BottomNavigationBarItem>[
          BottomNavigationBarItem(
            backgroundColor: Colors.black,
            icon: Icon(
              Icons.location_on_outlined,
              size: 25.0,
              color: Colors.white,
            ),
            label: "",
          ),
          BottomNavigationBarItem(
            backgroundColor: Colors.black,
```

```dart
          icon: Icon(
            Icons.chat_bubble_outline_rounded,
            size: 25.0,
            color: Colors.white,
          ),
          label: "",
        ),
        BottomNavigationBarItem(
          backgroundColor: Colors.black,
          icon: Icon(
            Icons.camera_alt_outlined,
            size: 25.0,
            color: Colors.white,
          ),
          label: "",
        ),
        BottomNavigationBarItem(
          backgroundColor: Colors.black,
          icon: Icon(
            Icons.group_outlined,
            size: 25.0,
            color: Color(0XFF10ACFF),
          ),
          label: "",
        ),
        BottomNavigationBarItem(
          backgroundColor: Colors.black,
          icon: Icon(
            Icons.play_arrow_outlined,
            size: 25.0,
            color: Colors.white,
          ),
          label: "",
        ),
      ],
      type: BottomNavigationBarType.fixed,
      currentIndex: _selectedIndex,
      selectedItemColor: Color(0XFF10ACFF),
      backgroundColor: Colors.black,
      onTap: _onItemTapped,
      unselectedItemColor: Colors.white,
    ),
  );
}
}
```

- **Code for chat_screen.dart**

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

class ChatScreen extends StatefulWidget {
  const ChatScreen({Key? key}) : super(key: key);

  @override
  State<ChatScreen> createState() => _ChatScreenState();
}

class _ChatScreenState extends State<ChatScreen> {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: Colors.white,
      body: SafeArea(
        child: Column(
          children: [
            Row(
              mainAxisAlignment: MainAxisAlignment.spaceBetween,
              children: [
                Padding(
                  padding: const EdgeInsets.all(8.0),
                  child: Row(
                    children: [
                      CircleAvatar(
                        backgroundColor: Colors.transparent,
                        backgroundImage:
AssetImage("assets/images/hero.png"),
                      ),
                      SizedBox(width: 10.0),
                      CircleAvatar(
                        backgroundColor: Colors.grey[100],
                        child: Icon(Icons.search, color: Colors.grey[700]),
                      ),
                    ],
                  ),
                ),
                Text(
                  "Chat",
                  style: TextStyle(fontSize: 20.0, fontWeight:
```

```dart
FontWeight.bold),
        ),
        Padding(
          padding: const EdgeInsets.all(8.0),
          child: Row(
            children: [
              CircleAvatar(
                backgroundColor: Colors.grey[100],
                child: Icon(Icons.person_add, color: Colors.grey[700]),
              ),
              SizedBox(width: 10.0),
              CircleAvatar(
                backgroundColor: Colors.grey[100],
                child: Icon(Icons.more_horiz, color: Colors.grey[700]),
              ),
            ],
          ),
        ),
      ],
    ),

    //list tile for chats here
    SingleChildScrollView(
      child: Column(
        children: [
          ChatTile(
            name: "Team Snapchat",
            image: NetworkImage(
              "https://us-east1-aws.api.snapchat.com/web-
capture/www.snapchat.com/discover/preview/facebook.png",
            ),
            trailing: Icon(
              Icons.chat_bubble_outline_sharp,
              color: Colors.grey[400],
            ),
            child: Row(children: [Text("Blocked")]),
          ),
          ChatTile(
            name: "Richa",
            image: AssetImage("assets/images/hero_4.png"),
            trailing: Icon(
              Icons.chat_bubble_outline_sharp,
              color: Colors.grey[400],
            ),
```

```dart
        child: Row(
         children: [
          Icon(Icons.square, color: Colors.red, size: 15.0),
          SizedBox(width: 5.0),
          Text("New Snap", style: TextStyle(color: Colors.red)),
          SizedBox(width: 5.0),
          Text("."),
          SizedBox(width: 5.0),
          Text("3w"),
         ],
        ),
       ),
       ChatTile(
        name: "Anurag",
        image: AssetImage("assets/images/hero_2.png"),
        trailing: Icon(
         Icons.chat_bubble_outline_sharp,
         color: Colors.grey[400],
        ),
        child: Row(
         children: [
          Icon(Icons.square, color: Colors.purple, size: 15.0),
          SizedBox(width: 5.0),
          Text(
           "New Snap",
           style: TextStyle(color: Colors.purple),
          ),
          SizedBox(width: 5.0),
          Text("."),
          SizedBox(width: 5.0),
          Text("3w"),
         ],
        ),
       ),
       ChatTile(
        name: "Niyati",
        image: AssetImage("assets/images/hero_5.png"),
        trailing: Icon(
         Icons.chat_bubble_outline_sharp,
         color: Colors.grey[400],
        ),
        child: Row(
         children: [
          Icon(Icons.square, color: Colors.red, size: 15.0),
```

```dart
        SizedBox(width: 5.0),
        Text("New Snap", style: TextStyle(color: Colors.red)),
        SizedBox(width: 5.0),
        Text("."),
        SizedBox(width: 5.0),
        Text("3w"),
      ],
    ),
  ),
  ChatTile(
    name: "Ritik",
    image: AssetImage("assets/images/hero_3.png"),
    trailing: Icon(
      Icons.camera_alt_outlined,
      color: Colors.grey[400],
    ),
    child: Row(
      children: [
        Icon(Icons.chat_bubble_outline_outlined, size: 15.0),
        SizedBox(width: 5.0),
        Text("Tap to chat"),
      ],
    ),
  ),
  ChatTile(
    name: "Richa",
    image: AssetImage("assets/images/hero_4.png"),
    trailing: Icon(
      Icons.chat_bubble_outline_sharp,
      color: Colors.grey[400],
    ),
    child: Row(
      children: [
        Icon(Icons.square, color: Colors.red, size: 15.0),
        SizedBox(width: 5.0),
        Text("New Snap", style: TextStyle(color: Colors.red)),
        SizedBox(width: 5.0),
        Text("."),
        SizedBox(width: 5.0),
        Text("3w"),
      ],
    ),
  ),
  ChatTile(
```

```dart
      name: "Anurag",
      image: AssetImage("assets/images/hero_2.png"),
      trailing: Icon(
        Icons.chat_bubble_outline_sharp,
        color: Colors.grey[400],
      ),
      child: Row(
        children: [
          Icon(Icons.square, color: Colors.purple, size: 15.0),
          SizedBox(width: 5.0),
          Text(
            "New Snap",
            style: TextStyle(color: Colors.purple),
          ),
          SizedBox(width: 5.0),
          Text("."),
          SizedBox(width: 5.0),
          Text("3w"),
        ],
      ),
    ),
    ChatTile(
      name: "Niyati",
      image: AssetImage("assets/images/hero_5.png"),
      trailing: Icon(
        Icons.camera_alt_outlined,
        color: Colors.grey[400],
      ),
      child: Row(
        children: [
          Icon(
            Icons.send_outlined,
            color: Color(0XFF10ACFF),
            size: 15.0,
          ),
          SizedBox(width: 5.0),
          Text("Opened"),
          SizedBox(width: 5.0),
          Text("."),
          SizedBox(width: 5.0),
          Text("3w"),
        ],
      ),
    ),
```

```dart
          ],
        ),
      ),
    ],
  ),
),
floatingActionButton: FloatingActionButton(
  onPressed: () {},
  backgroundColor: Color(0XFF10ACFF),
  child: Icon(Icons.edit_note_outlined),
),
  );
 }
}

//chatTile widget
class ChatTile extends StatelessWidget {
 final name;
 final image;
 final child;
 final trailing;

 const ChatTile({Key? key, this.image, this.name, this.child,
this.trailing})
    : super(key: key);

 @override
 Widget build(BuildContext context) {
  return Column(
   children: [
     Divider(height: 3),
     ListTile(
      leading: CircleAvatar(
        radius: 20.0,
        backgroundColor: Colors.transparent,
        backgroundImage: image,
      ),
      trailing: trailing,
      title: Text(name, style: TextStyle(fontWeight: FontWeight.bold)),
      subtitle: child,
     ),
     Divider(height: 3),
   ],
  );
```

```
  }
}
```

- **Code for stories_screen.dart**

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

class StoriesScreen extends StatefulWidget {
  const StoriesScreen({Key? key}) : super(key: key);

  @override
  State<StoriesScreen> createState() => _StoriesScreenState();
}

class _StoriesScreenState extends State<StoriesScreen> {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      body: SafeArea(
        child: SingleChildScrollView(
          child: Column(
            children: [
              Row(
                mainAxisAlignment: MainAxisAlignment.spaceBetween,
                children: [
                  Padding(
                    padding: const EdgeInsets.all(8.0),
                    child: Row(
                      children: [
                        CircleAvatar(
                          backgroundColor: Colors.transparent,
                          backgroundImage:
AssetImage("assets/images/hero.png"),
                        ),
                        SizedBox(width: 10.0),
                        CircleAvatar(
                          backgroundColor: Colors.grey[100],
                          child: Icon(Icons.search, color: Colors.grey[700]),
                        ),
                      ],
                    ),
```

```dart
      ),
      Text(
        "Stories",
        style: TextStyle(
          fontSize: 20.0,
          fontWeight: FontWeight.bold,
        ),
      ),
      Padding(
        padding: const EdgeInsets.all(8.0),
        child: Row(
          children: [
            CircleAvatar(
              backgroundColor: Colors.grey[100],
              child: Icon(
                Icons.person_add,
                color: Colors.grey[700],
              ),
            ),
            SizedBox(width: 10.0),
            CircleAvatar(
              backgroundColor: Colors.grey[100],
              child: Icon(
                Icons.more_horiz,
                color: Colors.grey[700],
              ),
            ),
          ],
        ),
      ),
    ],
  ),
  SizedBox(height: 30.0),

  //Friends section
  Container(
    padding: EdgeInsets.symmetric(horizontal: 20.0),
    child: Column(
      children: [
        Container(
          alignment: Alignment.topLeft,
          child: Text(
            "Friends",
            style: TextStyle(
```

```
              fontSize: 18.0,
              fontWeight: FontWeight.bold,
            ),
          ),
        ),
        SizedBox(height: 20.0),
        Container(
          height: 140,
          child: ListView(
            scrollDirection: Axis.horizontal,
            children: [
              Row(
                children: [
                  storyBubble(
                    name: "Anurag",
                    image: AssetImage("assets/images/hero_2.png"),
                  ),
                  SizedBox(width: 15.0),
                  storyBubble(
                    name: "Richa",
                    image: AssetImage("assets/images/hero_4.png"),
                  ),
                  SizedBox(width: 15.0),
                  storyBubble(
                    name: "Niyati",
                    image: AssetImage("assets/images/hero_5.png"),
                  ),
                  SizedBox(width: 15.0),
                  storyBubble(
                    name: "Ritik",
                    image: AssetImage("assets/images/hero_3.png"),
                  ),
                  SizedBox(width: 15.0),
                  storyBubble(
                    name: "Niyati",
                    image: AssetImage("assets/images/hero_5.png"),
                  ),
                ],
              ),
            ],
          ),
        ),
      ],
    ),
```

```dart
          ),

          //Subscriptions section
          Container(
            padding: EdgeInsets.symmetric(horizontal: 20.0),
            child: Column(
              children: [
                Container(
                  alignment: Alignment.topLeft,
                  child: Row(
                    children: [
                      Text(
                        "Subscriptions",
                        style: TextStyle(
                          fontSize: 17.0,
                          fontWeight: FontWeight.bold,
                        ),
                      ),
                      SizedBox(width: 5.0),
                      Icon(Icons.arrow_forward_ios, size: 15.0),
                    ],
                  ),
                ),
                SizedBox(height: 20.0),
                Container(
                  height: 200.0,
                  child: ListView(
                    scrollDirection: Axis.horizontal,
                    children: [
                      Row(
                        children: [
                          subscriptionTile(
                            name: "Kundu",
                            image: Image.network(

"https://c4.wallpaperflare.com/wallpaper/923/727/796/anime-digital-art-artwork-2d-portrait-display-hd-wallpaper-preview.jpg",
                              height: 200.0,
                            ),
                          ),
                          SizedBox(width: 10.0),
                          subscriptionTile(
                            name: "Tumami",
                            image: Image.network(
```

```dart
                "https://images.pexels.com/photos/9410606/pexels-photo-
9410606.jpeg?cs=srgb&dl=pexels-zetong-li-9410606.jpg&fm=jpg",
                  height: 200.0,
                ),
              ),
              SizedBox(width: 10.0),
              subscriptionTile(
                name: "Jan Goldz",
                image: Image.network(
                "https://c0.wallpaperflare.com/preview/303/473/216/man-standing-on-
mountain-during-sunset.jpg",
                  height: 200.0,
                ),
              ),
              SizedBox(width: 10.0),
              subscriptionTile(
                name: "Bastrop",
                image: Image.network(
                "https://c4.wallpaperflare.com/wallpaper/367/257/149/anime-anime-
girls-digital-art-artwork-2d-hd-wallpaper-preview.jpg",
                  height: 200.0,
                ),
              ),
              SizedBox(width: 10.0),
              subscriptionTile(
                name: "Mulessa",
                image: Image.network(
                  "https://wallpapercave.com/wp/wp2722942.jpg",
                  height: 200.0,
                ),
              ),
            ],
          ),
        ],
      ),
    ),
  ),
),

        //Discover Section
```

```
Container(
  padding: EdgeInsets.symmetric(horizontal: 20.0, vertical:
20.0),
    child: Column(
      children: [
        Container(
          alignment: Alignment.topLeft,
          child: Text(
            "Discover",
            style: TextStyle(
              fontSize: 17.0,
              fontWeight: FontWeight.bold,
            ),
          ),
        ),
        ListView(
          shrinkWrap: true,
          children: [
            Column(
              children: [
                Row(
                  children: [
                    Expanded(
                      flex: 2,
                      child: DiscoverTile(
                        name: "Weird Mud Games",
                        image: Image.network(

"https://c4.wallpaperflare.com/wallpaper/367/257/149/anime-anime-
girls-digital-art-artwork-2d-hd-wallpaper-preview.jpg",
                          height: 380,
                        ),
                      ),
                    ),
                    SizedBox(width: 8.0),
                    Expanded(
                      flex: 2,
                      child: DiscoverTile(
                        name: "Mulessa",
                        image: Image.network(

"https://wallpaperaccess.com/full/1559254.png",
                          height: 380.0,
                        ),
```

```dart
                ),
              ),
            ],
          ),
        ],
      ),
      SizedBox(height: 0.0),
      Column(
        children: [
          Row(
            children: [
              Expanded(
                flex: 2,
                child: DiscoverTile(
                  name: "Weird Mud Games",
                  image: Image.network(

"https://c4.wallpaperflare.com/wallpaper/367/257/149/anime-anime-
girls-digital-art-artwork-2d-hd-wallpaper-preview.jpg",
                    height: 380,
                  ),
                ),
              ),
              SizedBox(width: 8.0),
              Expanded(
                flex: 2,
                child: DiscoverTile(
                  name: "Mulessa",
                  image: Image.network(

"https://wallpaperaccess.com/full/1559254.png",
                    height: 380.0,
                  ),
                ),
              ),
            ],
          ),
        ],
      ),
    ],
  ),
),
```

```
        ],
      ),
    ),
  ),
);
    }
}

class subscriptionTile extends StatelessWidget {
  final name;
  final image;
  const subscriptionTile({Key? key, this.name, this.image}) :
super(key: key);

  @override
  Widget build(BuildContext context) {
    return Column(
      children: [
        Stack(
          children: [
            image,
            Positioned(
              bottom: 2,
              child: Padding(
                padding: const EdgeInsets.symmetric(
                  horizontal: 8.0,
                  vertical: 2.0,
                ),
                child: Text(
                  name,
                  style: TextStyle(
                    color: Colors.white,
                    fontWeight: FontWeight.bold,
                  ),
                ),
              ),
            ),
          ],
        ),
      ],
    );
  }
}
```

```dart
class DiscoverTile extends StatelessWidget {
  final name;
  final image;
  const DiscoverTile({Key? key, this.name, this.image}) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return Column(
      children: [
        Stack(
          children: [
            image,
            Positioned(
              bottom: 30,
              child: Padding(
                padding: const EdgeInsets.symmetric(
                  horizontal: 8.0,
                  vertical: 2.0,
                ),
                child: Text(
                  name,
                  style: TextStyle(
                    color: Colors.white,
                    fontWeight: FontWeight.bold,
                    fontSize: 20.0,
                  ),
                ),
              ),
            ),
          ],
        ),
      ],
    );
  }
}

class storyBubble extends StatelessWidget {
  final name;
  final image;
  const storyBubble({Key? key, this.image, this.name}) : super(key: key);

  @override
```

```dart
Widget build(BuildContext context) {
  return Column(
    children: [
      CircleAvatar(
        radius: 45.0,
        backgroundColor: Colors.purple,
        child: CircleAvatar(
          radius: 43.0,
          backgroundColor: Colors.white,
          child: CircleAvatar(backgroundImage: image, radius: 40.0),
        ),
      ),
      SizedBox(height: 10.0),
      Text(name, style: TextStyle(fontWeight: FontWeight.w500)),
    ],
  );
}
}
```

Screenshots: