Experiment 3
Flutter Widgets

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Aim: To include icons, images, and fonts in the Flutter app.

Introduction
Mobile Application Development (MAD) involves designing and implementing applications that run on mobile devices. Flutter, an open-source UI software development kit by Google, is widely used for building natively compiled applications for mobile, web, and desktop from a single codebase.

Objective
The goal of this experiment is to design and develop a healthcare application interface using Flutter. This involves adding essential UI components such as buttons, icons, a search bar, and a dropdown list to enhance user interaction.

Concepts Covered
1. **Scaffold & AppBar:** Used to create the structure of the mobile application, including the navigation bar and main screen layout.
2. **Dropdown Button:** Allows users to select their city from a predefined list.
3. **Search Bar:** Enables users to search for clinics within the application.
4. **Buttons & Icons:** Enhance UI interactions, such as booking appointments and navigating the app.
5. **Grid View:** Displays doctor categories using an interactive grid layout.
6. **Custom Widgets:** Implemented reusable widgets for appointment booking and doctor categories.

Implementation
In this experiment, we implemented a Flutter UI with the following key features:
- Dropdown Menu in AppBar: Allows users to select a city.
- Search Bar Widget: Users can search for clinics conveniently.
- Appointment Booking Cards: Users can book in-clinic and video consultations.
- Doctor Categories in Grid View: Displays available medical specialties using interactive buttons.
- Profile Icon & Featured Services Section: Enhances UI usability and provides quick access to important features.

Code:

home_screen.dart

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

class HomeScreen extends StatefulWidget {
  const HomeScreen({super.key});

  @override
  _HomeScreenState createState() => _HomeScreenState();
}

class _HomeScreenState extends State<HomeScreen> {
  String selectedCity = "Bangalore";
  final List<String> cities = ["Bangalore", "Pune", "Nashik",
"Mumbai"];

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: Colors.white,
      appBar: AppBar(
        backgroundColor: Colors.indigo,
        title: Row(
          children: [
            Icon(Icons.location_on, color: Colors.white),
            SizedBox(width: 5),
            DropdownButton<String>(
              value: selectedCity,
              dropdownColor: Colors.indigo,
              icon: Icon(Icons.keyboard_arrow_down, color:
Colors.white),
              underline: SizedBox(),
              style: TextStyle(color: Colors.white, fontSize: 16),
              onChanged: (String? newValue) {
                setState(() {
                  selectedCity = newValue!;
                });
              },
```

```
              items: cities.map<DropdownMenuItem<String>>((String
city) {
                return DropdownMenuItem<String>(
                  value: city,
                  child: Text(city, style: TextStyle(color:
Colors.white)),
                );
              }).toList(),
            ),
          ],
        ),
        actions: [
          IconButton(
            icon: Icon(Icons.account_circle, color: Colors.white),
            onPressed: () {},
          ),
        ],
      ),
      body: SingleChildScrollView(
        child: Padding(
          padding: EdgeInsets.all(16.0),
          child: Column(
            crossAxisAlignment: CrossAxisAlignment.start,
            children: [
              Container(
                padding: EdgeInsets.symmetric(horizontal: 10),
                decoration: BoxDecoration(
                  color: Colors.grey[200],
                  borderRadius: BorderRadius.circular(10),
                ),
                child: TextField(
                  decoration: InputDecoration(
                    hintText: "Search for clinics",
                    border: InputBorder.none,
                    prefixIcon: Icon(Icons.search, color:
Colors.grey),
                  ),
                ),
```

```
            ),
            SizedBox(height: 20),
            // Appointment & Consultation Section
            Row(
              mainAxisAlignment: MainAxisAlignment.spaceBetween,
              children: [
                Expanded(
                  child: AppointmentCard(
                    title: "Book In-Clinic Appointment",
                    imagePath: "assets/images/images.jpg",
                  ),
                ),
                SizedBox(width: 10),
                Expanded(
                  child: AppointmentCard(
                    title: "Instant Video Consultation",
                    imagePath: "assets/images/hospital.jpg",
                  ),
                ),
              ],
            ),
            SizedBox(height: 20),
            Text(
              "Find a Doctor for your Health Problem",
              style: TextStyle(fontSize: 18, fontWeight:
FontWeight.bold),
            ),
            SizedBox(height: 10),
            GridView.builder(
              shrinkWrap: true,
              physics: NeverScrollableScrollPhysics(),
              gridDelegate:
SliverGridDelegateWithFixedCrossAxisCount(
                crossAxisCount: 4,
                crossAxisSpacing: 10,
                mainAxisSpacing: 10,
                childAspectRatio: 0.9,
              ),
```

```
                itemCount: doctorCategories.length,
                itemBuilder: (context, index) {
                  return
DoctorCategoryButton(doctorCategories[index]);
                },
              ),
              SizedBox(height: 20),
              Text(
                "Featured services",
                style: TextStyle(fontSize: 18, fontWeight:
FontWeight.bold),
              ),
              SizedBox(height: 10),
              Container(
                width: double.infinity,
                height: 120,
                decoration: BoxDecoration(
                  color: Colors.indigo,
                  borderRadius: BorderRadius.circular(10),
                ),
                child: Center(
                  child: Text(
                    "Affordable Procedures by Expert Doctors",
                    style: TextStyle(color: Colors.white, fontSize:
16),
                    textAlign: TextAlign.center,
                  ),
                ),
              ),
            ],
          ),
        ),
      ),
    );
  }
}

class AppointmentCard extends StatelessWidget {
```

```
  final String title;
  final String imagePath;

  const AppointmentCard({
    required this.title,
    required this.imagePath,
    super.key,
  });

  @override
  Widget build(BuildContext context) {
    return Container(
      height: 120,
      decoration: BoxDecoration(
        color: Colors.white,
        borderRadius: BorderRadius.circular(10),
        boxShadow: [
          BoxShadow(color: Colors.grey.shade300, blurRadius: 5,
spreadRadius: 2),
        ],
      ),
      child: Column(
        children: [
          Expanded(
            child: ClipRRect(
              borderRadius: BorderRadius.vertical(top:
Radius.circular(10)),
              child: Image.asset(imagePath, width: double.infinity,
fit: BoxFit.cover),
            ),
          ),
          Padding(
            padding: EdgeInsets.all(8.0),
            child: Text(title, textAlign: TextAlign.center, style:
TextStyle(fontSize: 14, fontWeight: FontWeight.bold)),
          ),
        ],
      ),
```

```
    );
  }
}

class DoctorCategoryButton extends StatelessWidget {
  final DoctorCategory category;
  const DoctorCategoryButton(this.category, {super.key});

  @override
  Widget build(BuildContext context) {
    return GestureDetector(
      onTap: () {
        ScaffoldMessenger.of(context).showSnackBar(
          SnackBar(content: Text("Selected: ${category.title}")),
        );
      },
      child: Column(
        children: [
          Container(
            padding: EdgeInsets.all(10),
            decoration: BoxDecoration(
              color: Colors.blue[50],
              borderRadius: BorderRadius.circular(10),
            ),
            child: Icon(category.icon, color: Colors.indigo, size:
30),
          ),
          SizedBox(height: 5),
          Text(category.title, textAlign: TextAlign.center, style:
TextStyle(fontSize: 12)),
        ],
      ),
    );
  }
}

class DoctorCategory {
  final String title;
```

```
  final IconData icon;
  DoctorCategory({required this.title, required this.icon});
}

List<DoctorCategory> doctorCategories = [
  DoctorCategory(title: "General Physician", icon:
Icons.local_hospital),
  DoctorCategory(title: "Skin & Hair", icon: Icons.face),
  DoctorCategory(title: "Women's Health", icon:
Icons.pregnant_woman),
  DoctorCategory(title: "Dental Care", icon: Icons.medical_services),
  DoctorCategory(title: "Child Specialist", icon: Icons.child_care),
  DoctorCategory(title: "Ear, Nose, Throat", icon: Icons.hearing),
  DoctorCategory(title: "Mental Wellness", icon: Icons.psychology),
  DoctorCategory(title: "More", icon: Icons.more_horiz),
];
```

Code:

main.dart

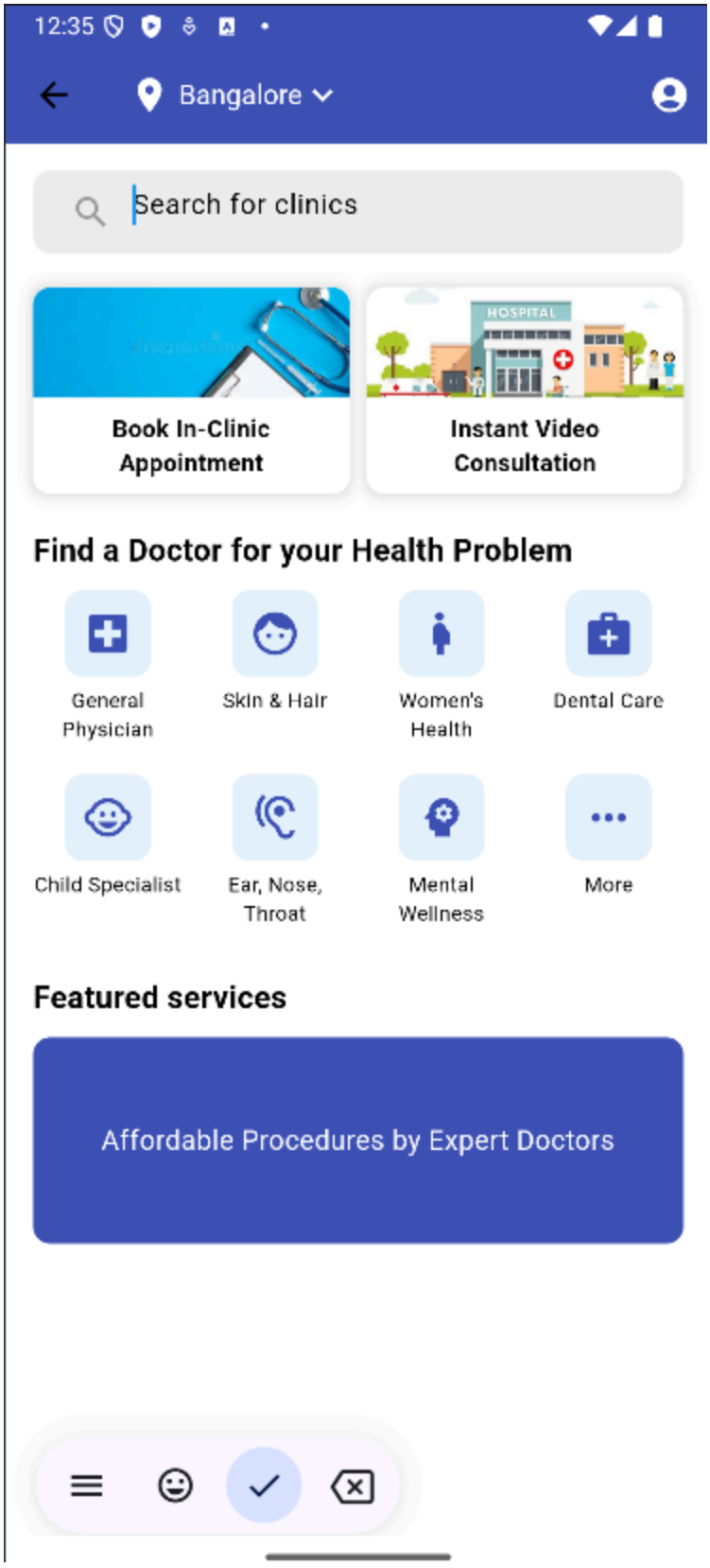
```
import 'package:flutter/material.dart';
import 'home_screen.dart';
import 'login_screen.dart';
import 'signup_screen.dart';

void main() {
  runApp(const LifelineApp()); // Ensure const is used if applicable
}

class LifelineApp extends StatelessWidget {
  const LifelineApp({super.key}); // Add key parameter for best
practice

  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      debugShowCheckedModeBanner: false,
      title: 'Lifeline',
      theme: ThemeData(
```

```
        primaryColor: Colors.green,
        colorScheme: ColorScheme.fromSwatch().copyWith(secondary:
Colors.blue),
      ),
      initialRoute: '/login',
      routes: {
        '/login': (context) => LoginScreen(),
        '/signup': (context) => SignupScreen(),
        '/home': (context) => HomeScreen(),
      },
    );
  }
}
```


12:35
Bangalore
Search for clinics
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Instant Video Consultation
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Child Specialist
Ear, Nose, Throat
Mental Wellness
More
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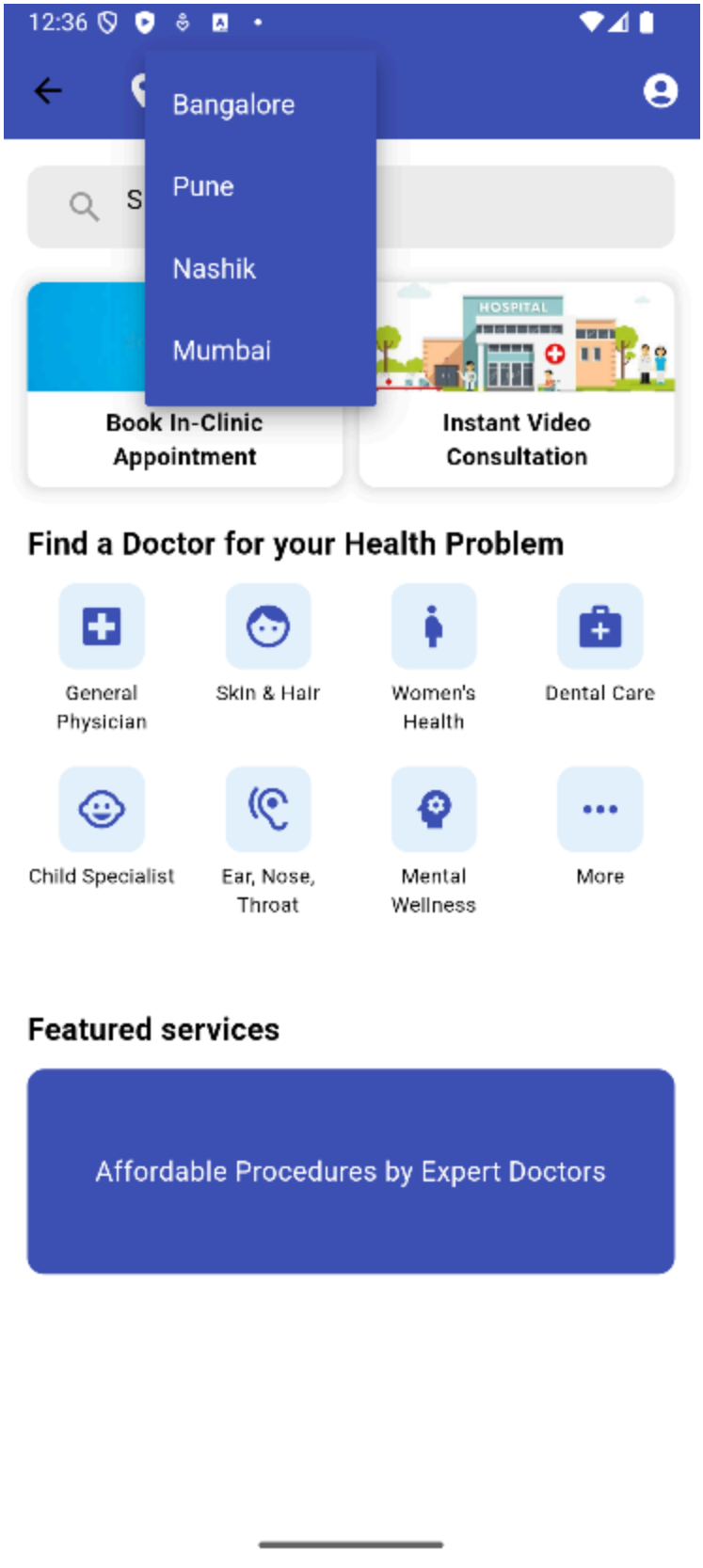
Affordable Procedures by Expert Doctors


12:36
Bangalore
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Conclusion:
In this experiment, we successfully implemented various UI components such as a dropdown list, search bar, buttons, and icons to enhance the application's usability. During development, we encountered minor issues such as dropdown styling inconsistencies and widget alignment problems, which were resolved through debugging, modifying the widget properties, and adjusting padding and alignment settings.