```dart
 1  import 'package:flutter/material.dart';
 2
 3  import 'HomePage.dart';
 4
 5  void main() {
 6    runApp(const Assignment3());
 7  }
 8
 9  class Assignment3 extends StatelessWidget {
10    const Assignment3({super.key});
11
12    @override
13    Widget build(BuildContext context) {
14      return const MaterialApp(
15        home: HomePage(),
16      );
17    }
18  }
19
```

```dart
1  // ignore: file_names
2  import 'package:assignment3/screens/AlwaysScrollableScrollPhysicsScreen.dart';
3  import 'package:assignment3/screens/BouncingScrollPhysics.dart';
4  import 'package:assignment3/screens/ClampingScrollPhysics.dart';
5  import 'package:assignment3/screens/FixedExtentScrollPhysics.dart';
6  import 'package:assignment3/screens/MaintainingScrollPhysics.dart';
7  import 'package:assignment3/screens/NeverScrollableScrollPhysics.dart';
8  import 'package:assignment3/screens/PageScrollPhysicsRange.dart';
9  import 'package:flutter/material.dart';
10
11 class HomePage extends StatelessWidget {
12   const HomePage({super.key});
13
14   @override
15   Widget build(BuildContext context) {
16     return DefaultTabController(
17       length: 7,
18       child: Scaffold(
19         appBar: AppBar(
20           title: const Text('Assignment #3'),
21           bottom: const TabBar(
22             isScrollable: true,
23             tabs: [
24               Tab(
25                 icon: Icon(Icons.swap_vertical_circle_outlined),
26                 text: 'AlwaysScrollableScrollPhysics',
27               ),
28               Tab(
29                 icon: Icon(Icons.waves_rounded),
30                 text: 'BouncingScrollPhysics',
31               ),
32               Tab(
33                 icon: Icon(Icons.call_missed_outgoing_sharp),
34                 text: 'ClampingScrollPhysics',
35               ),
36               Tab(
37                 icon: Icon(Icons.gps_not_fixed_rounded),
38                 text: 'FixedExtentScrollPhysics',
39               ),
40               Tab(
41                 icon: Icon(Icons.nearby_error_outlined),
42                 text: 'NeverScrollableScrollPhysics',
43               ),
44               Tab(
45                 icon: Icon(Icons.ramp_right_rounded),
46                 text: 'RangeMaintainingScrollPhysics',
47               ),
48               Tab(
49                 icon: Icon(Icons.pages),
50                 text: 'PageScrollPhysicsRange',
51               ),
52             ],
53           ),
```
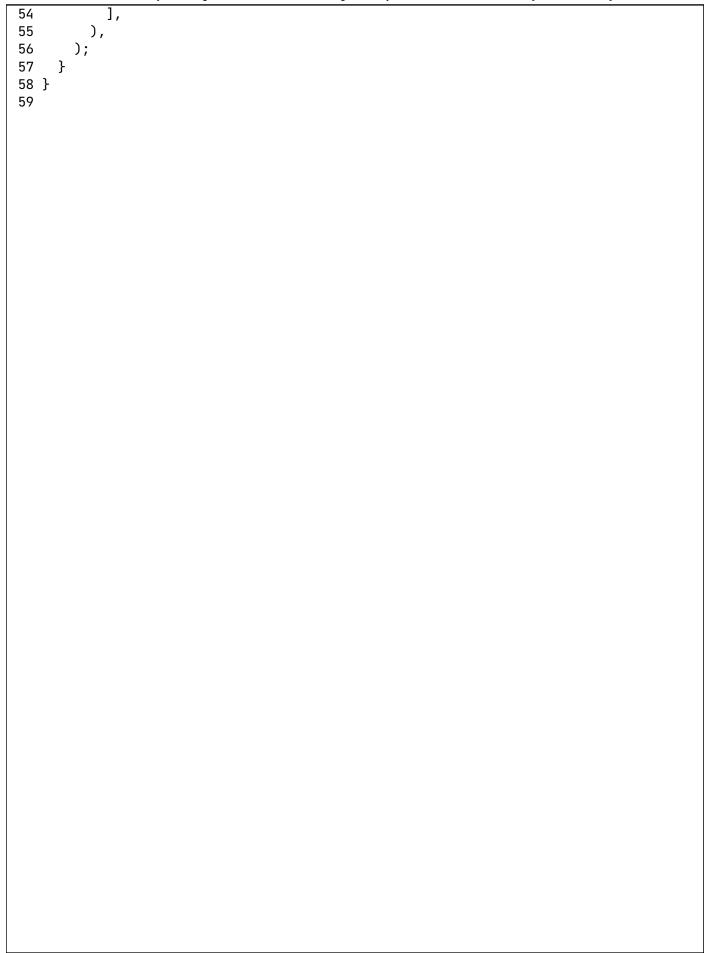
```
54          ),
55        body: const TabBarView(children: [
56          AlwaysScrollableScrollPhysicsScreen(),
57          BouncingScrollPhysicsScreen(),
58          ClampingScrollPhysicsScreen(),
59          FixedExtentScrollPhysicsScreen(),
60          NeverScrollableScrollPhysicsScreen(),
61          PageScrollPhysicsRangeScreen(),
62          RangeMaintainingScrollPhysicsScreen(),
63        ]),
64      ),
65    );
66  }
67 }
68
```

```dart
1  class Data {
2    String title;
3    String model;
4    String url;
5
6    Data({required this.model, required this.title, this.url = 'assets/car.jpg'});
7  }
8
```

```dart
 1  import 'data.dart';
 2
 3  final List<Data> listOfItems = [
 4    Data(model: 'A4', title: 'Audi'),
 5    Data(model: '3 Series', title: 'BMW'),
 6    Data(model: 'Camaro', title: 'Chevrolet'),
 7    Data(model: 'Challenger', title: 'Dodge'),
 8    Data(model: 'Mustang', title: 'Ford'),
 9    Data(model: 'Civic', title: 'Honda'),
10    Data(model: 'Wrangler', title: 'Jeep'),
11    Data(model: 'Optima', title: 'Kia'),
12    Data(model: 'Huracan', title: 'Lamborghini'),
13    Data(model: 'E-Class', title: 'Mercedes-Benz'),
14    Data(model: 'GT-R', title: 'Nissan'),
15    Data(model: '911', title: 'Porsche'),
16    Data(model: 'WRX', title: 'Subaru'),
17    Data(model: 'Model S', title: 'Tesla'),
18    Data(model: 'Camry', title: 'Toyota'),
19    Data(model: 'Golf', title: 'Volkswagen'),
20    Data(model: 'XC90', title: 'Volvo'),
21    Data(model: 'Ghibli', title: 'Maserati'),
22    Data(model: '458 Italia', title: 'Ferrari'),
23    Data(model: 'F-Type', title: 'Jaguar'),
24  ];
25
```
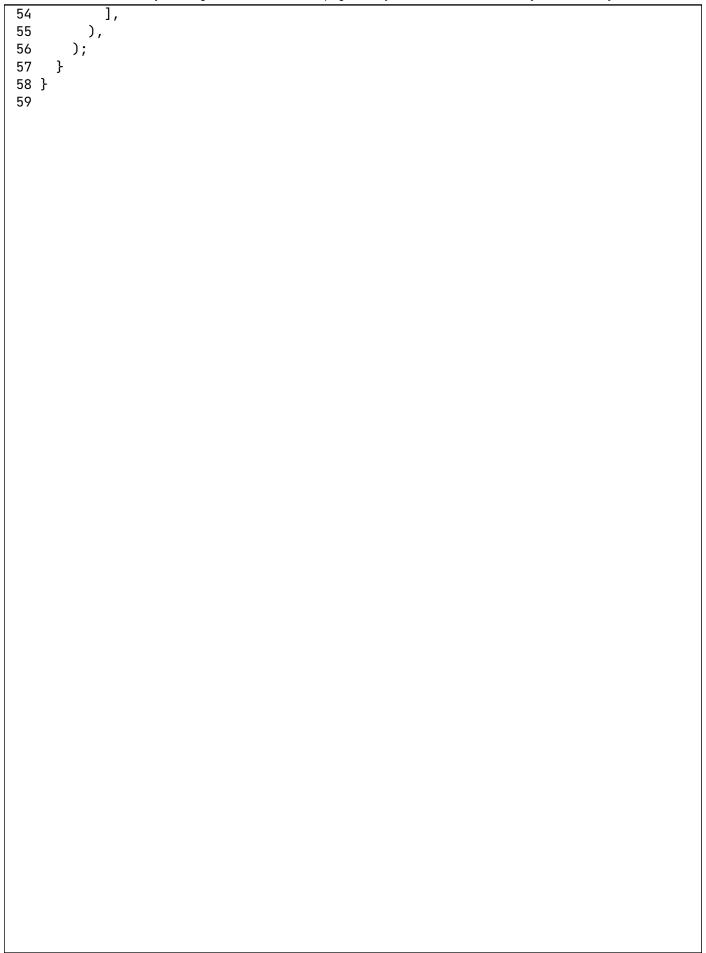
```dart
1  import 'package:flutter/material.dart';
2  import 'package:flutter/src/widgets/framework.dart';
3  import 'package:flutter/src/widgets/placeholder.dart';
4
5  import '../Models/listofitems.dart';
6
7  class BouncingScrollPhysicsScreen extends StatefulWidget {
8    const BouncingScrollPhysicsScreen({super.key});
9
10   @override
11   State<BouncingScrollPhysicsScreen> createState() =>
12       _BouncingScrollPhysicsScreenState();
13 }
14
15 class _BouncingScrollPhysicsScreenState
16     extends State<BouncingScrollPhysicsScreen> {
17   @override
18   Widget build(BuildContext context) {
19     return Padding(
20       padding: EdgeInsets.all(10),
21       child: Column(
22         children: [
23           Text('BouncingScrollPhysics'),
24           SizedBox(
25             height: 10,
26           ),
27           Expanded(
28             child: ListView.builder(
29               physics: BouncingScrollPhysics(),
30               shrinkWrap: true,
31               itemCount: listOfItems.length,
32               itemBuilder: (context, index) {
33                 return ListTile(
34                   leading: Container(
35                     height: 100,
36                     width: 130,
37                     child: ClipRRect(
38                       borderRadius: BorderRadius.circular(100),
39                       child: Image.asset(
40                         listOfItems[index].url,
41                         fit: BoxFit.cover,
42                       ),
43                     ),
44                   ),
45                   title: Text(
46                     listOfItems[index].title,
47                     style: TextStyle(fontWeight: FontWeight.w700),
48                   ),
49                   subtitle: Text(listOfItems[index].model),
50                 );
51               },
52             ),
53           ),
```

```
54          ],
55        ),
56      );
57    }
58  }
59
```
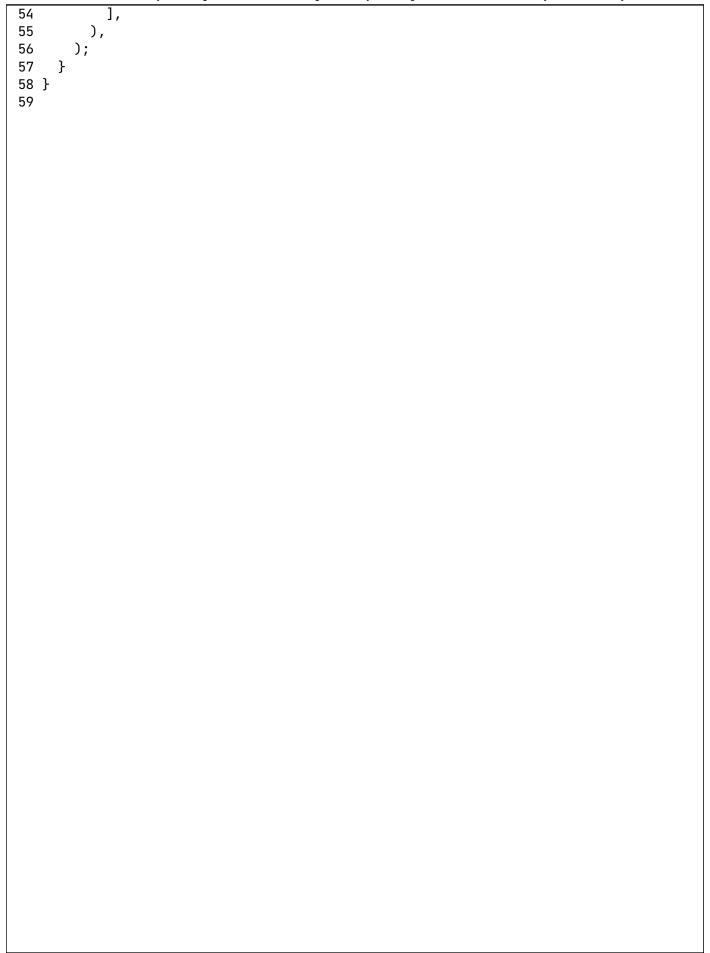
```dart
1  import 'package:flutter/material.dart';
2  import 'package:flutter/src/widgets/framework.dart';
3  import 'package:flutter/src/widgets/placeholder.dart';
4
5  import '../Models/listofitems.dart';
6
7  class ClampingScrollPhysicsScreen extends StatefulWidget {
8    const ClampingScrollPhysicsScreen({super.key});
9
10   @override
11   State<ClampingScrollPhysicsScreen> createState() =>
12       _ClampingScrollPhysicsScreenState();
13 }
14
15 class _ClampingScrollPhysicsScreenState
16     extends State<ClampingScrollPhysicsScreen> {
17   @override
18   Widget build(BuildContext context) {
19     return Padding(
20       padding: EdgeInsets.all(10),
21       child: Column(
22         children: [
23           Text('ClampingScrollPhysics'),
24           SizedBox(
25             height: 10,
26           ),
27           Expanded(
28             child: ListView.builder(
29               physics: ClampingScrollPhysics(),
30               shrinkWrap: true,
31               itemCount: listOfItems.length,
32               itemBuilder: (context, index) {
33                 return ListTile(
34                   leading: Container(
35                     height: 100,
36                     width: 130,
37                     child: ClipRRect(
38                       borderRadius: BorderRadius.circular(100),
39                       child: Image.asset(
40                         listOfItems[index].url,
41                         fit: BoxFit.cover,
42                       ),
43                     ),
44                   ),
45                   title: Text(
46                     listOfItems[index].title,
47                     style: TextStyle(fontWeight: FontWeight.w700),
48                   ),
49                   subtitle: Text(listOfItems[index].model),
50                 );
51               },
52             ),
53           ),
```

```
54            ],
55          ),
56        );
57    }
58 }
59
```

```dart
 1 import 'package:flutter/material.dart';
 2 import 'package:flutter/src/widgets/framework.dart';
 3 import 'package:flutter/src/widgets/placeholder.dart';
 4
 5 import '../Models/listofitems.dart';
 6
 7 class PageScrollPhysicsRangeScreen extends StatefulWidget {
 8   const PageScrollPhysicsRangeScreen({super.key});
 9
10   @override
11   State<PageScrollPhysicsRangeScreen> createState() =>
12       _PageScrollPhysicsRangeScreenState();
13 }
14
15 class _PageScrollPhysicsRangeScreenState
16     extends State<PageScrollPhysicsRangeScreen> {
17   @override
18   Widget build(BuildContext context) {
19     return Padding(
20       padding: EdgeInsets.all(10),
21       child: Column(
22         children: [
23           Text('PageScrollPhysics'),
24           SizedBox(
25             height: 10,
26           ),
27           Expanded(
28             child: ListView.builder(
29               physics: PageScrollPhysics(),
30               shrinkWrap: true,
31               itemCount: listOfItems.length,
32               itemBuilder: (context, index) {
33                 return ListTile(
34                   leading: Container(
35                     height: 100,
36                     width: 130,
37                     child: ClipRRect(
38                       borderRadius: BorderRadius.circular(100),
39                       child: Image.asset(
40                         listOfItems[index].url,
41                         fit: BoxFit.cover,
42                       ),
43                     ),
44                   ),
45                   title: Text(
46                     listOfItems[index].title,
47                     style: TextStyle(fontWeight: FontWeight.w700),
48                   ),
49                   subtitle: Text(listOfItems[index].model),
50                 );
51               },
52             ),
53           ),
```

```
54            ],
55          ),
56        );
57      }
58  }
59
```
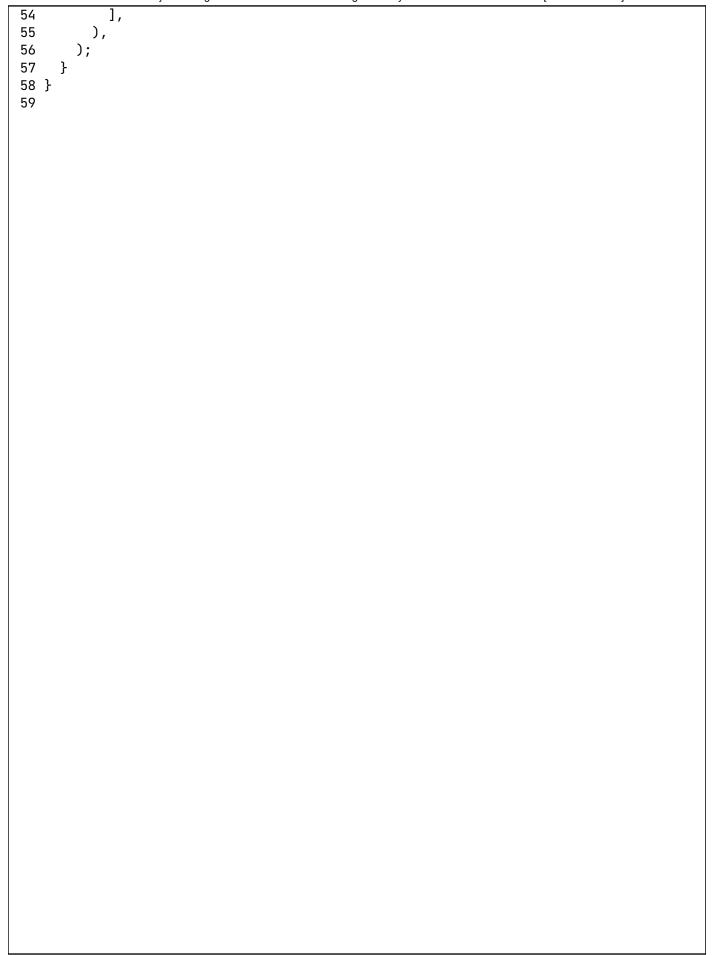
```dart
import 'package:flutter/material.dart';
import '../Models/listofitems.dart';

class FixedExtentScrollPhysicsScreen extends StatelessWidget {
  const FixedExtentScrollPhysicsScreen({Key? key}) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return Container(
      height: 700,
      child: ListView(
        physics: FixedExtentScrollPhysics(),
        shrinkWrap: true,
        children: List.generate(listOfItems.length, (index) {
          return SizedBox(
            height: 100, // Set a fixed height for all items
            child: ListTile(
              leading: Container(
                height: 100,
                width: 130,
                child: ClipRRect(
                  borderRadius: BorderRadius.circular(100),
                  child: Image.asset(
                    listOfItems[index].url,
                    fit: BoxFit.cover,
                  ),
                ),
              ),
              title: Text(
                listOfItems[index].title,
                style: TextStyle(fontWeight: FontWeight.w700),
              ),
              subtitle: Text(listOfItems[index].model),
            ),
          );
        }),
      ),
    );
  }
}
```
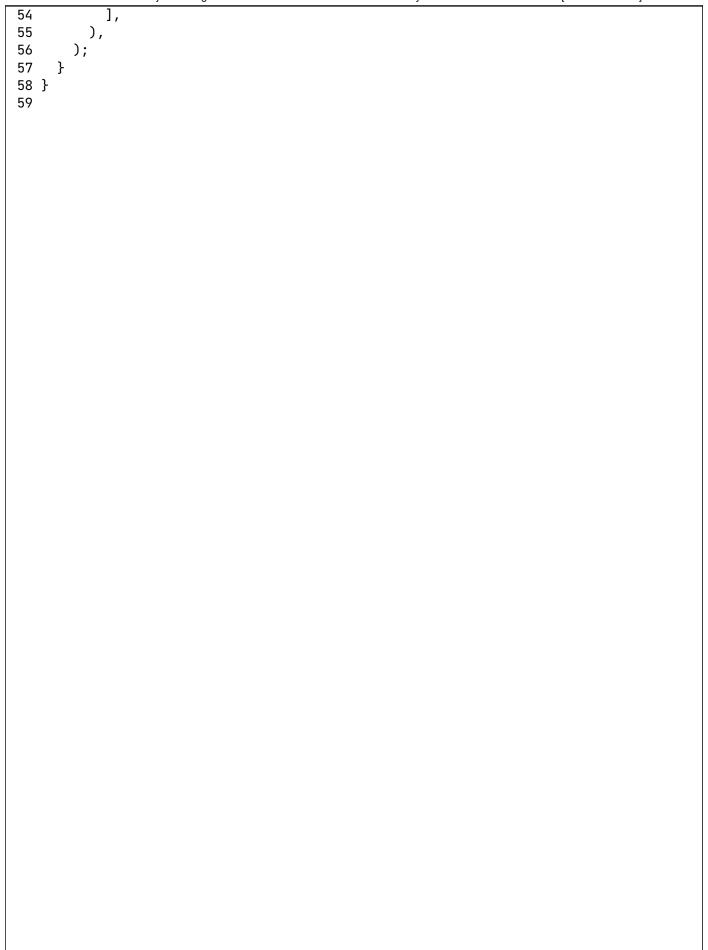
```dart
1  import 'package:flutter/material.dart';
2  import 'package:flutter/src/widgets/framework.dart';
3  import 'package:flutter/src/widgets/placeholder.dart';
4
5  import '../Models/listofitems.dart';
6
7  class RangeMaintainingScrollPhysicsScreen extends StatefulWidget {
8    const RangeMaintainingScrollPhysicsScreen({super.key});
9
10   @override
11   State<RangeMaintainingScrollPhysicsScreen> createState() =>
12       _PageScrollPhysicsRangeScreenState();
13 }
14
15 class _PageScrollPhysicsRangeScreenState
16     extends State<RangeMaintainingScrollPhysicsScreen> {
17   @override
18   Widget build(BuildContext context) {
19     return Padding(
20       padding: EdgeInsets.all(10),
21       child: Column(
22         children: [
23           Text('AlwaysScrollableScrollPhysics'),
24           SizedBox(
25             height: 10,
26           ),
27           Expanded(
28             child: ListView.builder(
29                 physics: RangeMaintainingScrollPhysics(),
30                 shrinkWrap: true,
31                 itemCount: listOfItems.length,
32                 itemBuilder: (context, index) {
33                   return ListTile(
34                     leading: Container(
35                       height: 100,
36                       width: 130,
37                       child: ClipRRect(
38                         borderRadius: BorderRadius.circular(100),
39                         child: Image.asset(
40                           listOfItems[index].url,
41                           fit: BoxFit.cover,
42                         ),
43                       ),
44                     ),
45                     title: Text(
46                       listOfItems[index].title,
47                       style: TextStyle(fontWeight: FontWeight.w700),
48                     ),
49                     subtitle: Text(listOfItems[index].model),
50                   );
51                 },
52             ),
53           ),
```

```
54          ],
55        ),
56      );
57    }
58 }
59
```

```dart
1  import 'package:flutter/material.dart';
2  import 'package:flutter/src/widgets/framework.dart';
3  import 'package:flutter/src/widgets/placeholder.dart';
4
5  import '../Models/listofitems.dart';
6
7  class NeverScrollableScrollPhysicsScreen extends StatefulWidget {
8    const NeverScrollableScrollPhysicsScreen({super.key});
9
10   @override
11   State<NeverScrollableScrollPhysicsScreen> createState() =>
12       _NeverScrollableScrollPhysicsScreenState();
13 }
14
15 class _NeverScrollableScrollPhysicsScreenState
16     extends State<NeverScrollableScrollPhysicsScreen> {
17   @override
18   Widget build(BuildContext context) {
19     return Padding(
20       padding: EdgeInsets.all(10),
21       child: Column(
22         children: [
23           Text('NeverScrollableScrollPhysics'),
24           SizedBox(
25             height: 10,
26           ),
27           Expanded(
28             child: ListView.builder(
29               physics: NeverScrollableScrollPhysics(),
30               shrinkWrap: true,
31               itemCount: listOfItems.length,
32               itemBuilder: (context, index) {
33                 return ListTile(
34                   leading: Container(
35                     height: 100,
36                     width: 130,
37                     child: ClipRRect(
38                       borderRadius: BorderRadius.circular(100),
39                       child: Image.asset(
40                         listOfItems[index].url,
41                         fit: BoxFit.cover,
42                       ),
43                     ),
44                   ),
45                   title: Text(
46                     listOfItems[index].title,
47                     style: TextStyle(fontWeight: FontWeight.w700),
48                   ),
49                   subtitle: Text(listOfItems[index].model),
50                 );
51               },
52             ),
53           ),
```

```
54              ],
55           ),
56        );
57     }
58 }
59
```

```dart
1  import 'package:flutter/material.dart';
2  import 'package:flutter/src/widgets/framework.dart';
3  import 'package:flutter/src/widgets/placeholder.dart';
4
5  import '../Models/listofitems.dart';
6
7  class AlwaysScrollableScrollPhysicsScreen extends StatefulWidget {
8    const AlwaysScrollableScrollPhysicsScreen({super.key});
9
10   @override
11   State<AlwaysScrollableScrollPhysicsScreen> createState() =>
12       _AlwaysScrollableScrollPhysicsScreenState();
13 }
14
15 class _AlwaysScrollableScrollPhysicsScreenState
16     extends State<AlwaysScrollableScrollPhysicsScreen> {
17   @override
18   Widget build(BuildContext context) {
19     return Padding(
20       padding: EdgeInsets.all(10),
21       child: Column(
22         children: [
23           Text('AlwaysScrollableScrollPhysics'),
24           SizedBox(
25             height: 10,
26           ),
27           Expanded(
28             child: ListView.builder(
29                 physics: AlwaysScrollableScrollPhysics(),
30                 shrinkWrap: true,
31                 itemCount: listOfItems.length,
32                 itemBuilder: (context, index) {
33                   return ListTile(
34                     leading: Container(
35                       height: 100,
36                       width: 130,
37                       child: ClipRRect(
38                         borderRadius: BorderRadius.circular(100),
39                         child: Image.asset(
40                           listOfItems[index].url,
41                           fit: BoxFit.cover,
42                         ),
43                       ),
44                     ),
45                     title: Text(
46                       listOfItems[index].title,
47                       style: TextStyle(fontWeight: FontWeight.w700),
48                     ),
49                     subtitle: Text(listOfItems[index].model),
50                   );
51                 },
52               ),
53             ),
```

```
54            ],
55          ),
56        );
57      }
58  }
59
```