

LAPORAN PRAKTIKUM
MATA KULIAH PEMROGRAMAN MOBILE



U N I V E R S I T A S
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PRAKTIKUM 5 MAP COLLECTION, GRID/LIST BUILDER DAN EXTRACTED WIDGET

Pada praktikum kelima ini fokus utamanya adalah mengimplementasikan map collection untuk membuat kode menjadi clean code dan *Don't Repeat Yourself* (DRY) dimana map collection ini dapat diimplementasikan untuk data list, map, set dan list of map. kemudian dengan konsep yang sama pula untuk membuat kode tidak repetitif digunakan juga grid dan list builder. Pada hasil implementasinya berupa halaman dosen, mahasiswa, dan item bottom navigation bar yang dibuat map collection, grid/list builder, dan extracted widget

1. Kode map list of widget bottom item

```
1 import 'package:flutter/material.dart';
2 import 'package:praktikum_5/dosen.dart';
3 import 'package:praktikum_5/dosen2.dart';
4 import 'package:praktikum_5/mahasiswa.dart';
5 import 'package:praktikum_5/matakuliah.dart';
6 import 'package:praktikum_5/nilai.dart';
7
8 void main(List<String> args) {
9   runApp(MyApp());
10 }
11
12 class MyApp extends StatelessWidget {
13   const MyApp({super.key});
14
15   @override
16   Widget build(BuildContext context) {
17     return MaterialApp(home: HomePage(), debugShowCheckedModelBanner: false);
18   }
19 }
20
21 class HomePage extends StatefulWidget {
22   const HomePage({super.key});
23
24   @override
25   State<HomePage> createState() => _HomePageState();
26 }
27
28 class _HomePageState extends State<HomePage> {
29   List<Map<String, dynamic>> navbar = [
30     {'widget': Icons.home, 'title': 'Home'},
31     {'widget': Icons.person, 'title': 'Dosen'},
32     {'widget': Icons.person, 'title': 'Dosen2'},
33     {'widget': Icons.people, 'title': 'Mahasiswa'},
34     {'widget': Icons.subject, 'title': 'Matakuliah'},
35     {'widget': Icons.score, 'title': 'Nilai Akhir'},
36   ];
37   int _currentIndex = 0;
38   @override
39   Widget build(BuildContext context) {
40     return Scaffold(
41       appBar: AppBar(
42         title: const Text(
43           "BottomNavigation bar dan Navigation",
44           style: TextStyle(fontSize: 20),
45         ),
46       ),
47       body: Center(
48         child: Column(
49           mainAxisAlignment: MainAxisAlignment.spaceEvenly,
50           children: [
51             const Text("Toloh: Fajar Ramadhan"),
52             Image.asset('assets/img/logo-umkom.png'),
53           ],
54         ),
55       ),
56       bottomNavigationBar: BottomNavigationBar(
57         onTap: (value) {
58           setState(() {
59             _currentIndex = value;
60           });
61           panggilHalaman(value);
62         },
63         currentIndex: _currentIndex,
64         selectedItemColor: Colors.white70,
65         unselectedItemColor: Colors.white,
66         backgroundColor: Colors.deepPurple,
67         type: BottomNavigationBarType.fixed,
68         items:
69           navbar
70             .map(
71               (e) => BottomNavigationBarItem(
72                 icon: Icon(e['widget']),
73                 label: e['title'],
74               ),
75             )
76             .toList(),
77       ),
78     );
79   }
80
81   void panggilHalaman(int index) {
82     if (index == 1) {
83       Navigator.push(
84         context,
85         MaterialPageRoute(builder: (context) => const DosenPage2()),
86       );
87     } else if (index == 2) {
88       Navigator.push(
89         context,
90         MaterialPageRoute(builder: (context) => const DosenPage()),
91       );
92     } else if (index == 3) {
93       Navigator.push(
94         context,
95         MaterialPageRoute(builder: (context) => const MahasiswaPage()),
96       );
97     } else if (index == 4) {
98       Navigator.push(
99         context,
100        MaterialPageRoute(builder: (context) => const MatakuliahPage()),
101      );
102    } else if (index == 5) {
103      Navigator.push(
104        context,
105        MaterialPageRoute(builder: (context) => const NilaiPage()),
106      );
107    }
108  }
109 }
110
```

2. Kode map dan extracted method pada halaman dosen2

```
1 import 'package:flutter/material.dart';
2
3 class DosenPage2 extends StatefulWidget {
4   const DosenPage2({super.key});
5
6   @override
7   State<DosenPage2> createState() => _DosenPage2State();
8 }
9
10 class _DosenPage2State extends State<DosenPage2> {
11   List<Map<String, dynamic>> dosenList = [
12     {
13       "nama": "CZ",
14       "email": "cz@gmail.com",
15       "img":
16         "https://lh.bing.com/th?id/OIP.rKJUTCis-RkI-TMShyQfG4uEKrs-1&pid=ImgDetMain",
17     },
18     {
19       "nama": "Justin Sun",
20       "email": "justin@gmail.com",
21       "img":
22         "https://th.bing.com/th/id/OIP.K1V1zPF0UzAMdJ1uYckUkaiat8?rs=1&pid=ImgDetMain",
23     },
24     {
25       "nama": "Keanu Reeves",
26       "email": "keanu@gmail.com",
27       "img":
28         "https://images.hellomagazine.com/horizon/square/821836cf28cd-keanu-reeves.jpg",
29     },
30     .....
31 ];
32 String alamatGambar =
33   "https://lh.bing.com/th?id/OIP.rKJUTCis-RkI-TMShyQfG4uEKrs-1&pid=ImgDetMain";
34 String namaDosen = "CZ";
35 String emailDosen = "cz@gmail.com";
36
37 @override
38 Widget build(BuildContext context) {
39   return Scaffold(
40     appBar: AppBar(title: Text("Praktikum 5 Mapping")),
41     body: Column(
42       crossAxisAlignment: CrossAxisAlignment.start,
43       children: [
44         Container(
45           width: MediaQuery.of(context).size.width,
46           height: MediaQuery.of(context).size.width,
47           decoration: BoxDecoration(
48             color: Colors.grey,
49             image: DecorationImage(
50               image: NetworkImage(alamatGambar),
51               fit: BoxFit.cover,
52             ),
53           ),
54         ),
55         child: Column(
56           crossAxisAlignment: CrossAxisAlignment.center,
57           mainAxisAlignment: MainAxisAlignment.end,
58           children: [
59             Container(
60               color: Colors.green,
61               child: Text(namaDosen, style: TextStyle(fontSize: 20)),
62             ),
63             Container(
64               color: Colors.green,
65               child: Text(emailDosen, style: TextStyle(fontSize: 20)),
66             ),
67           ],
68         ),
69         Expanded(
70           child: GridView(
71             gridDelegate: SliverGridDelegateWithFixedCrossAxisCount(
72               crossAxisCount: 3,
73             ),
74             children:
75               dosenList
76                 .map(
77                   (e) => GestureDetector(
78                     onTap: () {
79                       setState(() {
80                         namaDosen = e["nama"];
81                         emailDosen = e["email"];
82                         alamatGambar = e["img"];
83                       });
84                       child: KotakDosen(
85                         nama: e["nama"],
86                         email: e["email"],
87                         foto: e["img"],
88                       ),
89                     ),
90                 ).toList(),
91           ),
92         ),
93       ],
94     ),
95   );
96 }
97
98 class KotakDosen extends StatelessWidget {
99   final String nama;
100   final String email;
101   final String foto;
102   const KotakDosen({
103     super.key,
104     required this.nama,
105     required this.email,
106     required this.foto,
107   });
108
109   @override
110   Widget build(BuildContext context) {
111     return Container(
112       margin: const EdgeInsets.all(2),
113       height: 180,
114       width: 180,
115       decoration: BoxDecoration(
116         image: DecorationImage(image: NetworkImage(foto), fit: BoxFit.cover),
117       ),
118       child: Column(
119         crossAxisAlignment: CrossAxisAlignment.center,
120         mainAxisAlignment: MainAxisAlignment.end,
121         children: [
122           Text(
123             nama,
124             style: TextStyle(
125               fontSize: 8,
126               color: Colors.amber,
127               backgroundColor: Colors.grey,
128             ),
129           ),
130           Text(
131             email,
132             style: TextStyle(
133               fontSize: 8,
134               color: Colors.amber,
135               backgroundColor: Colors.grey,
136             ),
137           ),
138         ],
139       ),
140     );
141   }
142 }
143
144 }
```

3. Kode grid builder pada halaman dosen

```
1 import 'package:flutter/material.dart';
2
3 class DosenPage extends StatefulWidget {
4   const DosenPage({super.key});
5
6   @override
7   State<DosenPage> createState() => _DosenPageState();
8 }
9
10 class _DosenPageState extends State<DosenPage> {
11   String imgUrl =
12     "https://th.bing.com/th/id/OIP.dTOz82Vu78PkuZ-t5GJ41gHaJ4?w=135&h=180&c=7&r=0&o=5&dpr=1.3&pid=1.7";
13
14   List<String> images = [
15     "https://th.bing.com/th/id/OIP.dTOz82Vu78PkuZ-t5GJ41gHaJ4?w=135&h=180&c=7&r=0&o=5&dpr=1.3&pid=1.7",
16     "https://images.hellomagazine.com/horizon/square/821036cf20cd-keanu-reeves.jpg",
17     "https://th.bing.com/th/id/R.7f74cdafb3416c87fcf605e66f4c12fd?rik=20zeF75LZuhQ7Q&riu=http://www.thefamouspeople.com/profiles/images/elon-musk-1.jpg&ehk=bGWEbcsoxqEEwaNuveQSXmdQ1++OFWRbnwdiGtgLoM=&risl=&pid=ImgRaw&r=0"
18   ];
19
20   @override
21   Widget build(BuildContext context) {
22     return Scaffold(
23       appBar: AppBar(title: Text("Dosen")),
24       body: Column(
25         children: [
26           Container(
27             width: MediaQuery.of(context).size.width,
28             height: MediaQuery.of(context).size.width,
29             decoration: BoxDecoration(
30               color: Colors.grey,
31               image: DecorationImage(
32                 image: NetworkImage(imgUrl),
33                 fit: BoxFit.cover,
34               ),
35             ),
36           Expanded(
37             child: GridView.builder(
38               itemCount: images.length,
39               gridDelegate: SliverGridDelegateWithFixedCrossAxisCount(
40                 crossAxisCount: 3,
41               ),
42               itemBuilder: (context, index) {
43                 return GestureDetector(
44                   onTap: () {
45                     setState(() {
46                       imgUrl = images[index];
47                     });
48                   },
49                   child: Container(
50                     margin: EdgeInsets.all(2),
51                     height: 100,
52                     width: 100,
53                     decoration: BoxDecoration(
54                       image: DecorationImage(
55                         image: NetworkImage(images[index]),
56                         fit: BoxFit.cover,
57                       ),
58                       color: Colors.grey,
59                     ),
60                   ),
61                 );
62               ),
63             ),
64           ),
65         ],
66       ),
67     );
68   }
69 }
```

4. Kode listview builder pada halaman mahasiswa

```
1 import 'package:flutter/material.dart';
2
3 class MahasiswaPage extends StatefulWidget {
4   const MahasiswaPage({super.key});
5
6   @override
7   State<MahasiswaPage> createState() => _MahasiswaPageState();
8 }
9
10 class _MahasiswaPageState extends State<MahasiswaPage> {
11   List<Map<String, dynamic>> mahasiswa = [
12     {
13       "nim": "001",
14       "nama": "CZ",
15       "alamat": "Jln. Raya",
16       "email": "cz@gmail.com",
17       "img":
18         "https://th.bing.com/th/id/OIP.rKjUTCis-Rki-TM6hyQfGAHaEK?rs=1&pid=ImgDetMain",
19     },
20     {
21       "nim": "002",
22       "nama": "Justin Sun",
23       "alamat": "Jln. Raya",
24       "email": "justin@gmail.com",
25       "img":
26         "https://th.bing.com/th/id/OIP.K1VLazPXHZaBMvUJuyCkUAHaE8?rs=1&pid=ImgDetMain",
27     },
28     {
29       "nim": "003",
30       "nama": "Keanu Reeves",
31       "alamat": "Jln. Raya",
32       "email": "keanu@gmail.com",
33       "img":
34         "https://images.hellomagazine.com/horizon/square/821036cf20cd-keanu-reeves.jpg",
35     },
36     .....
37   ];
38   @override
39   Widget build(BuildContext context) {
40     return Scaffold(
41       appBar: AppBar(title: Text("Mahasiswa")),
42       body: ListView.builder(
43         itemCount: mahasiswa.length,
44         itemBuilder:
45           (context, index) => ListTile(
46             leading: Container(
47               height: 60,
48               width: 60,
49               decoration: BoxDecoration(
50                 color: Colors.grey,
51                 borderRadius: BorderRadius.circular(30),
52                 image: DecorationImage(
53                   image: NetworkImage(mahasiswa[index]["img"]),
54                   fit: BoxFit.cover,
55                 ),
56             ),
57             title: Text(mahasiswa[index]["nama"]),
58             subtitle: Column(
59               crossAxisAlignment: CrossAxisAlignment.start,
60               children: [
61                 Text(mahasiswa[index]["nim"]),
62                 Text(mahasiswa[index]["alamat"]),
63                 Text(mahasiswa[index]["email"]),
64               ],
65             ),
66           ),
67       ),
68     );
69   }
70 }
71
72
```

5. Hasil dari masing masing halaman

