

LAPORAN PRAKTIKUM
MATA KULIAH PEMROGRAMAN MOBILE



**UNIVERSITAS
AMIKOM PURWOKERTO**

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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(), debugShowCheckedModeBanner: 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
39   @override
40   Widget build(BuildContext context) {
41     return Scaffold(
42       appBar: AppBar(
43         title: const Text(
44           "BottomNavigation bar dan Navigation",
45           style: TextStyle(fontSize: 20),
46         ),
47       ),
48       body: Center(
49         child: Column(
50           mainAxisAlignment: MainAxisAlignment.spaceEvenly,
51           children: [
52             const Text("oleh: Fajar Ramadhan"),
53             Image.asset("assets/img/logo-amikom.png"),
54           ],
55         ),
56       ),
57       bottomNavigationBar: BottomNavigationBar(
58         onTap: (value) {
59           setState(() {
60             _currentIndex = value;
61           });
62           panggilHalaman(value);
63         },
64         currentIndex: _currentIndex,
65         selectedItemColor: Colors.white,
66         unselectedItemColor: Colors.white,
67         backgroundColor: Colors.deepPurple,
68         type: BottomNavigationBarType.fixed,
69         items: [
70           navBar.map(
71             (e) => BottomNavigationBarBarItem(
72               icon: Icon(e['widget']),
73               label: e['title'],
74             ),
75           ).toList(),
76         ],
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 }
```

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": "https://th.bing.com/th/id/OIP.rKjUTClis-Rki-TM6hyQfGHaEK7rs-1&pid=ImgDetMain",
16     },
17     {
18       "nama": "Justin Sun",
19       "email": "justin@gmail.com",
20       "img": "https://th.bing.com/th/id/OIP.X1VlaePKHzaHvUuyCkUHaiR7rs-1&pid=ImgDetMain",
21     },
22     {
23       "nama": "Keanu Reeves",
24       "email": "keanu@gmail.com",
25       "img": "https://images.hellomagazine.com/horizon/square/82103cf28cd-keanu-reeves.jpg",
26     },
27   ];
28   String alamatGambar =
29     "https://th.bing.com/th/id/OIP.rKjUTClis-Rki-TM6hyQfGHaEK7rs-1&pid=ImgDetMain";
30   String namaDosen = "CZ";
31   String emailDosen = "cz@gmail.com";
32   @override
33   Widget build(BuildContext context) {
34     return Scaffold(
35       appBar: AppBar(title: Text("Praktikum 5 Mapping")),
36       body: Column(
37         crossAxisAlignment: CrossAxisAlignment.start,
38         children: [
39           Container(
40             width: MediaQuery.of(context).size.width,
41             height: MediaQuery.of(context).size.width,
42             decoration: BoxDecoration(
43               color: Colors.grey,
44               image: DecorationImage(
45                 image: NetworkImage(alamatGambar),
46                 fit: BoxFit.cover,
47               ),
48             ),
49           ),
50           Container(
51             child: Column(
52               crossAxisAlignment: CrossAxisAlignment.center,
53               mainAxisAlignment: MainAxisAlignment.end,
54               children: [
55                 Container(
56                   color: Colors.green,
57                   child: Text(namaDosen, style: TextStyle(fontSize: 20)),
58                 ),
59                 Container(
60                   color: Colors.green,
61                   child: Text(emailDosen, style: TextStyle(fontSize: 20)),
62                 ),
63               ],
64             ),
65           ),
66         ],
67       ).expanded(
68         child: GridView(
69           gridDelegate: SliverGridDelegateWithFixedCrossAxisCount(
70             crossAxisCount: 3,
71           ),
72           children: [
73             dosenList
74               .map(
75                 (e) => GestureDetector(
76                   onTap: () {
77                     setState(() {
78                       namaDosen = e["nama"];
79                       emailDosen = e["email"];
80                       alamatGambar = e["img"];
81                     });
82                   },
83                   child: KataDosen(
84                     nama: e["nama"],
85                     email: e["email"],
86                     foto: e["img"],
87                   ),
88                 ),
89               )
90             .toList(),
91           ],
92         ),
93       ),
94     );
95   }
96 }
97
98 class KataDosen extends StatelessWidget {
99   final String nama;
100  final String email;
101  final String foto;
102  const KataDosen({
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: 100,
114      width: 100,
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}
```

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.dT0z82Vu78PkuZ-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.dT0z82Vu78PkuZ-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
18     "https://th.bing.com/th/id/R.7f74cdfb3416c87fcf605e66f4c12fd?rik=20zeF75LZuh07Q&rlu=http://www.thefamouspeople.com/profiles/images/elon-musk-1.jpg&ehk=d6WebcsdoxEtwaNuve0SXd01++OFWRbnwdiGtgLoM=&risl=8&id=ImgRaw&r=0"
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           ),
37           Expanded(
38             child: GridView.builder(
39               itemCount: images.length,
40               gridDelegate: SliverGridDelegateWithFixedCrossAxisCount(
41                 crossAxisCount: 3,
42               ),
43               itemBuilder: (context, index) {
44                 return GestureDetector(
45                   onTap: () {
46                     setState(() {
47                       imgUrl = images[index];
48                     });
49                 },
50                 child: Container(
51                   margin: EdgeInsets.all(2),
52                   height: 100,
53                   width: 100,
54                   decoration: BoxDecoration(
55                     image: DecorationImage(
56                       image: NetworkImage(images[index]),
57                       fit: BoxFit.cover,
58                     ),
59                     color: Colors.grey,
60                   ),
61                 );
62               },
63             ),
64           ),
65         ],
66       ),
67     );
68   }
69 }
70 }
```

4. Kode listview builder pada halaman mahasiswa

```
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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             ),
58             title: Text(mahasiswa[index]["nama"]),
59             subtitle: Column(
60               crossAxisAlignment: CrossAxisAlignment.start,
61               children: [
62                 Text(mahasiswa[index]["nim"]),
63                 Text(mahasiswa[index]["alamat"]),
64                 Text(mahasiswa[index]["email"]),
65               ],
66             ),
67           ),
68         );
69       );
70     }
71   }
72 }
```

5. Hasil dari masing masing halaman

The image displays six screenshots of a mobile application interface, arranged in two rows of three. Each screenshot shows a different page of the app with its respective title and content.

- Home:** Shows the university logo and name "UNIVERSITAS AMIKOM PURWOKERTO". Below the logo is a bottom navigation bar with icons for Home, Dosen, Mahasiswa, Matakuliah, and Nilai Akademik.
- Dosen:** Shows a large portrait of Keanu Reeves. Below the portrait is a grid of nine smaller portraits of various individuals, each with a green box containing their name and email address:
 - CZ (cz@gmail.com)
 - Justin Sun (justin@gmail.com)
 - Keanu Reeves (keanu@gmail.com)
 - Elon Musk (elon@gmail.com)
 - Emma Stone (emma@gmail.com)
 - Ben Zhao (ben@gmail.com)
- Mahasiswa:** Shows a list of five student profiles, each with a circular profile picture, name, ID number, address, and email address:
 - CZ (001, Jln. Raya, cz@gmail.com)
 - Justin Sun (002, Jln. Raya, justin@gmail.com)
 - Keanu Reeves (003, Jln. Raya, keanu@gmail.com)
 - Elon Musk (004, Jln. Raya, elon@gmail.com)
 - Emma Stone (005, Jln. Raya, emma@gmail.com)
- Matakuliah:** Displays the text "Ini halaman Matakuliah" (This is the page for subjects) followed by a right-pointing arrow icon.
- Nilai:** Displays the text "Ini Nilai Page" (This is the page for grades).