

**UTS MATA KULIAH PEMROGRAMAN MOBILE
APLIKASI OCR**



Disusun Oleh:

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Instruksi Umum

1. Mahasiswa wajib menggunakan proyek Flutter ocr_sederhana yang telah dibuat sebelumnya.
2. Setiap penyelesaian tugas pada setiap Soal (Soal 1, Soal 2, dan Soal 3) harus diikuti dengan perintah Git commit dan push ke repositori GitHub masing-masing.
3. Pesan Commit Wajib harus diikuti dengan tepat. Kelalaian dalam melakukan commit dan push akan mengurangi poin penilaian.

Instruksi Awal (SETUP) - Wajib

1. Pastikan proyek ocr_sederhana sudah diinisialisasi sebagai repositori Git dan terhubung ke akun GitHub Anda.
2. Lakukan commit awal untuk memastikan branch main Anda bersih
 - a. git add .
 - b. git commit -m "UTS: Basis awal proyek OCR Sederhana"
 - c. git push origin main

```
PS D:\flutter_ocr_sederhana> git add .
PS D:\flutter_ocr_sederhana> git commit -m "UTS: Basis awal proyek OCR Sederhana"
[main 95992d8] UTS: Basis awal proyek OCR Sederhana
 1 file changed, 1 insertion(+), 1 deletion(-)
PS D:\flutter_ocr_sederhana> git push origin main
Enumerating objects: 9, done.
Counting objects: 100% (9/9), done.
Delta compression using up to 16 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (5/5), 471 bytes | 471.00 KiB/s, done.
Total 5 (delta 3), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (3/3), completed with 3 local objects.
To https://github.com/stewistzz/flutter_ocr_sederhana.git
 732eb5f..95992d8  main -> main
PS D:\flutter_ocr_sederhana>
```

Soal 1: Modifikasi Struktur Navigasi dan Aliran (30Poin)

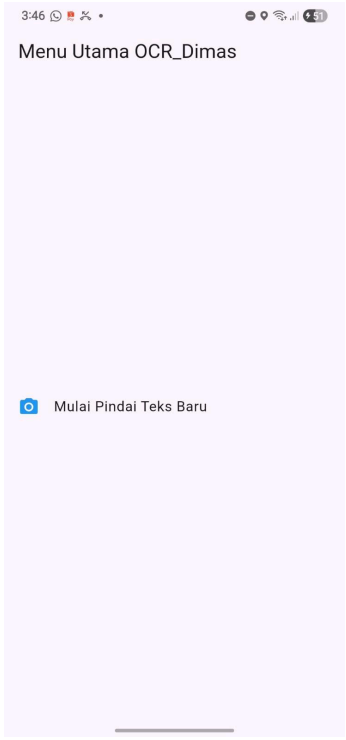

Tujuan: Menyederhanakan alur navigasi dan meningkatkan pengalaman pengguna di HomeScreen.

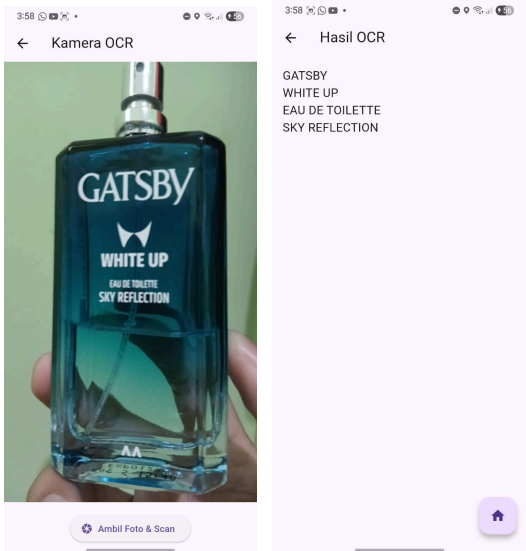
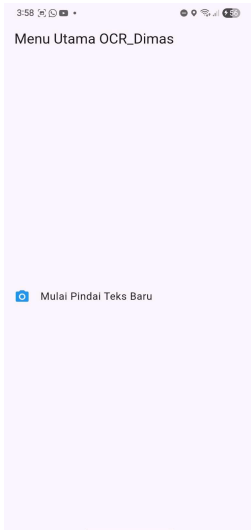
Pengubahan Navigasi Home (15 Poin)

- a. Ubah ElevatedButton di HomeScreen(lib/screens/home_screen.dart) menjadi *widget* **ListTile**
- b. Atur ListTile: leading: Icon(Icons.camera_alt, color: Colors.blue); title: Text('Mulai Pindai Teks Baru').
- c. Fungsi onTap harus menggunakan Navigator.push() untuk ke ScanScreen.

```
1 @override
2 Widget build(BuildContext context) {
3   return Scaffold(
4     appBar: AppBar(title: const Text('Menu Utama OCR Dimas')),
5     body: Center(
6       // child: ElevatedButton(
7       //   onPressed: () {
8       //     Navigator.push(
9       //       context,
10      //     MaterialPageRoute(builder: (_) => ScanScreen()),
11      //   );
12      // },
13      // child: const Text('Mulai Scan Teks'),
14      // ),
15      child: ListTile(
16        title: const Text('Mulai Pindai Teks Baru'),
17        leading: const Icon(Icons.camera_alt, color: Colors.blue),
18        onTap: () {
19          Navigator.push(
20            context,
21            MaterialPageRoute(builder: (_) => ScanScreen()),
22          );
23        },
24      ),
25    ),
26  );
27 }
```

Output:

		
<p>Teks Utuh dan Navigasi Balik (15 Poin)</p>	<ol style="list-style-type: none"> Di ResultScreen (lib/screens/result_screen.dart), hapus fungsi <code>ocrText.replaceAll</code> (agar hasil teks ditampilkan dengan baris baru (\n) yang utuh). Tambahkan <code>FloatingActionButton</code> dengan ikon <code>Icons.home</code>. Ketika tombol ditekan, navigasi harus kembali langsung ke HomeScreen menggunakan <code>**Navigator.pushAndRemoveUntil()</code> (atau metode yang setara) untuk menghapus semua halaman di atasnya dari stack navigasi. 	<p>perubahan pada kode program</p>  <p>Hasil running</p>

		  <p>Tampilan akan langsung kembali ke halaman homescreen ketika icon home ditekan</p>
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Perintah Commit Wajib (Soal 1)	<pre>PS D:\flutter_ocr_sederhana> git add lib/screens/home_screen.dart lib/screens/result_screen.dart PS D:\flutter_ocr_sederhana> git commit -m "UTS: Selesai Soal 1 - ListTile dan Navigasi Balik" [main e83d8a0] UTS: Selesai Soal 1 - ListTile dan Navigasi Balik 2 files changed, 26 insertions(+), 6 deletions(-) PS D:\flutter_ocr_sederhana> git push origin main Enumerating objects: 11, done. Counting objects: 100% (11/11), done. Delta compression using up to 16 threads Compressing objects: 100% (6/6), done. Writing objects: 100% (6/6), 1.01 KiB 1.01 MiB/s, done. Total 6 (delta 3), reused 0 (delta 0), pack-reused 0 (from 0) remote: Resolving deltas: 100% (3/3), completed with 3 local objects. To https://github.com/stewistzz/flutter_ocr_sederhana.git 95992d8..e83d8a0 main -> main PS D:\flutter_ocr_sederhana> █</pre>
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Soal 2: Penyesuaian Tampilan dan Penanganan State/Error(40 Poin) Tujuan: Memperbaiki tampilan <i>*loading*</i> dan memberikan <i>*feedback*</i> error yang lebihjelas.		
Custom Loading Screen di	1. Di ScanScreen (lib/screens/scan_screen.	Modifikasi Kode program

ScanScreen (20 Poin):

- dart), modifikasi tampilan *loading* yang muncul sebelum kamera siap (if (!controller.value.isInitialized)) :
2. Latar Belakang: Scaffold(backgroundColor : Colors.grey[900]).
 3. Isi: Di dalam Center, tampilkan Column berisi CircularProgressIndicator(color: Colors.yellow).
 4. Di bawah indikator, tambahkan Text('Memuat Kamera... Harap tunggu.', style: TextStyle(color: Colors.white, fontSize: 18)).

```
1 @override
2 Widget build(BuildContext context) {
3   if (!_controller.value.isInitialized) {
4     return Scaffold(
5       backgroundColor: Colors.grey[900],
6       body: Center(
7         child: Column(
8           mainAxisAlignment: MainAxisAlignment.min,
9           children: [
10            const CircularProgressIndicator(color: Colors.yellow),
11            const SizedBox(height: 12),
12            const Text(
13              'Memuat Kamera... Harap tunggu.',
14              style: TextStyle(color: Colors.white, fontSize: 18),
15            ),
16          ],
17        ),
18      );
19    }
20  }
```

Hasil running

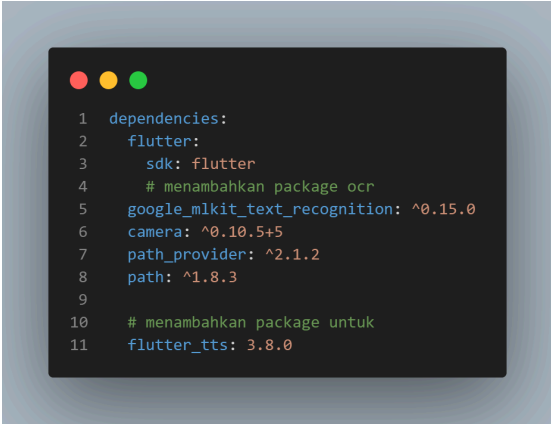
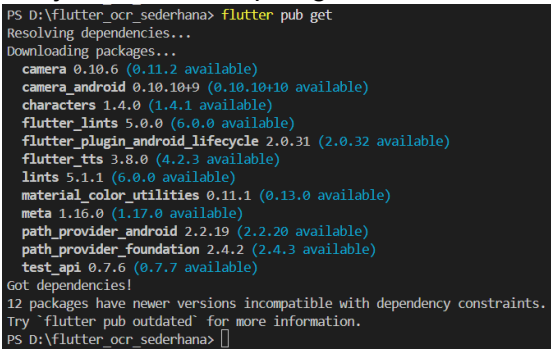
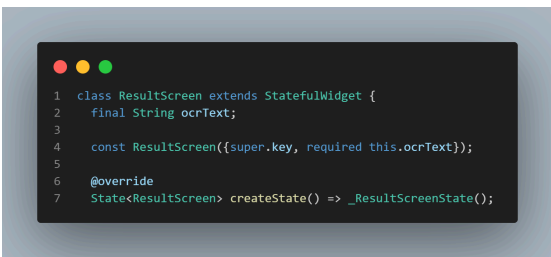


Spesifikasi Pesan Error (20 Poin):

1. Di fungsi _takePicture() pada ScanScreen, modifikasi blok catch (e) untuk mengubah pesan *error* pada Snackbar.
2. Pesan Snackbar harus berbunyi: "Pemindaian Gagal! Periksa Izin Kamera atau coba lagi." (Hilangkan variabel *error* (\$e)).

Modifikasi kode program

```
1 Future<void> _takePicture() async {
2   try {
3     await _initializeControllerFuture;
4
5     if (!mounted) return;
6     ScaffoldMessenger.of(context).showSnackBar(
7       const SnackBar(
8         content: Text('Memproses OCR, mohon tunggu...'),
9         duration: Duration(seconds: 2),
10       ),
11     );
12
13     final XFile image = await _controller.takePicture();
14     final ocrText = await _ocrFromFile(File(image.path));
15
16     if (!mounted) return;
17     Navigator.push(
18       context,
19       MaterialPageRoute(builder: (c) => ResultScreen(ocrText: ocrText)),
20     );
21   } catch (e) {
22     if (!mounted) return;
23     ScaffoldMessenger.of(context).showSnackBar(
24       SnackBar(
25         content: Text(
26           'Pemindaian Gagal! Periksa Izin Kamera atau coba lagi.',
27         ),
28       ),
29     );
30   }
31 }
32 }
```

Perintah Commit Wajib (Soal 2)	<pre>PS D:\flutter_ocr_sederhana> git add lib/screens/scan_screen.dart PS D:\flutter_ocr_sederhana> git commit -m "UTS: Selesai Soal 2 - Tampilan Loading dan Error" [main 17776bc] UTS: Selesai Soal 2 - Tampilan Loading dan Error 1 file changed, 21 insertions(+), 2 deletions(-) PS D:\flutter_ocr_sederhana> git push origin main Enumerating objects: 9, done. Counting objects: 100% (9/9), done. Delta compression using up to 16 threads Compressing objects: 100% (5/5), done. Writing objects: 100% (5/5), 762 bytes 762.00 KiB/s, done. Total 5 (delta 3), reused 0 (delta 0), pack-reused 0 (from 0) remote: Resolving deltas: 100% (3/3), completed with 3 local objects. To https://github.com/stewistzz/flutter_ocr_sederhana.git e83d8a0..17776bc main -> main PS D:\flutter_ocr_sederhana> PS D:\flutter_ocr_sederhana> █</pre>	
Soal 3: Implementasi Plugin Text-to-Speech (TTS) (30Poin) Tujuan: Mengintegrasikan fitur membaca teks secara lisan menggunakan *plugin* flutter_tts.		
Instalasi Plugin (5 Poin):	<ol style="list-style-type: none">1. Tambahkan *plugin* flutter_tts ke dalam file pubspec.yaml (gunakan versi terbaru yang kompatibel).2. Jalankan flutter pub get.	<p>Tambahkan plugin</p>  <pre>1 dependencies: 2 flutter: 3 sdk: flutter 4 # menambahkan package ocr 5 google_mlkit_text_recognition: ^0.15.0 6 camera: ^0.10.5+5 7 path_provider: ^2.1.2 8 path: ^1.8.3 9 10 # menambahkan package untuk 11 flutter_tts: 3.8.0</pre> <p>Menjalankan flutter pub get</p>  <pre>PS D:\Flutter_ocr_sederhana> flutter pub get Resolving dependencies... Downloading packages... camera 0.10.6 (0.11.2 available) camera_android 0.10.10+9 (0.10.10+10 available) characters 1.4.0 (1.4.1 available) flutter_lints 5.0.0 (6.0.0 available) flutter_plugin_android_lifecycle 2.0.31 (2.0.32 available) flutter_tts 3.8.0 (4.2.3 available) lints 5.1.1 (6.0.0 available) material_color_utilities 0.11.1 (0.13.0 available) meta 1.16.0 (1.17.0 available) path_provider_android 2.2.19 (2.2.20 available) path_provider_foundation 2.4.2 (2.4.3 available) test_api 0.7.6 (0.7.7 available) Got dependencies! 12 packages have newer versions incompatible with dependency constraints. Try `flutter pub outdated` for more information. PS D:\flutter_ocr_sederhana> █</pre>
Konversi Widget dan Inisialisasi (10 Poin):	<ol style="list-style-type: none">1. Ubah ResultScreen dari StatelessWidget menjadi **StatefulWidget**.2. Di initState(), inisialisasi FlutterTts dan atur bahasa pembacaan menjadi Bahasa Indonesia.3. Implementasikan dispose() untuk menghentikan mesin TTS	 <pre>1 class ResultScreen extends StatefulWidget { 2 final String ocrText; 3 4 const ResultScreen({super.key, required this.ocrText}); 5 6 @override 7 State<ResultScreen> createState() => _ResultScreenState();</pre>

saat halaman ditutup.

```
1 class _ResultScreenState extends State<ResultScreen> {
2   // menambahkan variabel untuk text to speech
3   late FlutterTts flutterTts;
4
5   // menambahkan inisialisasi text to speech
6   @override
7   void initState() {
8     super.initState();
9     flutterTts = FlutterTts();
10    _initTts();
11  }
12
13  // mengatur bahasa menjadi indonesia
14  Future<void> _initTts() async {
15    await flutterTts.setLanguage("id-ID");
16  }
17
18  // implementasi dispose
19  @override
20  void dispose() {
21    flutterTts.stop();
22    super.dispose();
23  }
24 }
```

Final code untuk TTS Flutter

```

1 import 'package:flutter/material.dart';
2 import 'package:flutter_ocr_sederhana/screens/home_screen.dart';
3 import 'package:flutter_tts/flutter_tts.dart';
4
5 class ResultScreen extends StatefulWidget {
6   final String ocrText;
7
8   const ResultScreen({super.key, required this.ocrText});
9
10  @override
11  State<ResultScreen> createState() => _ResultScreenState();
12 }
13
14 class _ResultScreenState extends State<ResultScreen> {
15   // menambahkan variabel untuk text to speech
16   late FlutterTts flutterTts;
17
18   // menambahkan inisialisasi text to speech
19   @override
20   void initState() {
21     super.initState();
22     flutterTts = FlutterTts();
23     _initTts();
24   }
25
26   // mengatur bahasa menjadi indonesia
27   Future<void> _initTts() async {
28     await flutterTts.setLanguage("id-ID");
29   }
30
31   // implementasi dispose
32   @override
33   void dispose() {
34     flutterTts.stop();
35     super.dispose();
36   }
37
38   // method _speak
39   Future<void> _speak() async {
40     if (widget.ocrText.isNotEmpty) {
41       await flutterTts.speak(widget.ocrText);
42     }
43   }
44
45   @override
46   Widget build(BuildContext context) {
47     return Scaffold(
48       appBar: AppBar(
49         title: const Text('Hasil OCR'),
50         actions: [
51           IconButton(
52             icon: const Icon(Icons.volume_up),
53             onPressed: _speak,
54             tooltip: 'Bacakan teks',
55           ),
56         ],
57       ),
58       body: Padding(
59         padding: const EdgeInsets.all(16.0),
60         child: SingleChildScrollView(
61           child: SelectableText(
62             widget.ocrText.isEmpty
63               ? 'Tidak ada teks ditemukan.'
64               : widget.ocrText,
65             style: const TextStyle(fontSize: 18),
66           ),
67         ),
68       ),
69       floatingActionButton: FloatingActionButton(
70         onPressed: () {
71           Navigator.pushAndRemoveUntil(
72             context,
73             MaterialPageRoute(builder: (_) => const HomeScreen()),
74             (route) => false,
75           );
76         },
77         child: const Icon(Icons.home),
78       ),
79     );
80   }
81 }
82

```

Link Dokumentasi TTS:

<https://drive.google.com/file/d/1kPzJpFh7vsX1ja4sl-yjiZ73bLLywedZ/view?usp=sharing>

Link Github: https://github.com/stewistzz/flutter_ocr_sederhana