
Read file

Synchronous File Reading

```
1 import 'dart:io';
2
3 void main() {
4   try {
5     // Replace 'example.txt' with your file path
6     File file = File('example.txt');
7     String contents = file.readAsStringSync();
8     print("File contents (sync):\n$contents");
9   } catch (e) {
10     print("Error reading file: $e");
11   }
12 }
```

Asynchronous File Reading

```
1 import 'dart:io';
2
3 Future<void> main() async {
4   try {
5     // Replace 'example.txt' with your file path
6     File file = File('example.txt');
7     String contents = await file.readAsString();
8     print("File contents (async):\n$contents");
9   } catch (e) {
10     print("Error reading file: $e");
11   }
12 }
```

Reading Line by Line

```
1 import 'dart:io';
2
3 Future<void> main() async {
4   try {
5     // Replace 'example.txt' with your file path
6     File file = File('example.txt');
7     Stream<String> lines = file.openRead()
8       .transform(utf8.decoder)
9       .transform(LineSplitter());
10
11   await for (var line in lines) {
```

```
12     print("Line: $line");
13 }
14 } catch (e) {
15     print("Error reading file: $e");
16 }
17 }
```

Write file

Synchronous File Writing

```
1 import 'dart:io';
2
3 void main() {
4     try {
5         // Replace 'example.txt' with your file path
6         File file = File('example.txt');
7         file.writeAsStringSync('Hello, Dart!\nThis is a new line.');
8         print("File written synchronously.");
9     } catch (e) {
10         print("Error writing file: $e");
11     }
12 }
```

Asynchronous File Writing

```
1 import 'dart:io';
2
3 Future<void> main() async {
4     try {
5         // Replace 'example.txt' with your file path
6         File file = File('example.txt');
7         await file.writeAsString('Hello, Dart!\nThis is a new line.');
8         print("File written asynchronously.");
9     } catch (e) {
10         print("Error writing file: $e");
11     }
12 }
```

Appending to a File

```
1 import 'dart:io';
2
3 Future<void> main() async {
```

```
4  try {
5      // Replace 'example.txt' with your file path
6      File file = File('example.txt');
7      await file.writeAsString('New line to append.\n', mode: FileMode.
8          append);
9      print("Text appended to file.");
10 } catch (e) {
11     print("Error writing file: $e");
12 }
```

Writing Line by Line

```
1 import 'dart:io';
2
3 Future<void> main() async {
4     try {
5         // Replace 'example.txt' with your file path
6         IOSink sink = File('example.txt').openWrite(mode: FileMode.append);
7         sink.writeln('First line');
8         sink.writeln('Second line');
9         await sink.flush();
10        await sink.close();
11        print("Lines written to file.");
12    } catch (e) {
13        print("Error writing file: $e");
14    }
15 }
```

Encode json

Encode object (map, list, custom object, ...) to string

Encoding a Map to JSON

```
1 import 'dart:convert';
2
3 void main() {
4     // Example Map
5     Map<String, dynamic> person = {
6         'name': 'Alice',
7         'age': 30,
8         'isStudent': false,
9         'courses': ['Math', 'Science', 'History'],
10    };
11 }
```

```
11 // Encode the Map to a JSON string
12 String jsonString = jsonEncode(person);
13 print(jsonString);
14 // Output: {"name":"Alice","age":30,"isStudent":false,"courses":["
15     Math","Science","History"]}
16 }
```

Encoding a List to JSON

```
1 import 'dart:convert';
2
3 void main() {
4     // Example List
5     List<Map<String, dynamic>> people = [
6         {'name': 'Alice', 'age': 30},
7         {'name': 'Bob', 'age': 25},
8     ];
9
10    // Encode the List to a JSON string
11    String jsonString = jsonEncode(people);
12    print(jsonString);
13    // Output: [{"name":"Alice","age":30}, {"name":"Bob","age":25}]
14 }
```

Encoding a Custom Object to JSON

```
1 import 'dart:convert';
2
3 class Person {
4     final String name;
5     final int age;
6
7     Person(this.name, this.age);
8
9     // Convert the object to a Map
10    // toJson() mean make the object to Map
11    Map<String, dynamic> toJson() => {
12        'name': name,
13        'age': age,
14    };
15 }
16
17 void main() {
18     // Create an object
19     Person person = Person('Alice', 30);
20 }
```

```
21 // Convert to Map and then encode to JSON
22 String jsonString = jsonEncode(person.toJson());
23 print(jsonString);
24 // Output: {"name": "Alice", "age": 30}
25 }
```

Decode json

Decode string to object (map, list, custom object, ...)

Decoding JSON into a Map

```
1 import 'dart:convert';
2
3 void main() {
4   String jsonString = '{"name": "Alice", "age": 30, "isStudent": false}
5   ';
6   // Decode the JSON string into a Map
7   Map<String, dynamic> person = jsonDecode(jsonString);
8   print(person['name']); // Output: Alice
9   print(person['age']); // Output: 30
10 }
```

Decoding JSON into a List

```
1 import 'dart:convert';
2
3 void main() {
4   String jsonString = '[{"name": "Alice"}, {"name": "Bob"}]';
5
6   // Decode the JSON string into a List
7   List<dynamic> people = jsonDecode(jsonString);
8   print(people[0]['name']); // Output: Alice
9 }
```

Decoding JSON into a Custom Object

```
1 import 'dart:convert';
2
3 class Person {
4   final String name;
5   final int age;
```

```
6     Person(this.name, this.age);
7
8
9     // Factory method to create a Person from a Map
10    factory Person.fromJson(Map<String, dynamic> json) {
11        return Person(json['name'], json['age']);
12    }
13}
14
15 void main() {
16     String jsonString = '{"name": "Alice", "age": 30}';
17
18     // Decode the JSON string into a Map, then convert to Person
19     Map<String, dynamic> jsonMap = jsonDecode(jsonString);
20     Person person = Person.fromJson(jsonMap);
21
22     print(person.name); // Output: Alice
23     print(person.age); // Output: 30
24 }
```

Decoding a List of Custom Objects

```
1 import 'dart:convert';
2
3 class Person {
4     final String name;
5     final int age;
6
7     Person(this.name, this.age);
8
9     factory Person.fromJson(Map<String, dynamic> json) {
10        return Person(json['name'], json['age']);
11    }
12}
13
14 void main() {
15     String jsonString = '[{"name": "Alice", "age": 30}, {"name": "Bob", "age": 25}]';
16
17     // Decode the JSON string into a List of Maps, then convert to List<Person>
18     List<dynamic> jsonList = jsonDecode(jsonString);
19     List<Person> people = jsonList.map((json) => Person.fromJson(json)).toList();
20
21     print(people[0].name); // Output: Alice
22     print(people[1].name); // Output: Bob
23 }
```