
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.');
```

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');
```

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.
      append);
8    print("Text appended to file.");
9  } catch (e) {
10    print("Error writing file: $e");
11  }
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
12 // Encode the Map to a JSON string
13 String jsonString = jsonEncode(person);
14 print(jsonString);
15 // Output: {"name":"Alice","age":30,"isStudent":false,"courses":["
    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
7   Person(this.name, this.age);
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  }
```