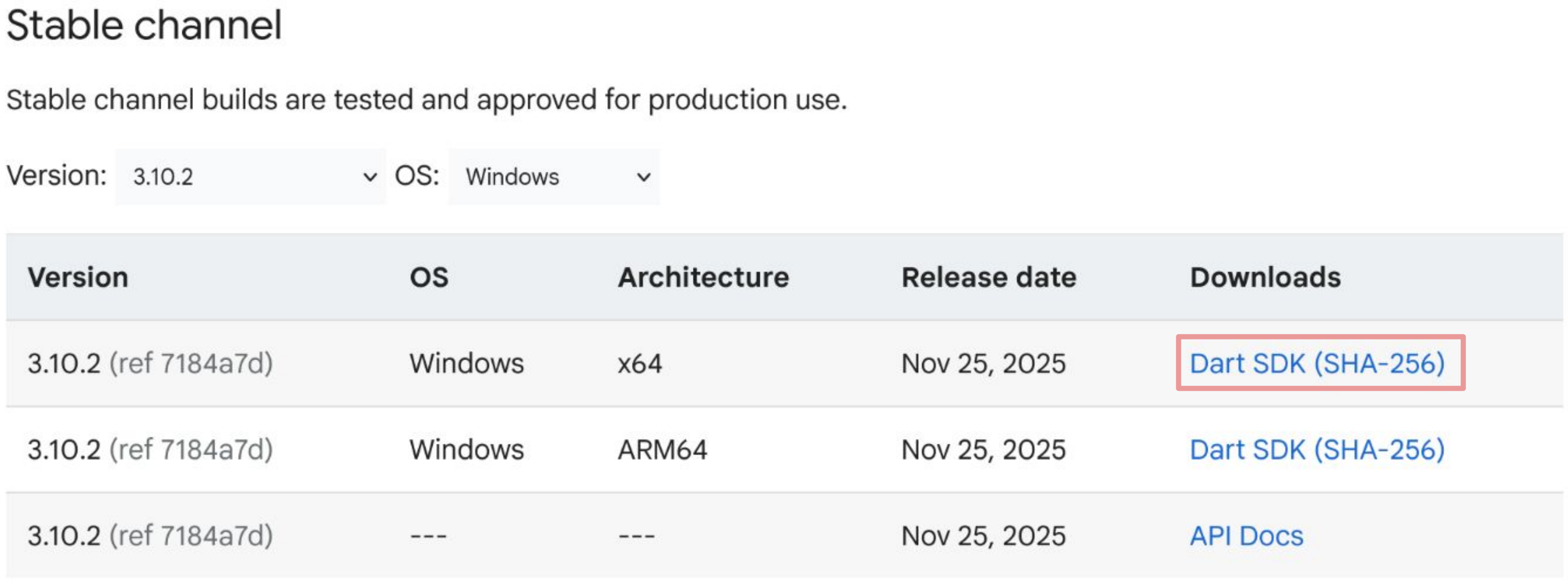
Dart

Installation

dart.dev/get-dart

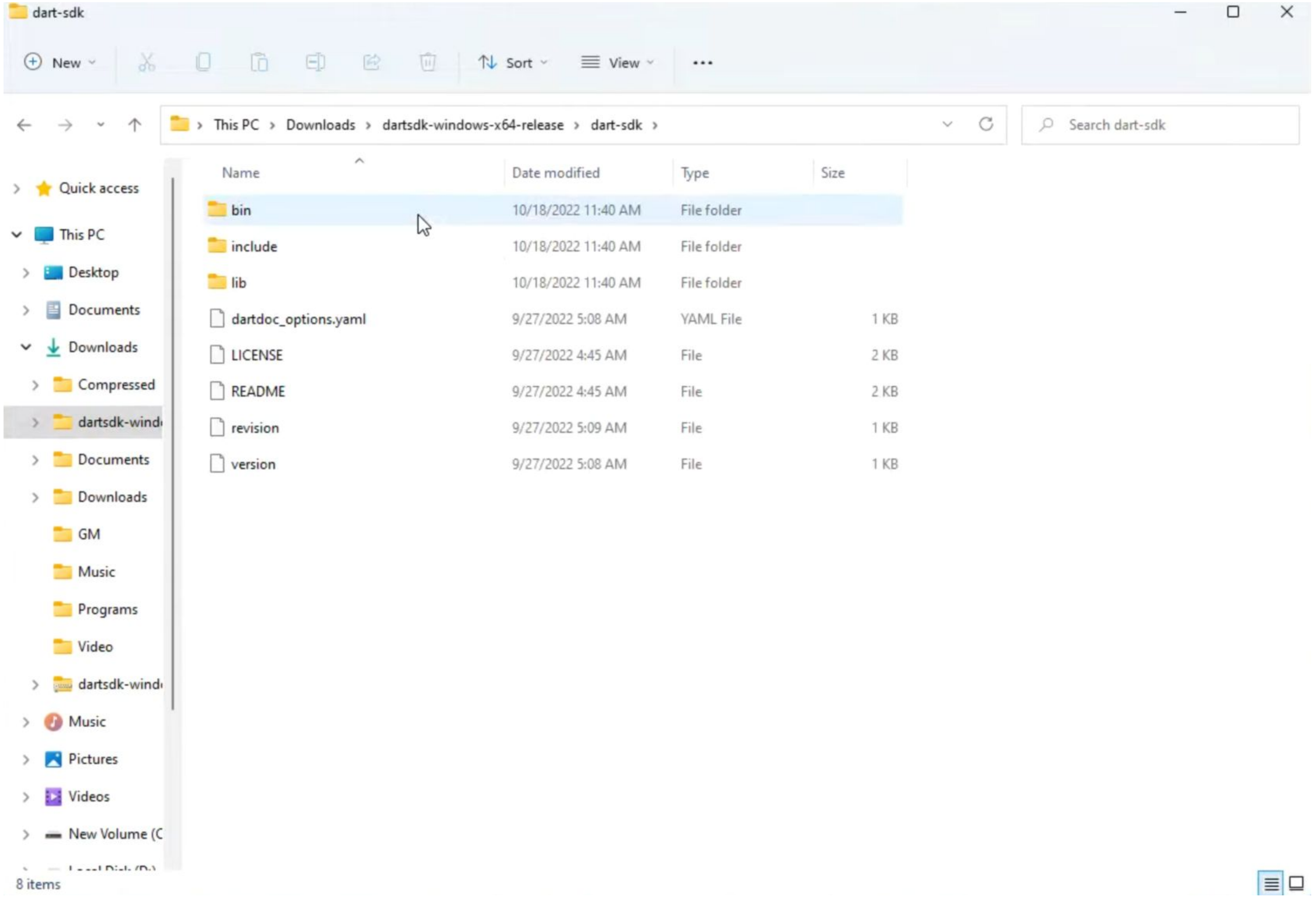


Stable channel

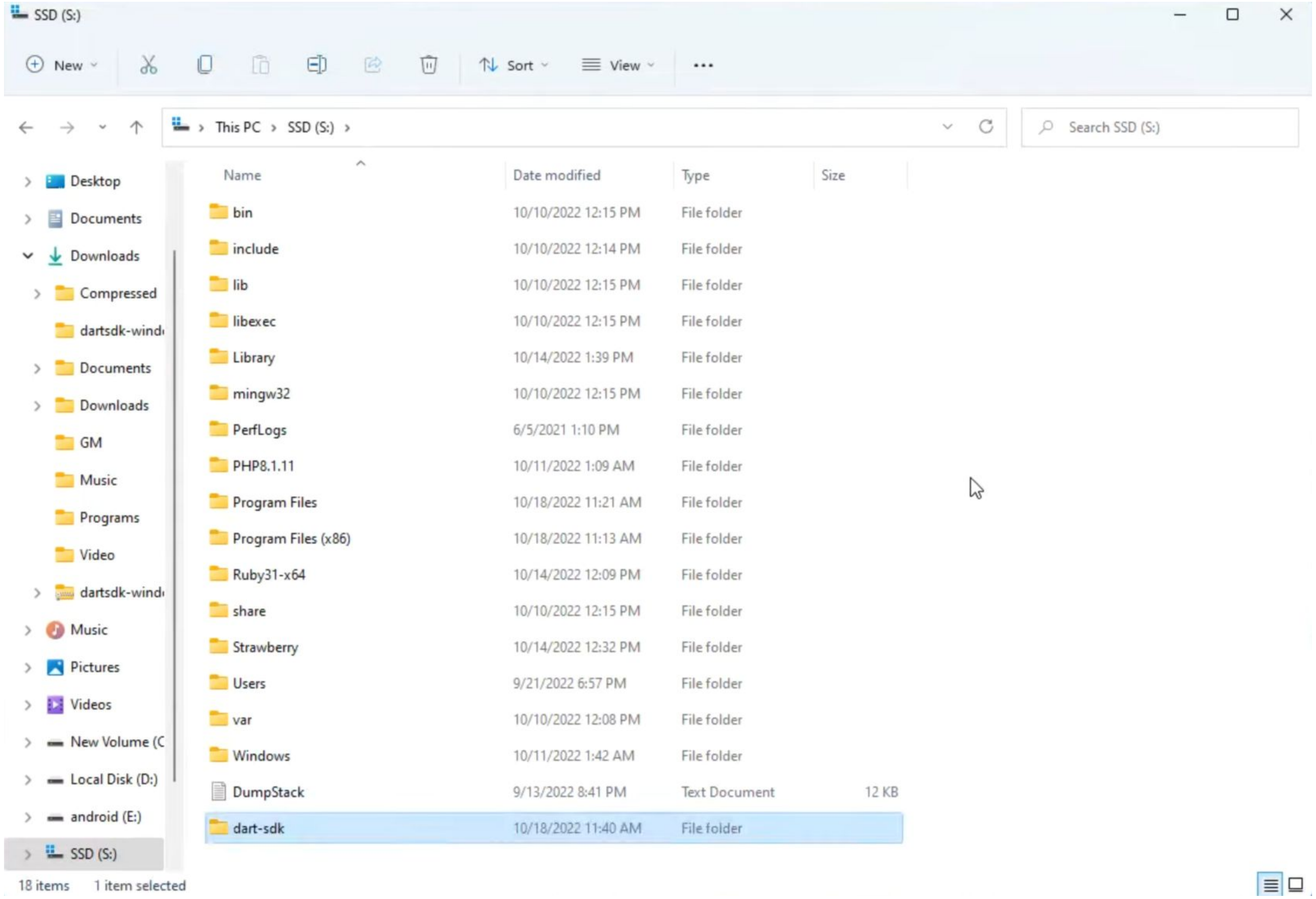
Stable channel builds are tested and approved for production use.

Version: 3.10.2 OS: Windows

Version	OS	Architecture	Release date	Downloads
3.10.2 (ref 7184a7d)	Windows	x64	Nov 25, 2025	Dart SDK (SHA-256)
3.10.2 (ref 7184a7d)	Windows	ARM64	Nov 25, 2025	Dart SDK (SHA-256)
3.10.2 (ref 7184a7d)	---	---	Nov 25, 2025	API Docs



Name	Date modified	Type	Size
bin	10/18/2022 11:40 AM	File folder	
include	10/18/2022 11:40 AM	File folder	
lib	10/18/2022 11:40 AM	File folder	
dartdoc_options.yaml	9/27/2022 5:08 AM	YAML File	1 KB
LICENSE	9/27/2022 4:45 AM	File	2 KB
README	9/27/2022 4:45 AM	File	2 KB
revision	9/27/2022 5:09 AM	File	1 KB
version	9/27/2022 5:08 AM	File	1 KB



Name	Date modified	Type	Size
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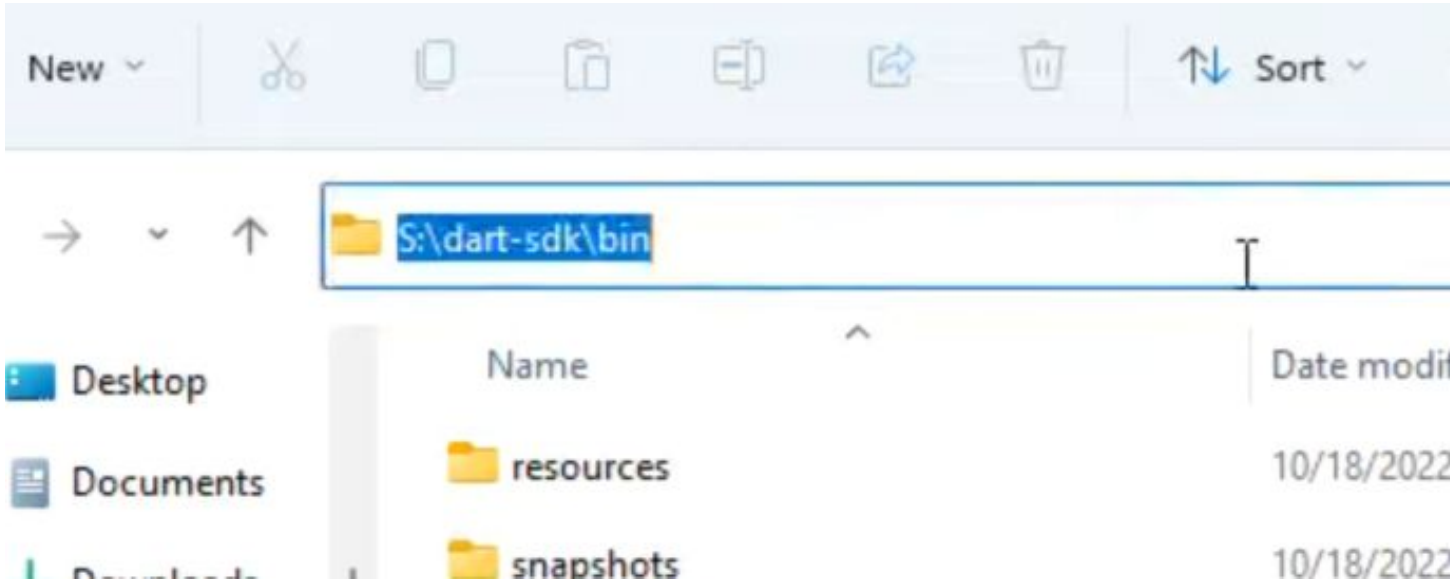
include	10/10/2022 12:14 PM	File folder	
lib	10/10/2022 12:15 PM	File folder	
libexec	10/10/2022 12:15 PM	File folder	
Library	10/14/2022 1:39 PM	File folder	
mingw32	10/10/2022 12:15 PM	File folder	
PerfLogs	6/5/2021 1:10 PM	File folder	
PHP8.1.11	10/11/2022 1:09 AM	File folder	
Program Files	10/18/2022 11:21 AM	File folder	
Program Files (x86)	10/18/2022 11:13 AM	File folder	
Ruby31-x64	10/14/2022 12:09 PM	File folder	
share	10/10/2022 12:15 PM	File folder	
Strawberry	10/14/2022 12:32 PM	File folder	
Users	9/21/2022 6:57 PM	File folder	
var	10/10/2022 12:08 PM	File folder	
Windows	10/11/2022 1:42 AM	File folder	
DumpStack	9/13/2022 8:41 PM	Text Document	12 KB
dart-sdk	10/18/2022 11:40 AM	File folder	

18 items 1 item selected

Add this to your PATH variable.



S:\dart-sdk\bin

Let’s Start

What I will cover:

1. What Dart is.
2. How to create a Dart Project
3. Types
4. Variables
5. Control Flow Statements
6. Comments & Imports
7. Introduction to Functions

1. What Dart is.

Dart is an efficient, multi-platform language, which developers love for its fast development experience and high-performance apps.

The multi-platform part means that you have to write <u>one codebase</u> to compile to Android, iOS, Windows, MacOS, Linux, and more.

Its syntax is similar to C/C++.

It has both a JIT (Just In Time) Compiler, and an AOT (Ahead Of Time) compiler, which makes development fast, but also allows production code to be compiled better for more efficiency.

2. How to create a project

1. **Go to the folder you want the project in**
2. **Open cmd/powershell**
3. **Run ‘dart create -t console [project_name]’**

3.Types.

Built-in types

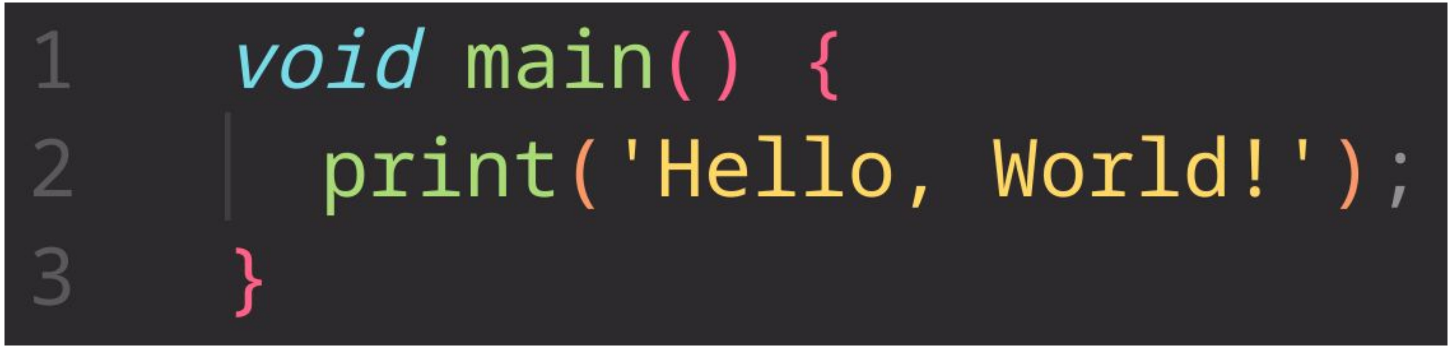
Language > Built-in types

The Dart language has special support for the following:

- Numbers (`int`, `double`)
- Strings (`String`)
- Booleans (`bool`)
- Records (`(value1, value2)`)
- Functions (`Function`)
- Lists (`List`, also known as *arrays*)
- Sets (`Set`)
- Maps (`Map`)
- Runes (`Runes`; often replaced by the `characters` API)
- Symbols (`Symbol`)
- The value `null` (`Null`)

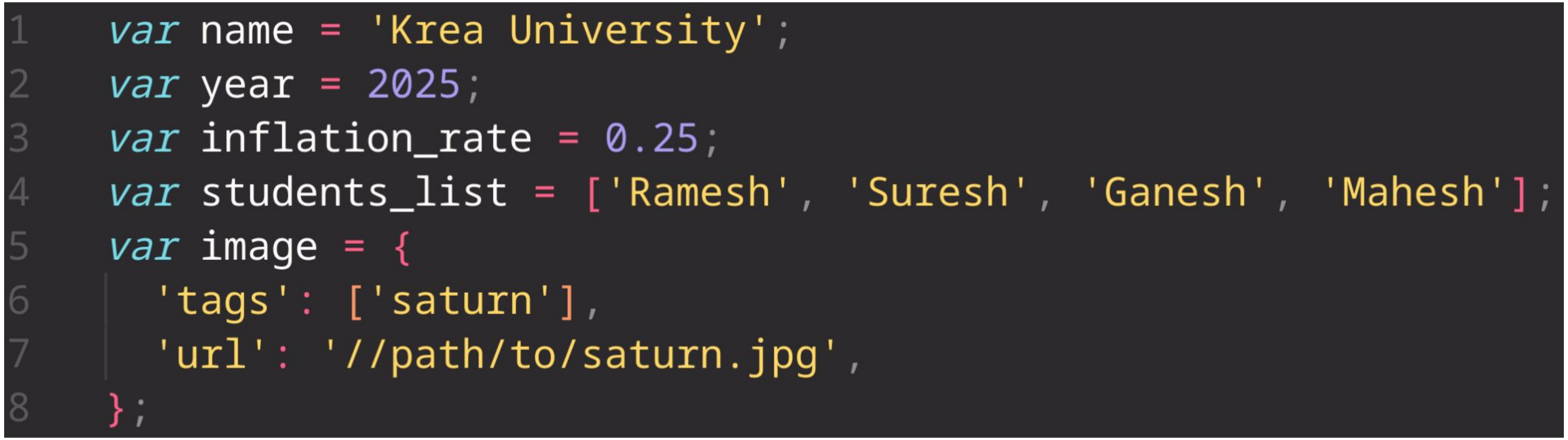
4. Variables.

First, a Hello World program.



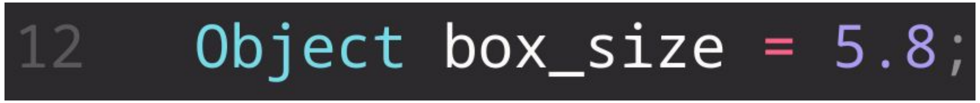
```dart
void main() {
  print('Hello, World!');
}
```

Variables



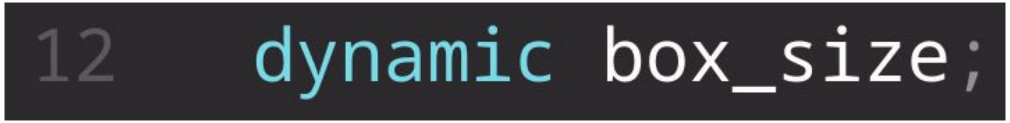
```
var name = 'Krea University';
var year = 2025;
var inflation_rate = 0.25;
var students_list = ['Ramesh', 'Suresh', 'Ganesh', 'Mahesh'];
var image = {
  'tags': ['saturn'],
  'url': '//path/to/saturn.jpg',
};
```

This to make it any type.



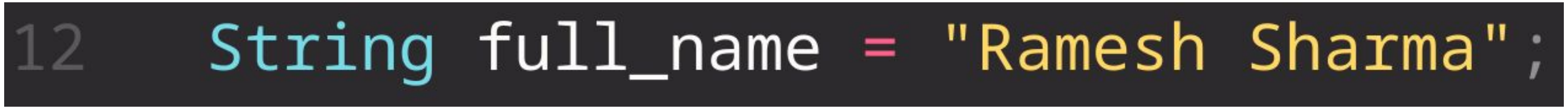
```
Object box_size = 5.8;
```

And this to turn off type checking.



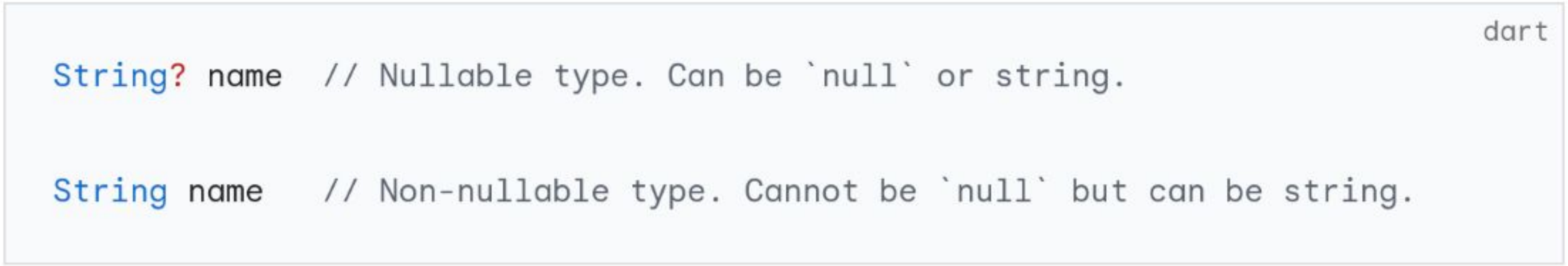
```
dynamic box_size;
```

You can also specify the type instead of ‘var’



```
String full_name = "Ramesh Sharma";
```

Null Safety

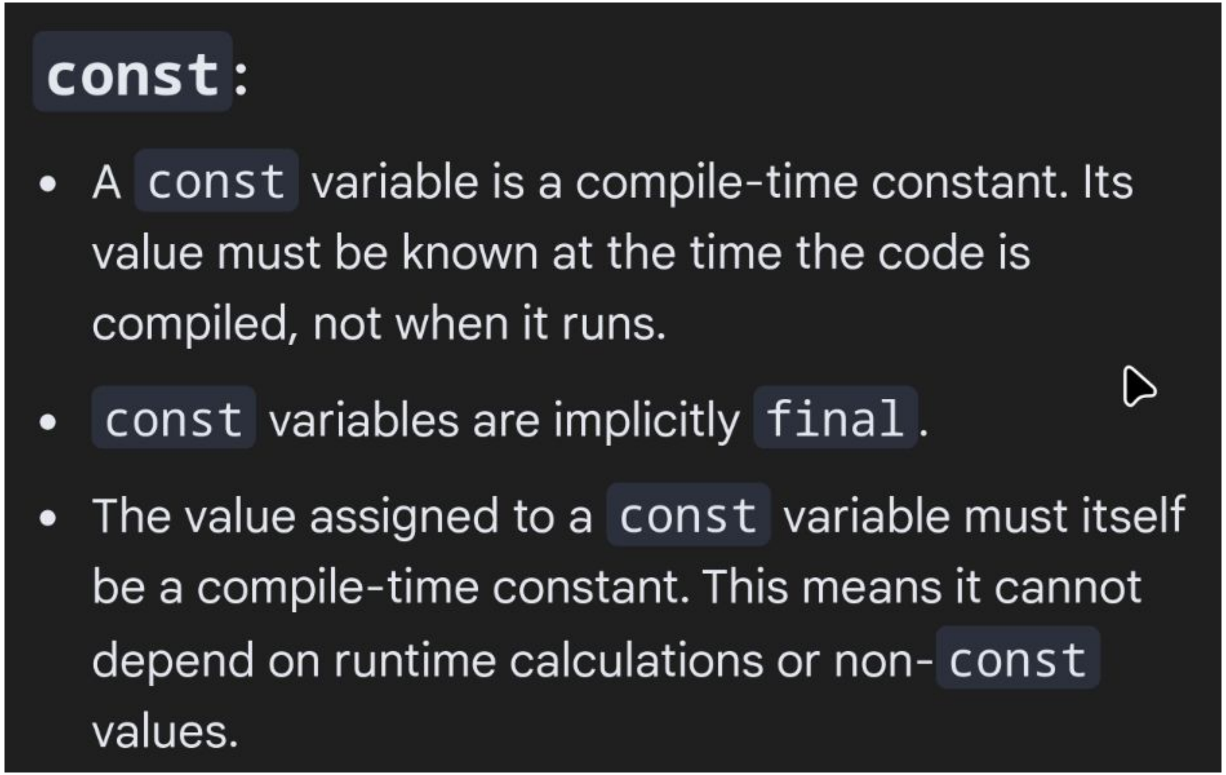


```dart
String? name  // Nullable type. Can be `null` or string.

String name   // Non-nullable type. Cannot be `null` but can be string.
```

If you have not initialised (defined a value of) a variable, it will be ‘null’.

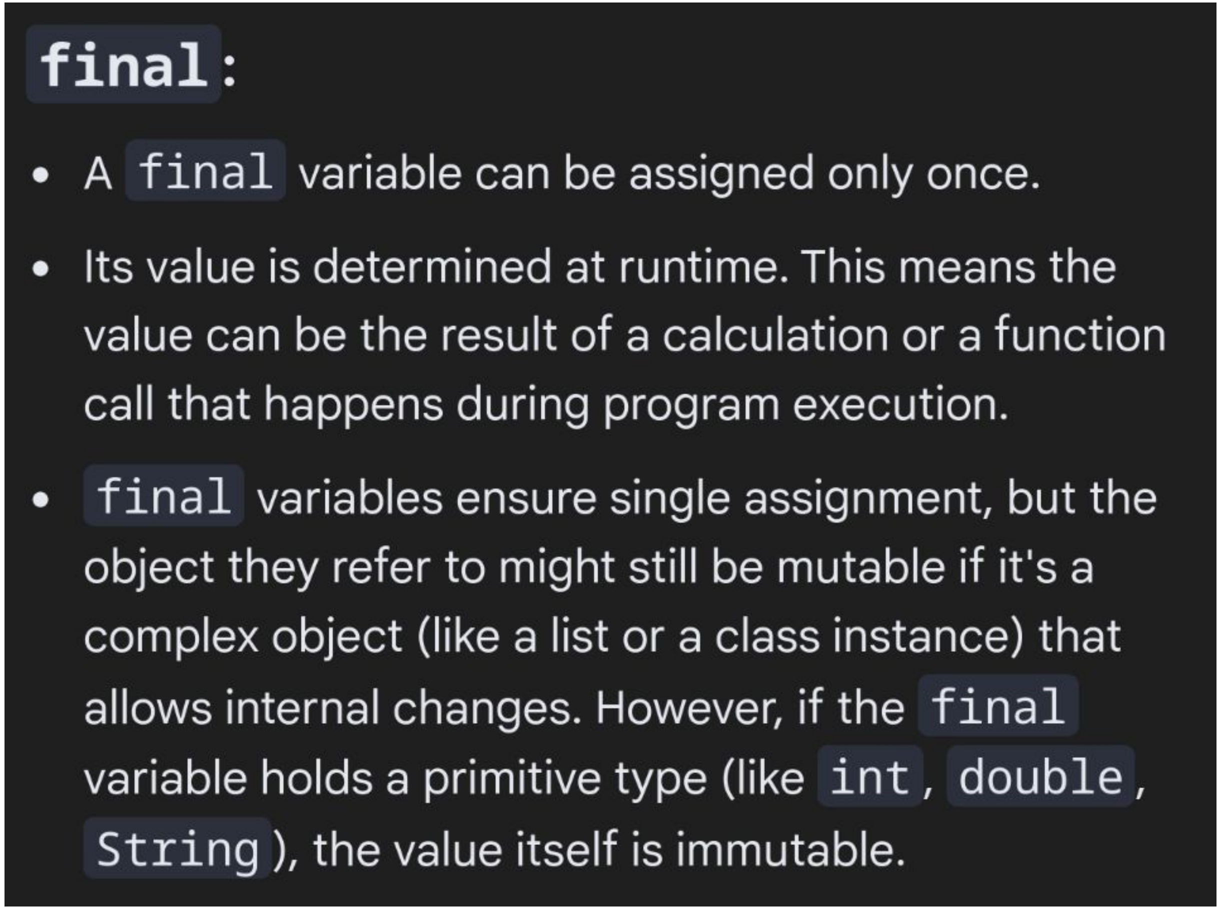
Const



`const`:

- A `const` variable is a compile-time constant. Its value must be known at the time the code is compiled, not when it runs.
- `const` variables are implicitly `final`.
- The value assigned to a `const` variable must itself be a compile-time constant. This means it cannot depend on runtime calculations or non-`const` values.

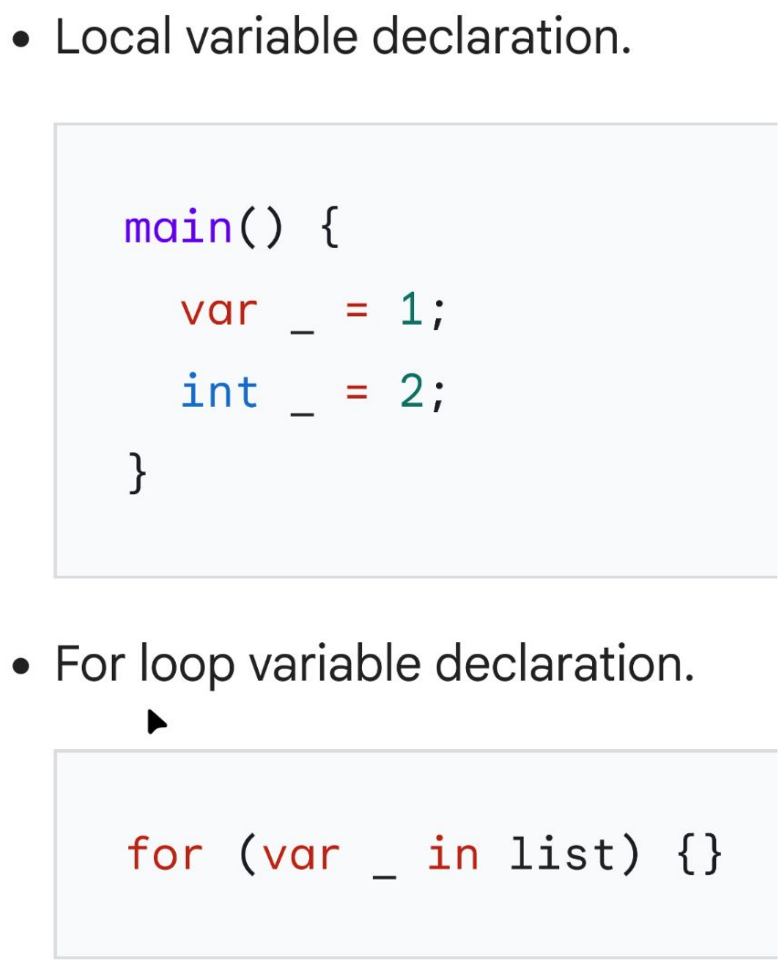
Final



`final`:

- A `final` variable can be assigned only once.
- Its value is determined at runtime. This means the value can be the result of a calculation or a function call that happens during program execution.
- `final` variables ensure single assignment, but the object they refer to might still be mutable if it's a complex object (like a list or a class instance) that allows internal changes. However, if the `final` variable holds a primitive type (like `int`, `double`, `String`), the value itself is immutable.

Wildcard



- Local variable declaration.

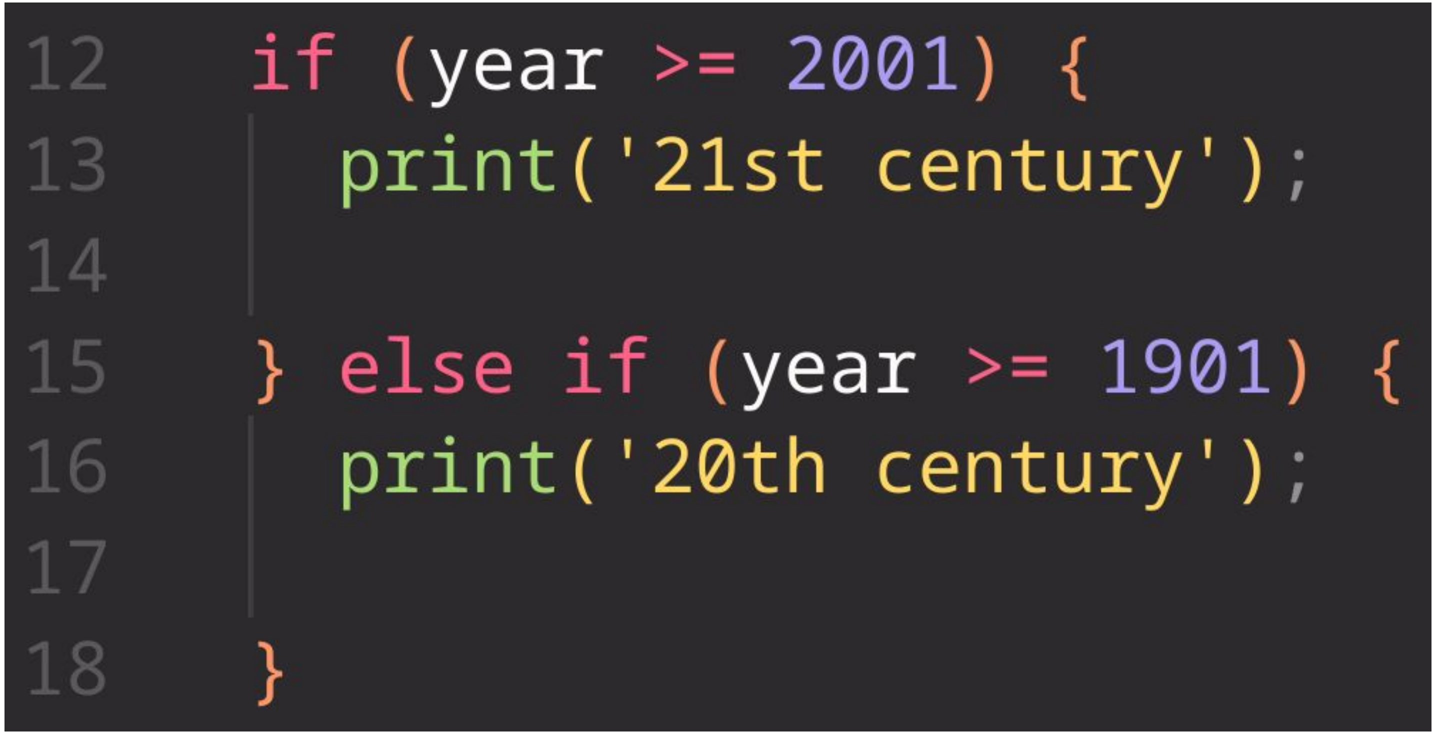
```
main() {
  var _ = 1;
  int _ = 2;
}
```

- For loop variable declaration.

```
for (var _ in list) {}
```

5. Control Flow Statements.

If Structure

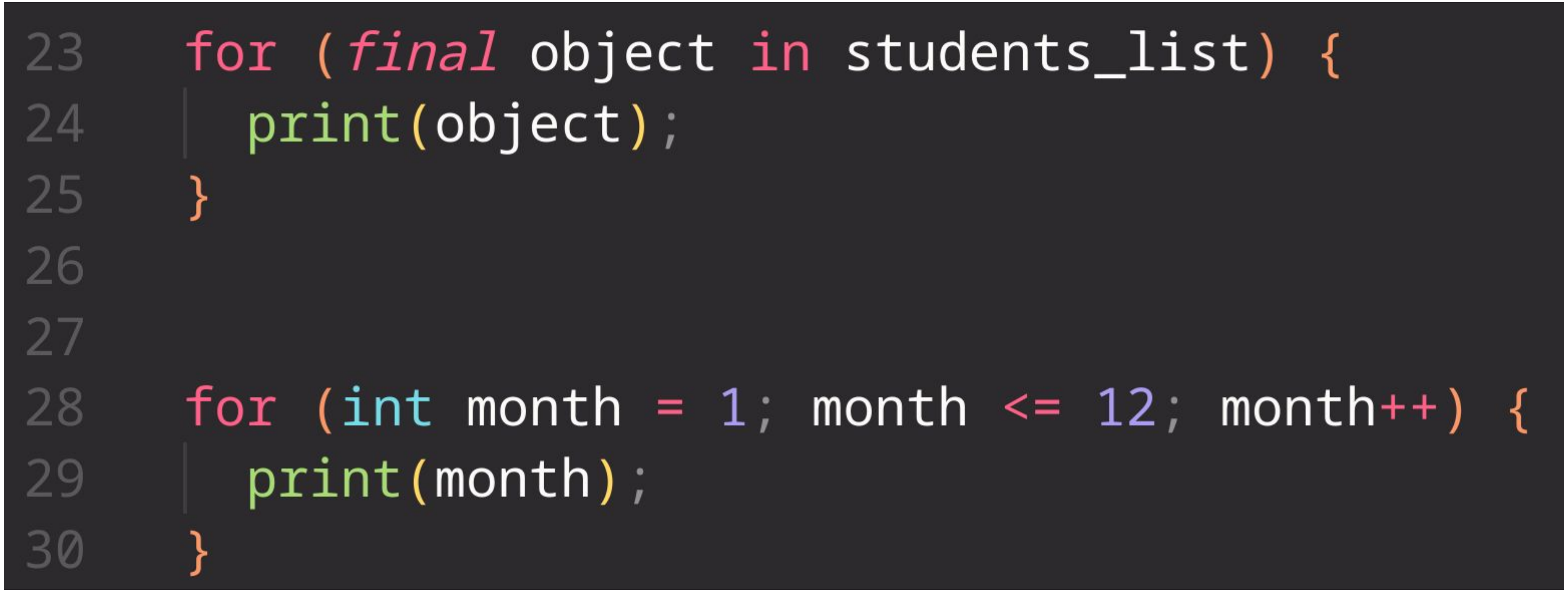


```
if (year >= 2001) {
  print('21st century');

} else if (year >= 1901) {
  print('20th century');

}
```

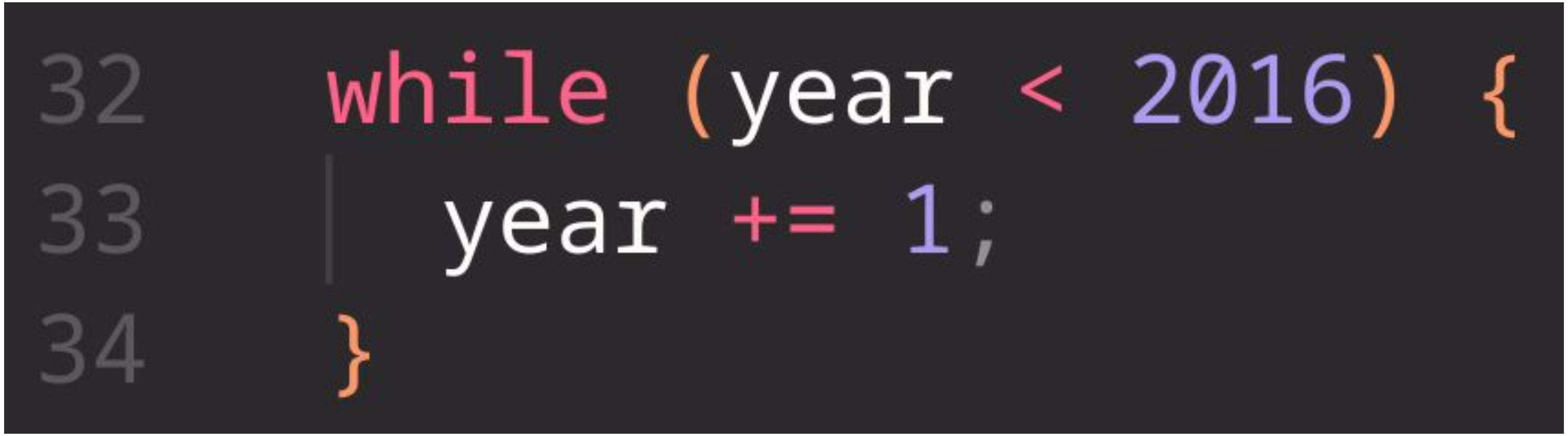
For Structure



```
for (final object in students_list) {
  print(object);
}


for (int month = 1; month <= 12; month++) {
  print(month);
}
```

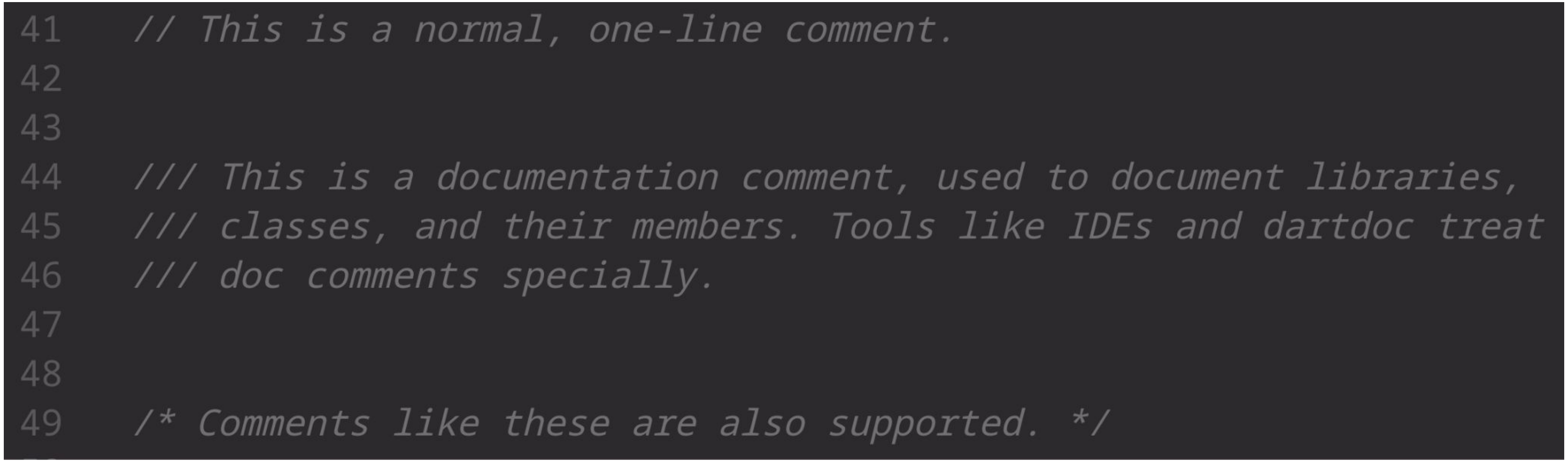
While Structure



```
while (year < 2016) {
  year += 1;
}
```

6. Comments and Imports.

Comments

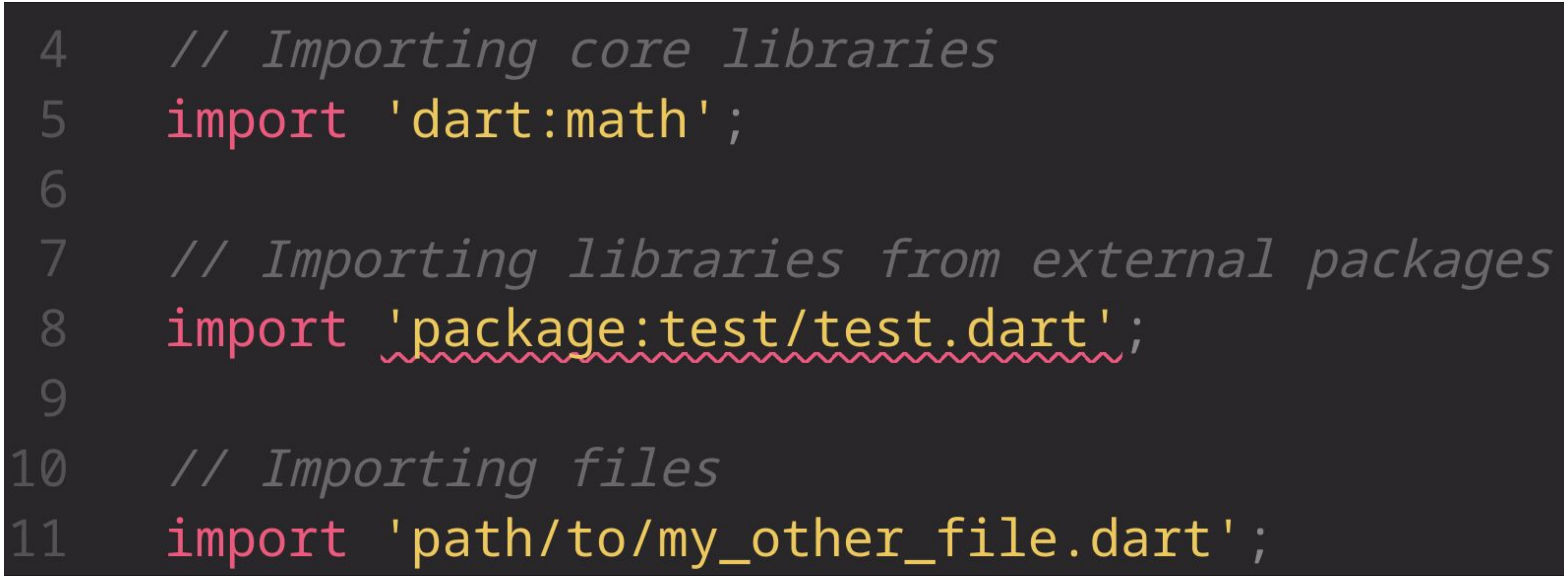


```
// This is a normal, one-line comment.


/// This is a documentation comment, used to document libraries,
/// classes, and their members. Tools like IDEs and dartdoc treat
/// doc comments specially.


/* Comments like these are also supported. */
```

Imports



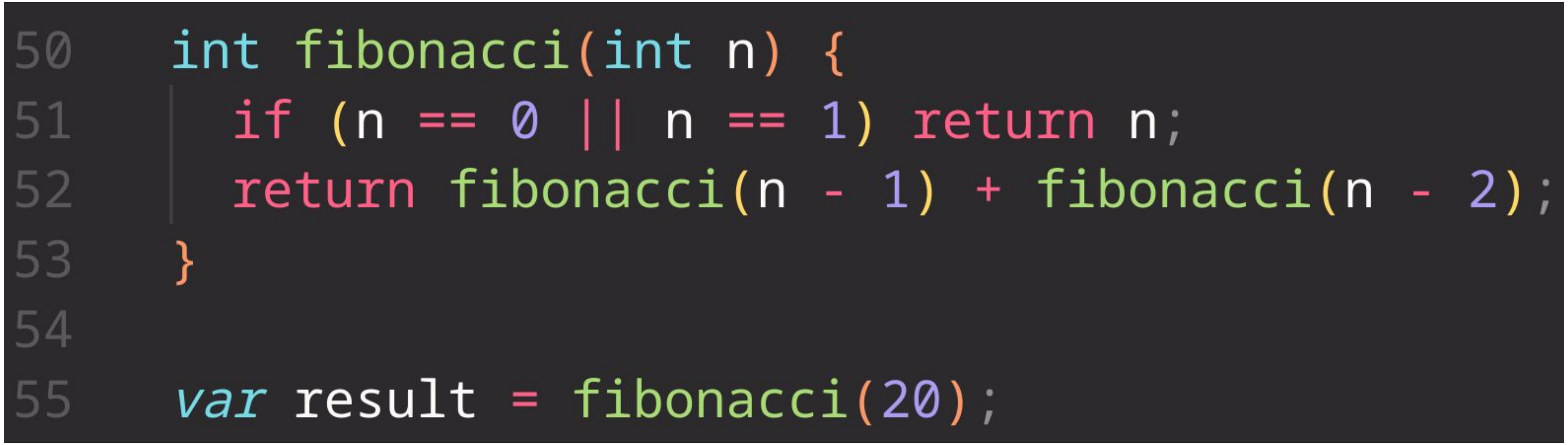
```dart
// Importing core libraries
import 'dart:math';

// Importing libraries from external packages
import 'package:test/test.dart';

// Importing files
import 'path/to/my_other_file.dart';
```

7. Introduction to Functions.

Basic Function Structure



```
int fibonacci(int n) {
  if (n == 0 || n == 1) return n;
  return fibonacci(n - 1) + fibonacci(n - 2);
}

var result = fibonacci(20);
```

For next classes:

‘Late’ keyword
break and continue
switch and case
assert
functions in depth
classes