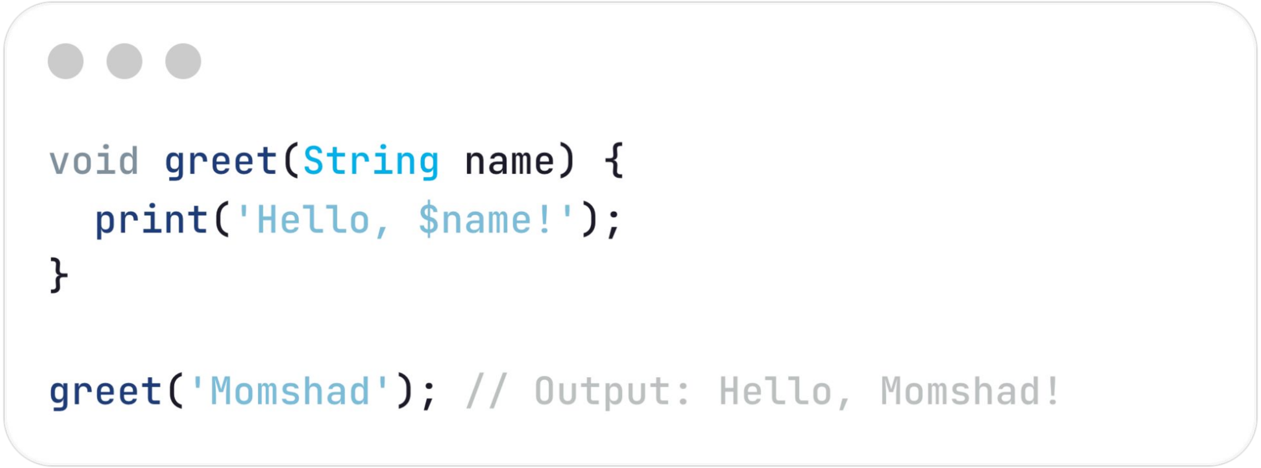
Functions

Positional parameters | Named parameters (required, default values) | Optional parameters

What Are Parameters?

- **Parameters** are **placeholders** used in a function to receive values when it’s called.
- The values you pass during function call are called **arguments.**
- Parameters allow functions to **work with dynamic data** instead of fixed values.

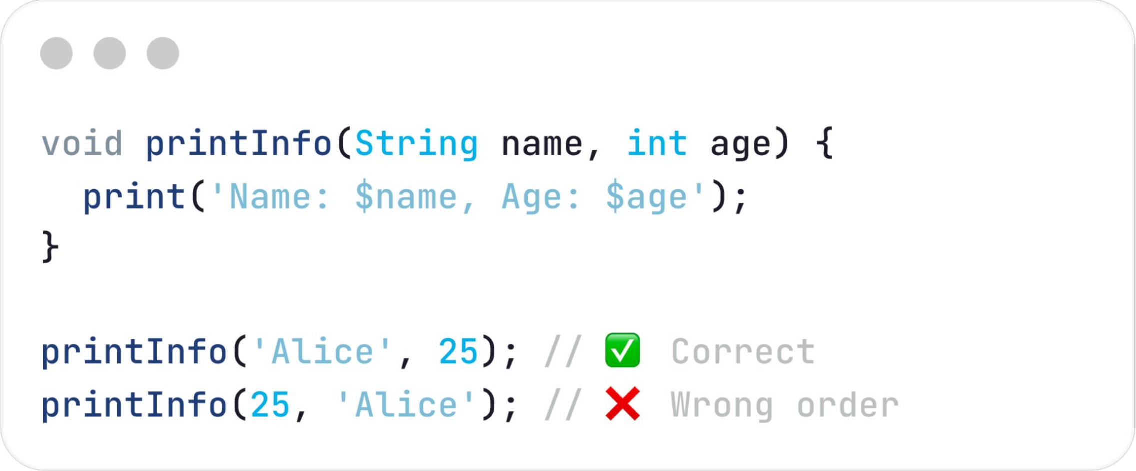


```
void greet(String name) {
  print('Hello, $name!');
}

greet('Momshad'); // Output: Hello, Momshad!
```

Positional Parameters

- These are **parameters passed** in a **specific order**.
- The **order and number** of arguments must match during function call.
- Most common type of parameters in Dart.

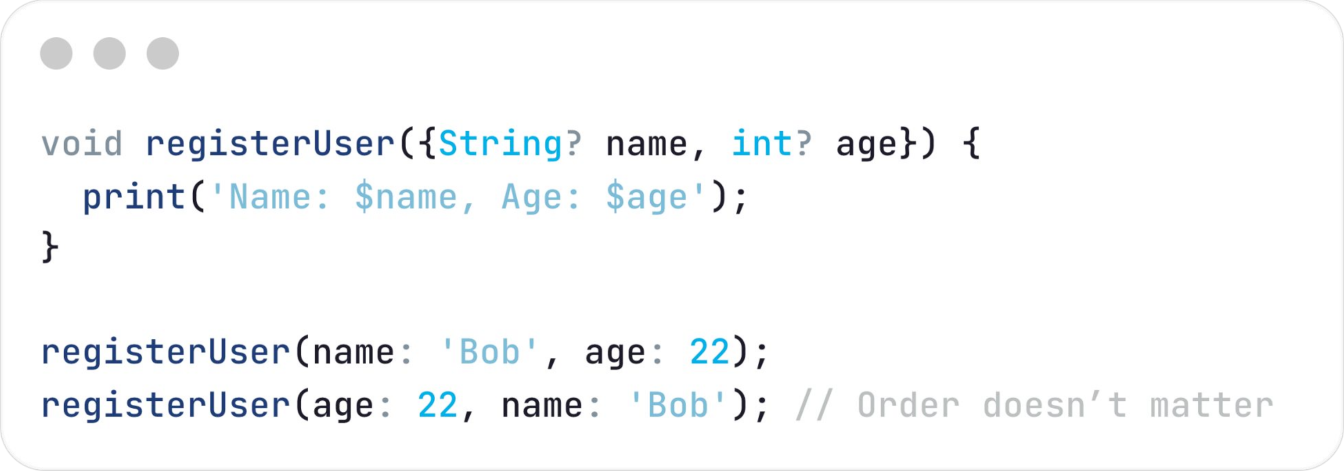


```
void printInfo(String name, int age) {
  print('Name: $name, Age: $age');
}

printInfo('Alice', 25); // ✅ Correct
printInfo(25, 'Alice'); // ❌ Wrong order
```

Named Parameters

- You **label parameters by name** when calling the function.
- Makes code **more readable** and **order-independent.**
- Defined using curly braces `{}` in the function definition.

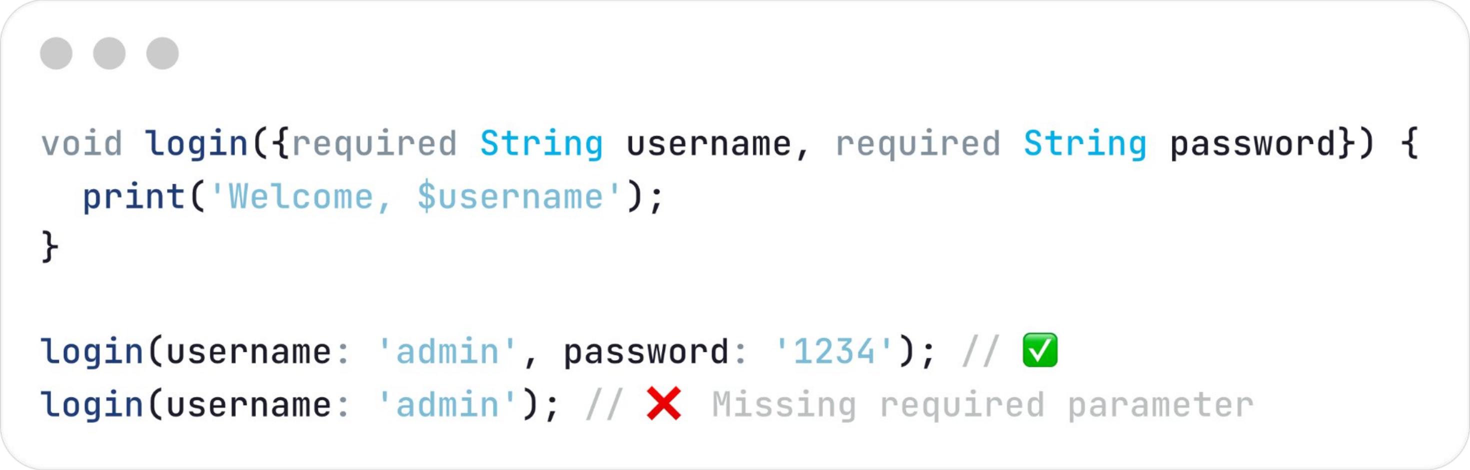


```
void registerUser({String? name, int? age}) {
  print('Name: $name, Age: $age');
}

registerUser(name: 'Bob', age: 22);
registerUser(age: 22, name: 'Bob'); // Order doesn’t matter
```

Required Named Parameters

- By default, named parameters are **optional** and **nullable**.
- To make them **mandatory**, use the `required` keyword.
- Helps prevent missing values at compile-time.

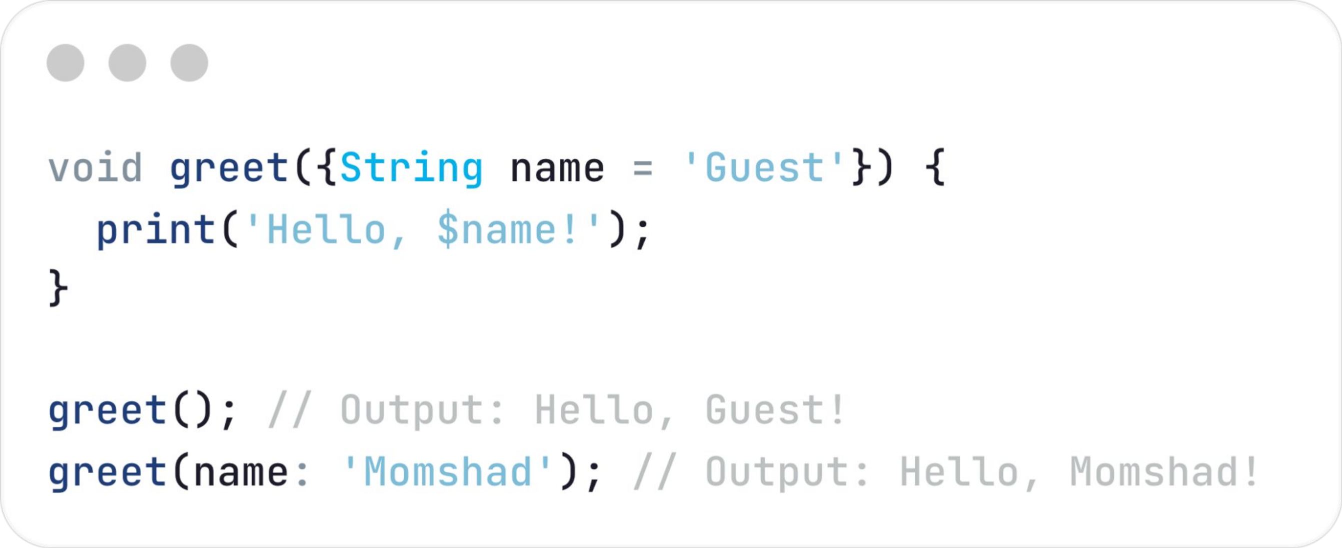


```
void login({required String username, required String password}) {
  print('Welcome, $username');
}

login(username: 'admin', password: '1234'); // ✅
login(username: 'admin'); // ❌ Missing required parameter
```

Default Values in Named Parameters

- You can assign **default values** to parameters.
- If the caller doesn’t pass a value, the default one is used.

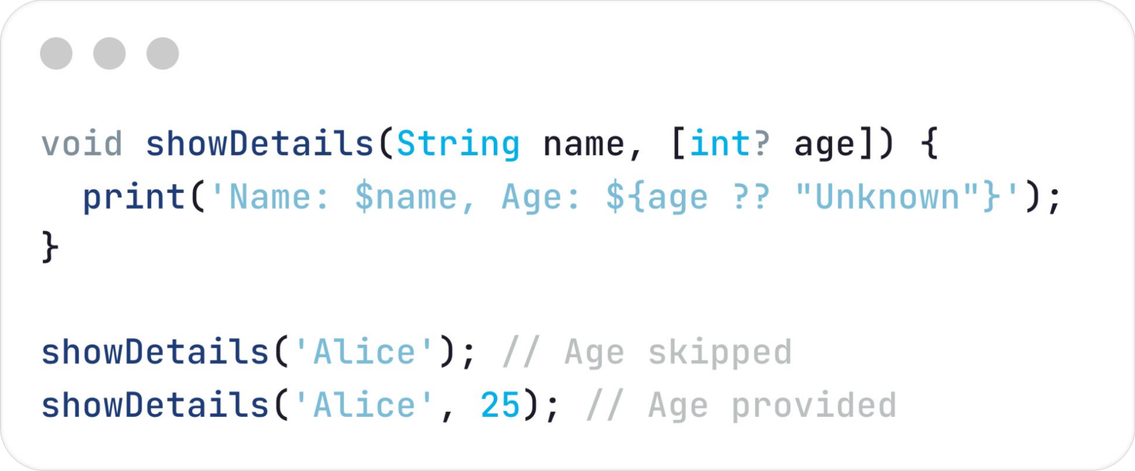


```dart
void greet({String name = 'Guest'}) {
  print('Hello, $name!');
}

greet(); // Output: Hello, Guest!
greet(name: 'Momshad'); // Output: Hello, Momshad!
```

Optional Positional Parameters

- Wrapped in **square brackets** `[]`.
- Can be skipped, but **must come after required positional parameters**.
- Useful for flexible function calls.



```dart
void showDetails(String name, [int? age]) {
  print('Name: $name, Age: ${age ?? "Unknown"}');
}

showDetails('Alice'); // Age skipped
showDetails('Alice', 25); // Age provided
```