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Day 4- Assignment

For Loops in Dart

For loops are used to repeat code multiple times. Dart supports several kinds of loop constructs like for, for-in, and forEach, commonly used with ranges or other iterable structures (not necessarily lists here).

for Loop

Classic loop with initialization, condition, and increment.

Great when you need a counter or index.

Can use break and continue.

```
void main() {
  for (int i = 1; i <= 5; i++) {
    print("Count: $i");
  }
}
```

for-in Loop

Used to iterate over elements of any iterable (like Set, String, etc.).

Cleaner syntax, but no access to index.

Read-only iteration.

```
void main() {
  var chars = {'A', 'B', 'C'};
  for (var ch in chars) {
    print("Char: $ch");
}
}
```

forEach() Method

A function-style loop that applies an action to each element.

Cannot use break or continue.

Useful for cleaner code when no index is needed.

```
void main() {
  var name = "DART";
  name.runes.forEach((rune) {
    print(String.fromCharCode(rune));
  });
}
```

Lists and Common List Methods in Dart

A List in Dart is an ordered collection of items. It supports powerful methods to manipulate and access elements easily.

Let's use this sample list for all examples:

```
var numbers = [1, 2, 3, 4, 5];
```

map() – Transform items

Applies a function to each item and returns a new list.

```
var doubled = numbers.map((n) => n * 2).toList();
print(doubled); // [2, 4, 6, 8, 10]
```

where() – Filter items

Returns a new list of items that satisfy a condition.

```
var even = numbers.where((n) => n.isEven).toList();
print(even); // [2, 4]
```

any() – Check if any item matches

Returns true if at least one item meets the condition.

```
print(numbers.any((n) => n > 3)); // true
```

e**very() – Check if all items match**

Returns true if all items meet the condition.

```
print(numbers.every((n) => n > 0)); // true
```

reduce() – Combine items to single value

Processes the list to a single result (e.g. sum, product).

Here is a code for clear explanation

```
main()
{
  List<String> l1=["java","js","python","dart"];
  l1.add("c");
  print(l1);

  List<String> l2=["c","c++","pascal","cobol"];
  l1.addAll(l2);

  print(l1);

  l1.insertAll(0,l2);
  l1.remove("c");
  print(l1);
  l1.removeAt(0);
  print(l1);
  l1.removeLast();
  print(l1);
  l1.removeRange(0, 2);
```

```
  print(l1);
  print(l1.contains("apple"));
  print(l1.indexOf("python"));
  print(l1.lastIndexOf("c"));
  l1.sort();
  print(l1);

  // for(var i=0;i<l1.length;i++)
  // {
  //   print(changeCase(l1[i]));
  // }

var ilanguage= l1.map((i)=>i.startsWith('j'));
print(ilanguage);
//  var jo=l1.join(',');
//  print(jo);
l1.shuffle();
print(l1);

List <int>? l5=null;
List<int> l6=[...?l5,4];
print(l6);
}
// changeCase(String s) =>  s.toUpperCase();
```