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Day5- Assignment

What is a Set in Dart

A Set is an unordered collection of unique items (no duplicates allowed).

Dart provides the Set class to work with sets.

You can use sets when you don’t want duplicate values and order doesn't matter.

Example:

Set names = {'Alice', 'Bob', 'Charlie'};

Set Creation

1. Using {} (Set Literals)

The most common way to create a set. Dart automatically infers the type.

Example:

```
void main() {
  var fruits = {'apple', 'banana', 'orange'};
  print(fruits); // {apple, banana, orange}
}
```

Note: creates a Set only if the type can be inferred; otherwise, it's a Map.

2. Using Set() Constructor

Used when you want to create an empty set.

Example:

```
void main() {
  Set numbers = Set();
  numbers.add(1);
  numbers.add(2);
  print(numbers); // {1, 2}
}
```

3. Using Set.from()

Creates a set from another iterable (like a list).

Example:

```
void main() {
  List list = [1, 2, 2, 3];
  Set unique = Set.from(list);
  print(unique); // {1, 2, 3}
}
```

4. Using Set.of()

Similar to Set.from(), but can take a set or any iterable.

Example:

```
void main() {
```

```
  var names = Set.of(['Alice', 'Bob', 'Alice']);
  print(names); // {Alice, Bob}
}
```

Set Methods

1. add()

Adds an element to the set.

Example:

```
void main() {
  var items = {'pen'};
  items.add('pencil');
  print(items); // {pen, pencil}
}
```

2. addAll()

Adds multiple elements at once.

Example:

```
void main() {
  var set = {1, 2};
  set.addAll([3, 4, 2]); // 2 is ignored
  print(set); // {1, 2, 3, 4}
}
```

3. contains()

Checks if an element is in the set.

Example:

```
void main() {
var set = {'apple', 'banana'};
  print(set.contains('banana')); // true}
```

4. remove()

Removes a specific element.

Example:

```
void main() {
  var nums = {1, 2, 3};
  nums.remove(2);
  print(nums); // {1, 3}
}
```

5. clear()

Removes all elements.

Example:

```
void main() {
  var s = {'a', 'b', 'c'};
  s.clear();
  print(s); // {}
}
```

6. intersection()

Returns common elements between two sets.

Example:

```
void main() {
  var a = {1, 2, 3};
  var b = {2, 3, 4};
  print(a.intersection(b)); // {2, 3}
}
```

7. union()

Combines all elements from two sets (removes duplicates).

Example:

```
void main() {
  var x = {1, 2};
  var y = {2, 3};
  print(x.union(y)); // {1, 2, 3}
}
```

8. difference()

Returns items present in one set but not the other.

Example:

```
void main() {
  var s1 = {1, 2, 3};
```

```
  var s2 = {2, 3, 4};
  print(s1.difference(s2)); // {1}
}
```

9. isEmpty and isNotEmpty

Checks whether the set has elements.

Example:

```
void main() {
  var s = <int>{};
  print(s.isEmpty);     // true
  print(s.isNotEmpty);  // false
}
```