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# PYTHON
# BOOTCAMP

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# SETS

**Sets:**

- A set of data within curly bracket {...}
- Unordered collection of elements

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## Sets operations:

```
3   fruits = {"apple", "banana", "orange"}
4   numbers = {1, 2, 3, 4, 5}
5
6   # Set operations
7   fruits.add("grape")          # Add element
8   fruits.remove("banana")      # Remove element
9   fruits.discard("kiwi")       # Remove if exists (no error)
10
11  print(fruits)
```

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## Sets mathematic operations:

```
14    set1 = {1, 2, 3, 4}
15    set2 = {3, 4, 5, 6}
16
17    print(set1.union(set2))          # {1, 2, 3, 4, 5, 6}
18    print(set1.intersection(set2))   # {3, 4}
19    print(set1.difference(set2))     # {1, 2}
```

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**Exercise:**

1. Create a system that stores student grades as tuples (name, subject, grade) and uses sets to find unique subjects and students.

```
grades = [
 ("Alice", "Math", 85),
 ("Bob", "Science", 92),
 ("Alice", "Science", 78),
 ("Charlie", "Math", 90),
 ("Bob", "Math", 88),
 ("Alice", "English", 95)
]
```