FOUNDATION LESSON

WEEK 2 · LESSON 10

# Choose the right collection

Choosing the right collection / Nested collections

CHOOSE THE RIGHT COLLECTION

MENTAL MODEL

# Choose the right collection

Lists preserve order and duplicates; tuples group a fixed record; dictionaries name fields; sets track unique members.
A tuple may contain a mutable nested list. Immutability of the tuple does not freeze the nested object.

# COLLECTION SIZES

CODE WALKTHROUGH W02-L10-S03

```
01  ordered = [1, 2, 2]
02  unique = {1, 2, 2}
03  labelled = {"a": 1, "b": 2}
04  print(len(ordered), len(unique), labelled["a"])
```

WHAT TO TRACK

Collection sizes

PREDICT THE RESULT

Predict the output.
Explain each operation.
Pause before continuing.

# COLLECTION SIZES

CODE WALKTHROUGH W02-L10-S04

```
01  ordered = [1, 2, 2]
02  unique = {1, 2, 2}
03  labelled = {"a": 1, "b": 2}
04  print(len(ordered), len(unique), labelled["a"])
```

## WHAT TO TRACK

Collection sizes

## VALIDATE THE RESULT

3 2 1

# NESTED RECORDS

CODE WALKTHROUGH W02-L10-S05

```
01  records = [
02      {"id": 1, "amount": 100},
03      {"id": 2, "amount": 250},
04  ]
05  print(records[0]["amount"])
06  print(records[1]["amount"])
07  total = records[0]["amount"] + records[1]["amount"]
08  print(total)
```

WHAT TO TRACK

Nested records

PREDICT THE RESULT

Predict the output.
Explain each operation.
Pause before continuing.

# NESTED RECORDS

CODE WALKTHROUGH W02-L10-S06

```
records = [
    {"id": 1, "amount": 100},
    {"id": 2, "amount": 250},
]
print(records[0]["amount"])
print(records[1]["amount"])
total = records[0]["amount"] + records[1]["amount"]
print(total)
```

## WHAT TO TRACK

Nested records

## VALIDATE THE RESULT

```
100
250
350
```

# NESTED MUTABILITY

CODE WALKTHROUGH W02-L10-S07

```
01  record = ("C001", [100])
02  record[1].append(200)
03  print(record)
```

WHAT TO TRACK

Nested mutability

PREDICT THE RESULT

Predict the output.
Explain each operation.
Pause before continuing.

# NESTED MUTABILITY

CODE WALKTHROUGH W02-L10-S08

```
01  record = ("C001", [100])
02  record[1].append(200)
03  print(record)
```

WHAT TO TRACK

Nested mutability

VALIDATE THE RESULT

```
('C001', [100, 200])
```

INDEPENDENT PREDICTION

LEARNER PRACTICE

# Independent prediction

Change one input in choose the right collection and test a boundary or edge case.

01 Predict the exact output.
02 Change only one input.
03 Run in a fresh Python process.
04 Explain any difference.

PREDICT · MODIFY · RUN

01 Restate the supplied rules.

02 Predict the result.

03 Modify and run the code.

04 Compare actual output.

05 Explain any difference.

CHOOSE THE RIGHT COLLECTION

# Recap and next step

Lists preserve order and duplicates; tuples group a fixed record; dictionaries name fields; sets track unique members. A tuple may contain a mutable nested list. Immutability of the tuple does not freeze the nested object.

UNDERSTAND APPLY VALIDATE EXPLAIN