

1.4 DATA TYPES & STRUCTURES · 1.4.2

Arrays, tuples & records

The core data structures and how they differ. Spec 1.4.2(a).

01 Array

What Ordered, **same data type**, fixed size, index from 0.

1-D `scores[10]`

2-D `grid[row][col]` (a table)

3-D Three indices (stack of tables).

02 Record

What Named **fields of different types** for one item.

Example Student: name(str), age(int), fee(real).

Access `student.age`

vs array Array = many of one type; record = many fields, one item.

03 List vs tuple

List **Dynamic**, mixed types, **mutable**; has append/remove/insert.

Tuple Ordered but **immutable** — can't change after creation.

Use tuple Fixed values, e.g. a coordinate (x, y).

04 Differences (exam gold)

Array vs list fixed + one type vs dynamic + mixed.

Tuple vs list **immutable** vs mutable.

Record vs array different fields vs same type.

FINAL PASS BEFORE THE EXAM

Rapid exam tips

Six slips on data-structure questions.

01

Array = **one** data type; mixed types is a **list** feature.

02

Record = different **named fields** for one item.

03

Tuple is **immutable** — that's usually the whole point of the question.

04

Arrays index from **0**: n elements run 0 to n-1.

05

2-D access is `array[row][column]` — keep the order.

06

"Difference array vs list" → fixed/one-type vs dynamic/mixed.