13 Composite types – Part 2

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	**Write it 3 times** (English)		
composite type			
record			
set			

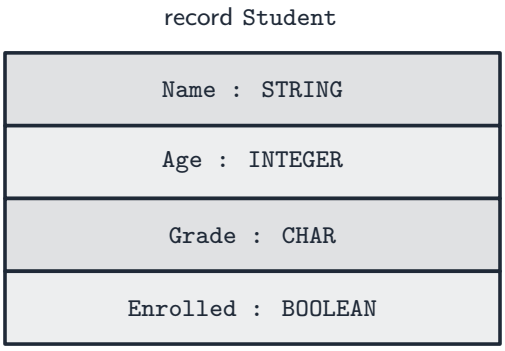
Recall

Real things are usually made of several values of different types. A **composite type** groups them under one name.

New ideas

Read these first. Each idea has a short worked example. Then do the Practice.

1 Record



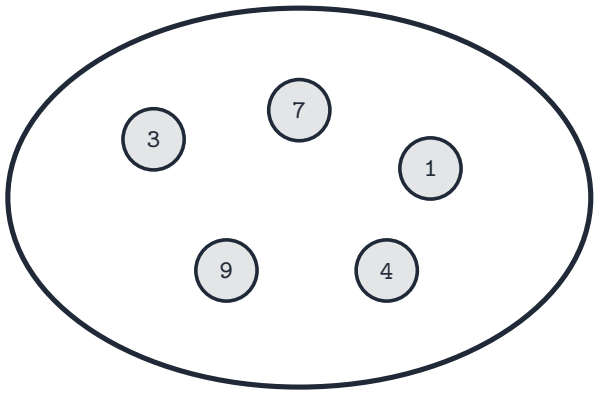
one name, several fields of different types

A **record** groups several **fields** of different types under one name – like a `Student` with a name, age, grade and enrolled flag.

Worked example.

```
TYPE Student
   DECLARE Name  : STRING
   DECLARE Age   : INTEGER
   DECLARE Grade : CHAR
ENDTYPE
DECLARE s : Student
s.Name ← "Lily"
s.Age  ← 16
```

■ 2 Set



unordered, every value unique

A **set** is an unordered collection of unique values. You can add, remove, test membership, and take the union or intersection of two sets.

Worked example. The union of `{2, 4, 6}` and `{4, 6, 8}` is `{2, 4, 6, 8}` – the shared `4` and `6` appear only once. Adding `4` to a set that already has it leaves the set unchanged.

Watch out: a record groups fields of *different* types under one name (unlike an array, where every item is the *same* type). A set ignores both order and duplicates.

Practice

Try these in order.

13.1 What does a *composite type* do? [1]

13.2 What is a *record*? [1]

13.3 Can the fields of a record be different types? [1]

13.4 What is a *set*? [1]

13.5 Can a set contain the same value twice? [1]

13.6 A record and an array both store several values. Explain one key difference between them. [2]

13.7 Challenge. Two sets are `A = {1, 2, 3, 4}` and `B = {3, 4, 5}`. Write down their union and their intersection. [2]