Your notes

GCSE Computer Science: revision notes

Data types, arrays and records

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Data types

- **Integer**: a whole number, such as 42. **Real** (also called float): a number with a decimal part, such as 3.14. **Boolean**: True or False.
- **Character**: a single letter, digit or symbol, such as 'A'. **String**: a sequence of **characters**, such as "Hello".
- Choosing the right type saves memory and avoids errors. A phone number is stored as a **string**, because it can start with `0` and is never used in calculations.

Casting

- **Casting** converts data from one type to another: int("42") gives the **integer** 42, and str(42) gives the **string** "42".
- Input from the keyboard is a **string**, so cast it to a number before doing maths with it.

Arrays

- An **array** stores several values of the same type under one name. Each value has an **index**, which usually starts at `0`: names[`0`] is the first item.
- A 2D **array** is like a table, and needs two **indexes**, such as grid[row][column]. Check the question to see which **index** comes first.
- In many languages an **array** has a fixed size. Python uses lists, which can grow and shrink.

Records

- A **record** groups related data of different types into fields. A student **record** might have a name (**string**), an age (integer) and whether they have paid (Boolean).

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Key terms

Integer	A whole number.
Real	A number with a decimal part (also called a float).
Boolean	A data type with only two values: True or False.
Character	A single letter, digit or symbol.
String	A sequence of characters, such as a word or sentence.
Casting	Converting data from one data type to another.
Array	A data structure that stores several values of the same type under one name.
Index	The position of an item in an array, usually counted from `0`.
Record	A data structure that groups related fields of different types.

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. Which data type should store 3.75?
2. Which data type stores True or False?
3. Why should a phone number be stored as a string?
4. What is casting?
5. In most languages, what is the index of the first item in an array?
6. names holds "Ali", "Bo" and "Cy", in that order. What is names[1]?
7. What does an array store?
8. What does a record store?

Answers

1. Real (float)
2. Boolean
3. It can start with `0` and isn't used in calculations
4. Converting data from one type to another
5. `0`
6. Bo
7. Several values of the same type under one name
8. Related data of different types in fields

What to do next

Practise 19 questions on this topic

Try 7 exam questions, with mark schemes

Read the lesson, one step at a time

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