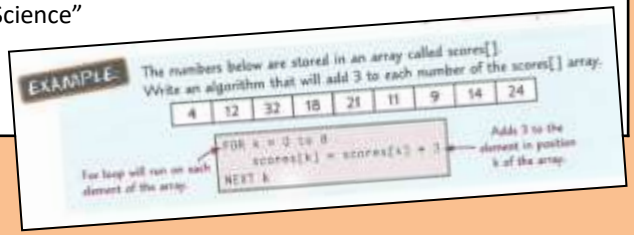
GCSE Computer Science
Topic 2.2 Programming (3)

Databases	A data structure where data is held in tables made up of fields (columns) and records (rows). Databases can be flat file (one table for every piece of data) or relational (different tables holding data about specific items) Relational databases have tables which are linked together by key fields.
Field	Used to store a category of data e.g. name, age, address. All data in the same field must be the SAME data type.
Record	A record stores particular data about a particular item. Data in the same record can be DIFFERENT data types.
Primary key	Each record in a database should have a primary key. A primary key is a unique piece of data per record. This makes it easier to search for and distinguish between data records.

Array	An array is a data structure that stores multiple items of data, called elements, which are all of the same data type, under one name (an identifier) *** Arrays are like lists.**
Element	Each piece of data in an array is called an element – each element can be accessed using its position (or index) in the array.
Creating & working with an array	ARRAY subjects [2] subjects [0] = "Computer Science" subjects [1] = " Maths" print(subjects[0]) subjects [2] = "Science"



Sub program	Sub programs are a self contained sequence of code, which perform a specific task. • They used to save time and simplify code & avoid repeating code. • They make testing a program easier & give your code more structure.
Procedure	Procedures are sets of instructions stored under one name. When you want your program to do the whole set of instructions you need to 'call' the name of the procedure.
Function	Functions are similar to procedures, but the main difference is a FUNCTION ALWAYS RETURNS A VALUE.
Parameter	Parameters are special variables used to pass values into a subprogram.
Argument	Arguments are the actual **values**, stored in the parameters.

SQL	A set of commands that can be used to create, update and query (search) databases.
SELECT *FROM*	**SELECT** : Used to tell the database what information you want to retrieve. **FROM** : Tells the database which tables to look in for the data you are searching for. *SELECT * FROM hotels* *SELECT hotel_name FROM hotels* *SELECT rooms, price_in_pounds FROM hotels*
WHERE	Used to filter the results. The **WHERE** statement specifies conditions that must be met before data is retrieved. *SELECT * FROM hotels WHERE hotel_rating >=4.1*
AND / OR *LIKE %*	SELECT hotel_name FROM hotels WHERE bathroom = "En-suite" **AND** price_in_pounds < 45 SELECT hotel_name, price_in_pounds WHERE hotel_name **LIKE** "%Hotel"

Table: hotels

ID	hotel_name	hotel_rating	rooms	bathroom	price_in_pounds
1	Water Lodge	2.3	50	En-suite	42
2	Fire Inn	4.2	64	Shared	42
3	Earthen House	4.4	215	En-suite	39
4	Windy Hotel	3.5	150	Shared	57
5	River Hotel	3.8	180	Shared	46

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What I need to know:

What is a database?			
What is a field?			
What is a record?			
What is a primary key?			
What is SQL used for?			
What is the function of the SELECT command?			
What is the function of the FROM command?			
What does SELECT * do?			
What is the WHERE command used for?			
What does the % wildcard do?			
Define the term ‘array’.			
Define the term ‘element’			
Write the code required to create an array, add 3 elements and then print out the first element.			
What is a sub program?			
What are the benefits of using sub-programs?			
Define the terms ‘function’ and ‘procedure’ and state the main difference between the two.			
Define the term ‘parameter’.			
Define the term ‘argument’			