Topic 20: Further Programming

EAL keyword sheet - Cambridge International AS & A Level Computer Science 9618. Write the word in your own language in the last column.

Keyword	Meaning	Example sentence	In my language
programming paradigm	A style or approach to programming.	*Object-oriented is a programming paradigm.*	
imperative programming	Telling the computer step by step how to do something.	*Python can be written in an imperative style.*	
declarative programming	Describing what the result should be, not how to get it.	*SQL is declarative.*	
object-oriented programming (OOP)	A paradigm that organises code into objects and classes.	*Java uses OOP.*	
class	A template for creating objects.	*class Car*	
object	An instance of a class.	*myCar is an object.*	
attribute / property	A piece of data in a class.	*Colour is an attribute of Car.*	
method	A subroutine that belongs to a class.	*The method Drive() moves the car.*	
constructor	A special method that creates and sets up an object.	*The constructor sets the starting values.*	
instantiation	Creating an object from a class.	*Instantiation uses the NEW keyword.*	
encapsulation	Keeping data and methods together and hiding the data.	*Encapsulation uses private attributes.*	
private / public	Can be used only inside the class / can be used anywhere.	*Make attributes private.*	
getter / setter	Methods to read / change a private attribute.	*A setter can validate the new value.*	
inheritance	A new class receives the attributes and methods of another class.	*Dog inherits from Animal.*	
superclass / subclass	The parent class / the child class.	*Animal is the superclass.*	
polymorphism	The same method name behaves differently for different classes.	*Both classes have Speak() but the output differs.*	
overriding	A subclass changes a method from its superclass.	*The subclass overrides the method.*	

Keyword	Meaning	Example sentence	In my language
composition	A class contains objects of other classes that cannot exist alone.	*A house is composed of rooms.*	
aggregation	A class contains objects of other classes that can exist alone.	*A team has players (aggregation).*	
functional programming	A paradigm that uses functions and avoids changing data.	*Functional programming uses pure functions.*	
first-class function	A function that can be used like any value.	*A first-class function can be passed as a parameter.*	
higher-order function	A function that takes or returns other functions.	*map is a higher-order function.*	
logic programming	A paradigm that uses facts and rules.	*Prolog is used for logic programming.*	
fact / rule / query	A statement that is true / an if-then statement / a question.	*A query asks if something is true.*	
backtracking	Going back and trying another option when a path fails.	*Prolog uses backtracking.*	
unification	Matching a query with facts and rules.	*Prolog uses unification.*	
exception	An error that occurs while the program runs.	*Dividing by zero causes an exception.*	
exception handling	Code that deals with errors without crashing.	*Use TRY and CATCH.*	
serial / sequential / random file	Types of file organisation.	*A random file lets you jump to a record.*	
addressing mode	The way an operand is used to find data: immediate, direct, indirect, indexed, relative.	*Indirect addressing uses an address that holds an address.*	