

KK08 — Features of a programming language

Programming · Comprehensive exam study guide

STUDY DESIGN — YOU MUST KNOW

- local and global variables, and constants
- data types
- instructions and control structures (sequence, selection, iteration/repetition)
- arithmetic, logical and conditional operators
- graphical user interfaces (GUIs)
- functions and methods
- classes and objects

This KK is the toolkit of a language. You must define each feature and know the difference between **local** and **global** variables and **constants**, and the three control structures. These appear in both short-answer and code-reading questions.

Variables and constants

Term	Meaning
Local variable	Declared inside a function/block; only accessible there; exists while that block runs.
Global variable	Declared outside functions; accessible throughout the program.
Constant	A named value that cannot change while the program runs (e.g. GST = 0.10).

Control structures

- **Sequence** — statements run one after another in order.
- **Selection** — a choice between paths (IF / IF-ELSE / CASE).
- **Iteration (repetition)** — repeating a block (FOR, WHILE).

Operators, GUIs, functions, classes

Feature	Meaning / example
Arithmetic operators	+ − × ÷, modulo — perform calculations.
Logical operators	AND, OR, NOT — combine Boolean conditions.
Conditional (relational) operators	=, ≠, <, >, ≤, ≥ — compare values, returning True/False.
GUI	Graphical user interface — windows, buttons, text boxes the user interacts with.
Function / method	A named, reusable block of code; a method is a function belonging to a class/object.
Class / object	A class is a template; an object is an instance created from it.

Key definitions to memorise

Local variable	A variable declared within a block/function and accessible only there.
Global variable	A variable declared outside functions and accessible throughout the program.
Constant	A named value that does not change during program execution.
Function	A named, reusable block of code that performs a task and may return a value.
Method	A function that belongs to a class or object.
Class	A template defining the attributes and methods of objects; an object is an instance of a class.

Exam technique

EXAM TIP

- Know the three operator groups by example: arithmetic (+), logical (AND), conditional (>).
- Scope question? local = inside a block; global = everywhere. Mention lifetime/accessibility.

COMMON MISTAKES

- Confusing logical operators (AND/OR) with conditional operators (>, ==).
- Saying a constant 'rarely changes' — it cannot change during execution.
- Treating a function and a method as identical — a method belongs to a class/object.

Quick revision checklist

- I can define local/global variables and constants.
- I can name and exemplify the three control structures.
- I can classify an operator as arithmetic, logical or conditional.

Exam practice — questions & model answers

Q1. Distinguish between a local and a global variable.

Distinguish · 2 marks

Model answer

- A local variable is declared in a block/function and accessible only there (1);
- a global variable is declared outside functions and accessible throughout the program (1).

Q2. Name the three control structures and give a keyword for each.

Name · 3 marks

Model answer

- Sequence (statements in order) (1).
- Selection (IF) (1).
- Iteration/repetition (WHILE or FOR) (1).

Q3. Classify each operator as arithmetic, logical or conditional: (a) AND (b) >= (c) *.

Classify · 3 marks

Model answer

- (a) Logical (1).
- (b) Conditional/relational (1).
- (c) Arithmetic (1).