

KK01 — Characteristics of efficient and effective solutions

Development & Evaluation · Comprehensive exam study guide

STUDY DESIGN — YOU MUST KNOW

- user-centred design
- clear and concise code
- detailed internal documentation

This KK defines what a 'good' solution looks like. **Effective** = achieves its purpose well; **efficient** = uses resources well. Three characteristics support both: user-centred design, clear and concise code, and detailed internal documentation.

The three characteristics

Characteristic	What it means	Why it helps
User-centred design	Designing around the needs, skills and context of actual users.	Makes the solution effective — it does what users need and is usable.
Clear and concise code	Readable code with no unnecessary repetition or complexity.	Easier to maintain and less error-prone; supports efficiency.
Detailed internal documentation	Comments and meaningful names explaining/justifying the code.	Helps current/future developers maintain it correctly.

Efficiency vs effectiveness (recap)

REMEMBER

Effectiveness = does it achieve the purpose/meet requirements? Efficiency = does it use time, cost and processing well? A solution should be both.

Key definitions to memorise

User-centred design	Designing a solution around the needs, abilities and context of its intended users.
Clear and concise code	Code that is readable and free of unnecessary complexity or repetition.
Effectiveness	How well a solution achieves its purpose and meets requirements.
Efficiency	How well a solution uses resources such as time, cost and processing.

Exam technique

EXAM TIP

- Link each characteristic to efficiency and/or effectiveness for explanation marks.
- User-centred design is the key idea for effectiveness; clear code and documentation for maintainability.

COMMON MISTAKES

- Swapping efficiency and effectiveness.
- Saying 'concise code' means 'as short as possible' — it means clear without needless complexity.

Quick revision checklist

- I can define efficiency and effectiveness.
- I can describe the three characteristics and how each contributes.

Exam practice — questions & model answers

Q1. Distinguish between an efficient and an effective solution.

Distinguish · 2 marks

Model answer

- An effective solution achieves its purpose and meets requirements well (1);
- an efficient solution uses resources such as time and processing well (1).

Q2. Explain how user-centred design contributes to an effective solution.

Explain · 2 marks

Model answer

- It designs around real users' needs and abilities (1),
- so the solution does what users actually need and is usable, meeting its purpose (1).