4.14.3.4 Example technical skills

4.14.3.4.1 Table 1: Example technical skills

Group	Model (including data model/structure)	Algorithms
A	Complex data model in database (eg several interlinked tables)	Cross-table parameterised SQL
		Aggregate SQL functions
		User/CASE-generated DDL script
	Hash tables, lists, stacks, queues, graphs, trees or structures of equivalent standard	Graph/Tree Traversal
		List operations
	Files(s) organised for direct access	Linked list maintenance
		Stack/Queue Operations
		Hashing
	Complex scientific/mathematical/robotics/ control/business model	Advanced matrix operations
		Recursive algorithms
		Complex user-defined algorithms (eg optimisation, minimisation, scheduling, pattern matching) or equivalent difficulty
		Mergesort or similarly efficient sort
	Complex user-defined use of object-orientated programming (OOP) model, eg classes, inheritance, composition, polymorphism, interfaces	Dynamic generation of objects based on complex user-defined use of OOP model
	Complex client-server model	Server-side scripting using request and response objects and server-side extensions for a complex client-server model
		Calling parameterised Web service APIs and parsing JSON/XML to service a complex client-server model

Group	Model (including data model/structure)	Algorithms
B	Simple data model in database (eg two or three interlinked tables)	Single table or non-parameterised SQL
	Multi-dimensional arrays Dictionaries Records	Bubble sort Binary search
	Text files File(s) organised for sequential access	Writing and reading from files
	Simple scientific/mathematical /robotics/ control/business model	Simple user defined algorithms (eg a range of mathematical/statistical calculations)
		Generation of objects based on simple OOP model
	Simple OOP model Simple client-server model	Server-side scripting using request and response objects and server-side extensions for a simple client-server model
		Calling Web service APIs and parsing JSON/ XML to service a simple client-server model
C	Single-dimensional arrays	Linear search
	Appropriate choice of simple data types Single table database	Simple mathematical calculations (eg average)
		Non-SQL table access

Note that the contents of Table 1 are examples, selected to illustrate the level of demand of the technical skills that would be expected to be demonstrated in each group. The use of alternative algorithms and data models is encouraged. If a project cannot easily be marked against Table 1 (for example, a project with a considerable hardware component) then please consult your AQA non-exam assessment adviser or provide a full explanation of how you have arrived at the mark for this section when submitting work for moderation.