

Technical Description

Data Management and Processing

Skill 23



1 Skill Overview	3
2 Task Assignment Overview	4
3 Materials and Equipment	6
4 Skill-Specific Requirements	9
5 Assessment Framework	11

1 Skill Overview

1.1 Skill Name and Category

Data Management and Processing, ICT

1.2 Number of Competitors

This is an individual Skill Competition with one competitor.

1.3 Competition Time

The total competition time is 3 hours and 10 minutes and is divided into the following modules:

- Module A: Creation of Database Structure – 20 minutes
- Module B: Creation of Queries – 20 minutes
- Module C: Creation of Basic Interface – 40 minutes
- Module D: Creation of User Interface – 50 minutes
- Module E: Creation of Administrator Interface – 60 minutes

1.4 Description of the Skill

Data Management and Processing involves designing and developing database-driven applications using a Database Management System (DBMS). Competitors are expected to create efficient, secure, and scalable solutions for storing, retrieving, and manipulating data. This includes tasks such as database design, implementation of queries, and integration of data processing logic within applications. Mastery of relational databases, data normalisation, and performance optimisation are essential, along with a strong understanding of how to apply DBMS tools to meet specific functional requirements.

2 Task Assignment Overview

2.1 Task Assignment Description and Familiarisation Session

The Task Assignment is the main competition task used to assess the competitors' skills. It defines what the competitors must complete during the competition and forms the basis for all assessments. The final result is evaluated only on the finished work produced during the official competition time.

A familiarisation session is organised on C-1. During this session, competitors may enter the workshop, see the workspace, check the available tools and materials, and ask questions about procedures or practical arrangements. Competitors are not allowed to practise, start, or rehearse any part of the Task Assignment during this session.

2.2 Task Assignment Structure

The competition consists of five modules:

Module A: Creation of Database Structure

Competition time: 20 minutes.

Competitors receive the database and module-specific instructions at the start of the competition. They create a database structure with six tables, define primary keys and appropriate field attributes, and implement table-specific functionality and other specified requirements.

Module B: Creation of Queries

Competition time: 20 minutes.

Competitors create an update query that modifies or transforms values in a table and stores the updated result in a field. They also create a parameter query that accepts a parameter value, filters results, and calculates an aggregate value, and a calculated-field query that includes a calculated field, groups data by a selected attribute, and ranks or sorts results based on calculated values.

Module C: Creation of Basic Interface

Competition time: 40 minutes.

Competitors create a basic interface containing four pages. The interface must include basic functionality, including login and user registration. Competitors must also configure the application to start as specified.

Module D: Creation of User Interface

Competition time: 50 minutes.

Competitors create four functional pages: a primary data management page, an information browsing page, a personalised user page, and a detail output page. The module-specific instructions provide more detailed requirements for the pages during the competition.

Module E: Creation of Administrator Interface

Competition time: 60 minutes.

Competitors create three or more pages that include data filtering by a selected entity, a data management page that allows the administrator to add, edit, or delete records, and a registration/entry page for inserting structured records into the system. They also create functionality for a report that groups data by a selected attribute, summarises key values, and presents the data in a clear format.

More detailed page requirements are provided in the module-specific instructions during the competition.

2.3 Task Assignment Technical Requirements

Competitors are required to demonstrate the following skills and knowledge:

- creation and configuration of database structures;
- definition of primary keys and appropriate field attributes;
- understanding of database attributes and functionalities;
- creation and implementation of update, parameter, aggregate, and calculated queries;
- use of calculated data within databases and queries;
- creation of basic low-code or no-code interfaces using Microsoft Access;
- creation of login and user registration functionality;
- creation and configuration of user interfaces;
- use of queries for data management and presentation;
- creation of administrator functionality for adding, editing, and deleting records;
- creation and use of database reports; and
- clear and understandable presentation of data in reports.

The Task Assignment and module-specific instructions define the exact requirements, including database structures, queries, interfaces, functionalities, and reports.

3 Materials and Equipment

3.1 Materials and Equipment Provided by the Competition Organiser

The Organiser provides the materials, tools, and equipment listed below.

Images are for reference only. They do not indicate a specific brand or model unless otherwise stated in the specifications. Quantities are per competitor unless otherwise stated.

Items will be available at the competitor's workstation or in the designated competition area, as appropriate. Where exact brands, models, or task-specific material details are not specified, these may be confirmed before the competition or defined in the Task Assignment, as appropriate.

No.	Equipment / Material	Picture	Specifications	Quantity
01	Computer		Computer suitable for running the software required for the Task Assignment.	1
02	Keyboard		QWERTY keyboard	1
03	Mouse		Basic wired mouse	1
04	Monitor		24-inch	2
05	Operating system		Microsoft Windows 11	1

No.	Equipment / Material	Picture	Specifications	Quantity
06	Microsoft Office		Word, Excel and Access	1
07	Electric height-adjustable table			1
08	Chair			1
09	Paper and pencils			1 set
10	Power strip			1

3.2 Materials and Equipment Supplied by Competitors

Competitors may bring only the materials, tools, and equipment listed below. Personal tools and equipment must fit within a toolbox or tool case suitable for checked luggage, with a maximum total weight of 23 kg, including the toolbox or case. This requirement does not apply to clothing, footwear, personal protective equipment (PPE), or equipment required due to the competitor's condition or special needs and agreed in advance with the Organiser.

Images are for reference only. They do not indicate a specific brand or model unless the specifications state otherwise. Quantities are per competitor unless otherwise stated.

No.	Equipment / Material	Picture	Specifications	Quantity
01	USB keyboard		Competitor's preferred keyboard layout. Must not have internal memory.	1
02	USB mouse		Competitor's choice	1

3.3 Prohibited Materials and Equipment

Competitors may use only the materials, tools, and equipment listed in Sections 3.1 and 3.2, unless otherwise authorised by the Skill Manager or Chief Judge. This restriction does not apply to clothing, footwear, or personal protective equipment (PPE) required in Section 4.1, or to equipment required due to the competitor's condition or special needs and agreed in advance with the Organiser.

All other materials, tools, and equipment are not permitted.

4 Skill-Specific Requirements

4.1 Skill-Specific Requirements

The Skill-Specific Requirements below apply to this Skill Competition and must be followed in addition to the Abilympics Competition Rules. The Skill Manager or Chief Judge may provide additional instructions, as needed, to ensure the competition is conducted safely and fairly.

Topic	Skill-Specific Requirements
Materials and tools provided by the Organiser	Competitors must check all materials, tools, and equipment provided by the Organiser before the competition begins. If anything is missing, damaged, or defective, competitors must immediately inform the Judges. No replacements will be provided after competition time has commenced, unless authorised by the Judges. If equipment provided by the Organiser fails and the failure is confirmed not to have been caused by the competitor, the Chief Judge may grant additional time.
Use of personal tools	Competitors may bring and use only the personal tools, materials, and equipment listed in Section 3.2. This restriction does not apply to equipment required due to the competitor's condition or special needs and agreed in advance with the Organiser.
Personal protective equipment (PPE)	PPE is not required for this skill.
Clothing / Uniform	There is no mandatory uniform. Competitors must wear clean, comfortable clothing suitable for the competition. Clothing must not display large commercial logos or promotional branding. Small, non-distracting brand marks are permitted.
Sideline coaching	Competitors must remain at their workstations or within the designated competition area during competition time, unless authorised to leave by the Judges. Competitors may not communicate with other competitors or members of the public during competition time. Competitors may communicate with Judges, Interpreters, personal assistants, and other authorised persons when required. The role and permitted involvement of a personal assistant must be agreed in advance with the Organiser based on the competitor's condition or special needs.
Use of technology	Microsoft accessibility tools may be used. Any additional assistive software or equipment required due to the competitor's condition or special needs must be agreed in advance with the Organiser.

Topic	Skill-Specific Requirements
	The Task Assignment specifies whether internet access is permitted and defines the permitted use of online help, network services, external resources, and AI-assisted tools. Competitors may not use personal laptops, tablets, mobile phones, smartwatches, or other personal communication or electronic devices during competition time. Competitors must store such devices away and may access them only during the lunch break or at the end of the competition day. This restriction does not apply to devices required due to the competitor's condition or special needs and agreed in advance with the Organiser. Judges and Interpreters may use devices required for their official duties only as agreed by the Skill Manager and the Chief Judge. The Skill Manager and the Chief Judge may use devices required for competition management and will specify any additional restrictions or permitted device use within the competition area.

5 Assessment Framework

5.1 Assessment Principles

All Abilympics Skill Competitions are marked out of 100 points.

Points are divided between criteria that reflect the required skills and expected outcomes.

Two methods of assessment are used:

- **Measurement:** objective, factual scoring (e.g., size, accuracy).
- **Judgement:** expert evaluation of quality, technique, and artistic choices.

5.2 Assessment Areas

Detailed marking criteria and scoring are provided in the Task Assignment.

Assessment focuses on the following key areas:

Assessment Area	Points
Module A: Creation of Database Structure	18
Module B: Creation of Queries	12
Module C: Creation of Basic Interface	16
Module D: Creation of User Interface	24
Module E: Creation of Administrator Interface	30
Total	100