G.C.E. O/L Grade 10 ICT · Lesson 9

9.3 Converting a Manual Database to an Electronic Database

Many school libraries still use **book cards** in a wooden drawer, and every class has a paper **student register**. Converting these to an electronic database makes searching, sorting and reporting fast. In this note you will turn the **headings** on a card or register into **fields**, each **card or line** into a **record**, and choose the right **data type and field size** for every field.

1. From card to record

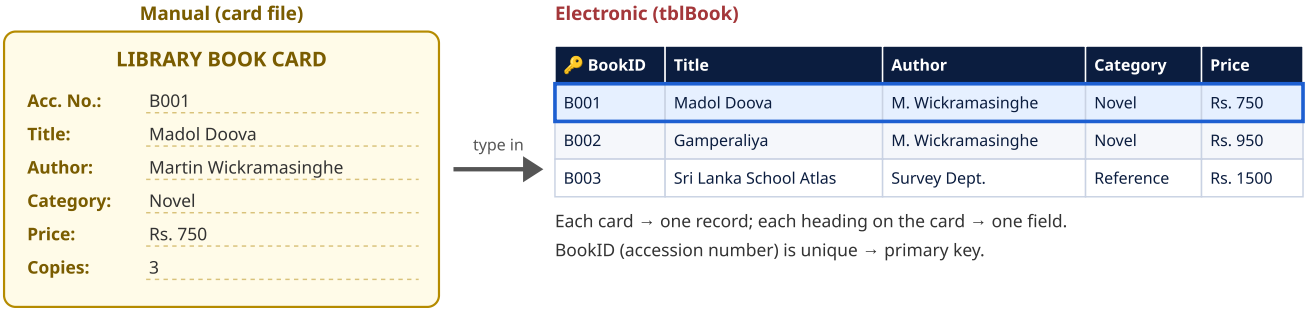


Figure 9.3: A library book card becomes one record in tblBook. Each heading on the card becomes a field.

Manual	Electronic
The card drawer / register book	A **table** (tblBook / tblStudent)
A heading printed on the card / a column of the register	A **field**
One card / one line of the register	One **record**
Accession number / admission number	The **primary key**

2. Steps to convert

- **Study** the cards/register – list every heading.
- **Choose fields** – keep useful headings; split combined ones (e.g. 'Class & Teacher' → ClassID and ClassTeacher in another table).
- **Name** each field clearly (no spaces: DateOfBirth).
- **Choose data types and field sizes** by looking at the longest real value.
- **Set the primary key** (accession or admission number).
- **Enter** the records, then **check** them against the cards (verification).
- Keep the paper copy until the electronic data is checked and **backed up**.

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3. Example 1: library book card → tblBook

Card heading	Field name	Data type	Field size
Acc. No.	BookID	Short Text	4
Title	Title	Short Text	60
Author	Author	Short Text	40
Category	Category	Short Text	15
Price	Price	Currency	Rs.
Copies	Copies	Number	Integer

Card **B001** becomes the record **B001 | Madol Doova | Martin Wickramasinghe | Novel | 750 | 3**. After all 8 cards are typed, tblBook has **8 records**.

4. Example 2: class student register → tblStudent

Register column	Field name	Data type	Field size / format
Adm. No.	AdmNo	Number	Long Integer
Name of student	StudentName	Short Text	40
Class	ClassID	Short Text	3
Date of birth	DateOfBirth	Date/Time	Short Date
ICT mark (Term 1)	ICTMarks	Number	Integer
Prefect (✔)	Prefect	Yes/No	Yes/No

💡 A register line like **'24103 – Nethmi Fernando – 10B – 25.01.2010 – 91 – ✔'** becomes one record. The tick (✔) becomes **Yes** in a Yes/No field. Dates are typed in one format (dd/mm/yyyy).

5. Common problems when converting

Different spellings
'M. Wickramasinghe' and 'Martin Wickramasinghe' – choose one standard form.

Missing data
A card with no price – check with the librarian before typing.

Duplicates
Two cards with the same accession number – the primary key will refuse the second one.

Typing errors
Use **verification** (proof-read or double entry) and **validation** rules.

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NEW 2026 **2026: scan, then check.** Phone apps (e.g. Google Lens) can read text from a register photo and paste it into a sheet, and AI tools can tidy it into columns. These save typing but **make mistakes** with handwriting and Sinhala/Tamil names – a person must **verify** every record. Store the photos securely (PDPA 2022) and delete copies you no longer need.

Key Words

Conversion – Changing a paper database into an electronic one.

Card file – A manual database with one card per item.

Register – A book with one line per person, e.g. admission register.

Accession number – A unique number given to each library book.

Field – A heading on the card becomes a field.

Record – One card or register line becomes a record.

Data entry – Typing the records into the table or form.

Verification – Checking typed data against the original.

Validation – Automatic checks that data is sensible.

Duplicate – The same record entered twice.

Standard form – One agreed way of writing a value.

Backup – A safe copy of the data.

Sample Q&A

1. What does each card in a card file become?

> **Answer:** A record in the table.

2. What do the headings on a card become?

> **Answer:** Fields (field names).

3. Which register column is the best primary key?

> **Answer:** Admission number – unique for each student.

4. Distinguish verification and validation.

> **Answer:** Verification checks typed data against the original; validation is an automatic check that data is sensible.

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5. How is a tick (✔) in a register stored?

> **Answer:** As Yes in a Yes/No field.

6. Why keep the paper copy for a while?

> **Answer:** Until the electronic data is checked and backed up.

MCQ

1. When converting a card file, each card becomes a…

A. Record
B. Table
C. Query
D. Field

2. The heading 'Author' on a book card becomes a…

A. Record
B. Form
C. Field
D. Report

3. The whole card drawer becomes a…

A. Table
B. Field
C. Record
D. Key

4. The best primary key for library books is the…

A. Category
B. Accession number
C. Author
D. Title

5. The library in this note has 8 book cards, each with 6 headings. After typing them all, tblBook has…

A. 6 records
B. 48 records
C. 8 records
D. 1 record

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6. The register column 'Date of birth' should be…

A. Short Text
B. Yes/No
C. Number
D. Date/Time

7. A tick (✔) in a 'Prefect' column becomes…

A. the letter V
B. a Long Text
C. Yes in a Yes/No field
D. a Number 1000

8. Checking typed records against the original cards is…

A. Sorting
B. Validation
C. Formatting
D. Verification

9. A rule that stops a price below 0 is…

A. Verification
B. Validation
C. Redundancy
D. Backup

10. Two cards have accession number B001. When typed, the second one…

A. is refused by the primary key
B. is saved twice
C. replaces the first
D. becomes B002 automatically

11. 'M. Wickramasinghe' and 'Martin Wickramasinghe' for the same author should be…

A. kept both
B. written in one standard form
C. deleted
D. stored in Long Text

12. The heading 'Class & Teacher' on a register is best…

A. removed
B. kept as one field
C. split into ClassID and ClassTeacher
D. made the primary key

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13. A suitable field size for Title (longest title 22 characters) is...

A. 60
B. 10
C. Byte
D. 3

14. Text read from a register photo by an AI/scan app should be...

A. posted online
B. trusted fully
C. used without a key
D. verified by a person

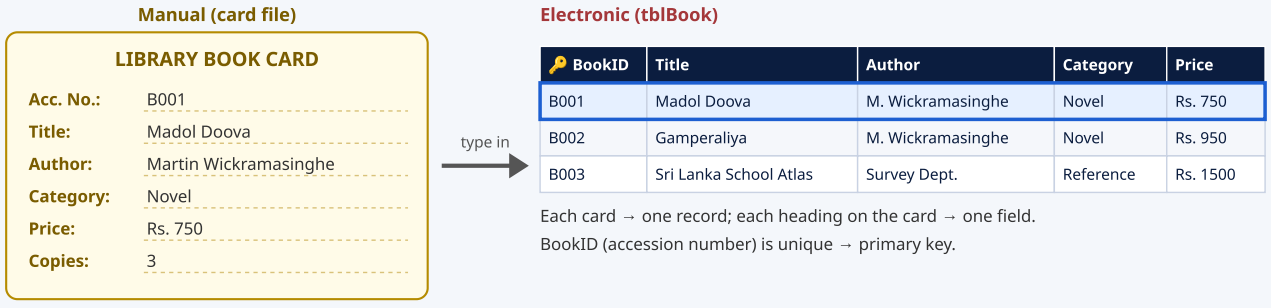
15. The paper register should be kept until the electronic data is...

A. shared on WhatsApp
B. checked and backed up
C. sorted once
D. printed in colour

Structured Questions

1. A library card shows: Acc. No., Title, Author, Category, Price, Copies. Write the field name, data type and field size for each. (6 marks) *(6 marks)*

BookID – Short Text – 4; Title – Short Text – 60; Author – Short Text – 40; Category – Short Text – 15; Price – Currency – Rs.; Copies – Number – Integer.



Model answer

2. List four steps to convert a class register into an electronic database. (4 marks) *(4 marks)*

Study the columns; choose and name fields; choose data types/sizes and set AdmNo as primary key; enter the records and verify them (then back up).

3. (i) What is verification? (1 mark)
(ii) Give one method. (1 mark) *(2 marks)*

(i) Checking that entered data matches the original. (ii) Proof-reading or double entry.

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4. Give two problems that may occur while converting a card file and how to solve each. (4 marks) *(4 marks)*

> Any two: different spellings – use a standard form; missing data – check with the librarian; duplicate accession numbers – primary key refuses, investigate; typing errors – verification/validation.

5. Write the register line '24103 – Nethmi Fernando – 10B – 25.01.2010 – 91 – ✔' as a record of tblStudent with field names. (3 marks) *(3 marks)*

> AdmNo 24103; StudentName Nethmi Fernando; ClassID 10B; DateOfBirth 25/01/2010; ICTMarks 91; Prefect Yes.

Summary

- Card/register line → record; heading → field.
- Card drawer / register → table.
- Accession / admission number → primary key.
- Choose data types and sizes from real values.
- Split combined headings; one fact per field.
- Use a standard form for names and dates.
- Verify typed data; validation catches nonsense.
- 2026: scan/AI help, but a person checks; back up.

MCQ answer key – 9.3

1. **A** – Card = record.
2. **C** – Heading = field.
3. **A** – Table.
4. **B** – Unique.
5. **C** – 8 books.
6. **D** – Date.
7. **C** – Yes/No.
8. **D** – Verification.
9. **B** – Validation rule.
10. **A** – No duplicate keys.
11. **B** – Consistency.
12. **C** – One fact per field.
13. **A** – Room to grow.
14. **D** – Check.
15. **B** – Safety.

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