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# Computing

## Grade 7

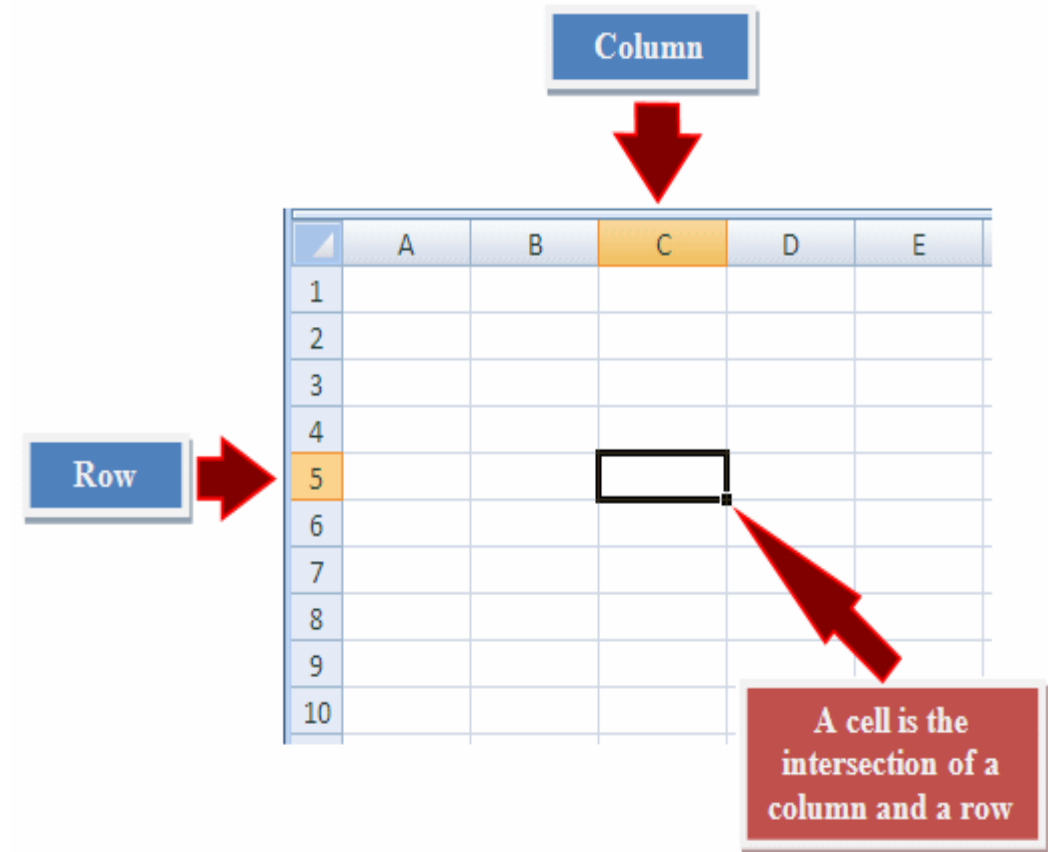
(Instructional Resource)

|                    |                          |
|--------------------|--------------------------|
| <b>UNIT/STRAND</b> | <b>2: Managing Data</b>  |
| <b>TOPIC</b>       | <b>Spreadsheets</b>      |
| <b>Sub Topics</b>  | <b>Spreadsheets</b>      |
| <b>Session</b>     | <b>2025-26</b>           |
| <b>Prepared By</b> | <b>(Sahibzadi Annum)</b> |



## Spreadsheets

- A **spreadsheet** is a tool used for organizing, analyzing, and storing data in a table format.
- It is made of **rows**, **columns**, and **cells**.
  - ❑ **Rows** (horizontal)
  - ❑ **Columns** (vertical)
  - ❑ **Cells** (where a row and column meet)
- The cell you are working in is called the **active cell** (usually has a dark border)





## Spreadsheets

- A spreadsheet is a computer file **used** to:
  - Make calculations
  - Create databases
  - Analyze data (understand what it means)
  - Model solutions to problems
- It helps organize and work with large sets of data.





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| <b>UNIT/STRAND</b> | <b>2: Managing Data</b>       |
| <b>TOPIC</b>       | <b>Spreadsheets</b>           |
| <b>Sub Topics</b>  | <b>Conditional Formatting</b> |
| <b>Session</b>     | <b>2025-26</b>                |
| <b>Prepared By</b> | <b>(Sahibzadi Annum)</b>      |



## Conditional formatting

- **Conditional formatting** is used to change how data looks in a spreadsheet.
- It helps you highlight important data by changing text or cell color.
- A **condition** is a **rule** like:  
“Is the value greater than 10?”
- **Example of Conditional Formatting:**  
We can create **rules** like:
  - ☐ If the number is greater than 10, the text turns blue.
  - ☐ If the number is less than or equal to 10, the text turns green.

|  |    |    |
|--|----|----|
|  |    |    |
|  | 10 | 15 |
|  |    |    |



## Conditional Formatting

### Why Use It?

- It helps us see patterns in our data.
- It makes it easier to find important numbers.
- Helps see business performance quickly
- Makes spreadsheets easier to understand

### **Example Rule:**

"If the value is less than or equal to 10, the text turns green."

|    |    |  |
|----|----|--|
| 10 | 15 |  |
|    |    |  |

### How to Make a Rule

A rule includes:

- ☐ A **condition** (like value = 0)
- ☐ The **format** you want to apply (like change background to orange)

### **Example:**

"If the value is 0, make the background color orange."



## Conditional Formatting

### What is a Statement?

- A **statement** is a sentence that follows a rule.

**Example:**

***"If the value is 0, change the cell color to orange."***

- This sentence is a **statement** because it applies a rule to data.

### Conditional Formatting in Real Life

- Conditional formatting can help show:
  - ☐ **Green color** → when the business has money
  - ☐ **Red color** → when the business is in debt
- It helps the user see if the business is doing well or not at a glance.





## Conditional Formatting

### Example – Business Has Money

- The total in the bank account is **positive**
- Total is **green** because the business has money.

| Month                 | Income     | Costs      | Balance    |
|-----------------------|------------|------------|------------|
| April                 | \$2,560.00 | \$580.00   | \$1,980.00 |
| May                   | \$3,800.00 | \$1,050.00 | \$2,750.00 |
| June                  | \$1,850.00 | \$800.00   | \$1,050.00 |
| July                  | \$2,500.00 | \$1,000.00 | \$1,500.00 |
| August                | \$2,180.00 | \$850.00   | \$1,330.00 |
| September             | \$1,440.00 | \$715.00   | \$725.00   |
|                       |            |            |            |
| Total in bank account |            |            | \$6,385.00 |



## Conditional Formatting

### Example – Business Is in Debt

- The total in the bank account is **negative**
- The cell is red because the business is in debt (it has no money left)

| Month                 | Income   | Costs    | Balance   |
|-----------------------|----------|----------|-----------|
| April                 | \$340.00 | \$560.00 | -\$220.00 |
| May                   | \$390.00 | \$850.00 | -\$460.00 |
| June                  | \$500.00 | \$730.00 | -\$230.00 |
| July                  | \$600.00 | \$690.00 | -\$90.00  |
| August                | \$850.00 | \$900.00 | -\$50.00  |
| September             | \$720.00 | \$715.00 | \$5.00    |
|                       |          |          |           |
| Total in bank account |          |          | \$40.00   |



## Practical Task 2.1

## Practical Task 2.1 CB(Pg 151-154)



## Practical Task 2.2

## Practical Task 2.2 CB(Pg 154-155)



## Practical Task 2.3

### **Practical Task 2.3** **CB(Pg 156)**



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# **Computing**

## **Grade 7**

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| <b>UNIT/STRAND</b> | <b>Managing Data</b>                               |
| <b>TOPIC</b>       | <b>Modelling</b>                                   |
| <b>Sub Topics</b>  | <b>Modelling real life systems &amp; scenarios</b> |
| <b>Session</b>     | <b>2025-26</b>                                     |
| <b>Prepared By</b> | <b>(Sahibzadi Annum)</b>                           |



## Modelling real life system and scenarios

### What is a Model?

- A **model** helps us **understand a problem** and **plan solutions**.
- It is often used to represent a **real-life situation** (e.g., school drama society accounts).

### What is a Spreadsheet Model?

- A **spreadsheet model** is a **model created in a spreadsheet** (like Excel).
- It helps in organizing data and making **calculations** to see the outcome.

### Spreadsheet Models Include:

- **Data** – Actual values entered (e.g., ticket sales, costs).
- **Labels** – Text that explains the data (e.g., "Total sales").
- **Calculations** – Formulas that work out totals or balances.

| Label         |         |
|---------------|---------|
| Item          | Cost    |
| Mediterranean | \$3,050 |
| Meals         | \$975   |
| Hotel         | \$2,000 |
| Total         | \$6,025 |

← Data

Calculation



## Modelling real life system and scenarios

### Example

#### Youth Drama Society Spreadsheet Model

- **Yellow cells = Labels** → These are the titles or names that explain what the data means.
- **Blue cells = Data** → These are the actual numbers entered into the spreadsheet.
- **Purple cells = Calculations** → These are totals or values worked out using formulas.

|                   |            |
|-------------------|------------|
| Income            |            |
| Ticket sales      | \$2,050.00 |
| Merchandise sales | \$350.00   |
| Refreshment sales | \$470.00   |
| Total sales       | \$2,870.00 |

|              |            |
|--------------|------------|
| Sales target | \$2,900.00 |
|--------------|------------|

|                   |            |
|-------------------|------------|
| Costs             |            |
| Building hire     | \$800.00   |
| Lighting hire     | \$200.00   |
| Costume hire      | \$260.00   |
| Merchandise costs | \$150.00   |
| Refreshment costs | \$230.00   |
| Total costs       | \$1,640.00 |

|                     |            |
|---------------------|------------|
| Total costs allowed | \$1,700.00 |
|---------------------|------------|

|         |            |
|---------|------------|
| Balance | \$1,230.00 |
|---------|------------|



## Practical Task 2.4

### **Practical Task 2.4** **CB(Pg 162-164)**



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# Computing

## Grade 7

(Instructional Resource)

|                    |                                 |
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| <b>UNIT/STRAND</b> | <b>Managing Data</b>            |
| <b>TOPIC</b>       | <b>Modelling</b>                |
| <b>Sub Topics</b>  | <b>Spreadsheet calculations</b> |
| <b>Session</b>     | <b>2025-26</b>                  |
| <b>Prepared By</b> | <b>(Sahibzadi Annum)</b>        |



## Spreadsheet calculations

### What Are Spreadsheet Calculations?

- We can use spreadsheets to **do calculations** just like a calculator.
- To do this, we use something called a **formula**.
- A formula **tells the computer** what to calculate.
- All formulas start with = (**equals sign**).

### What Are Formulas?

- Formulas are like math equations:
  - ☐ Use symbols like + (**add**), - (**subtract**), \* (**multiply**))
  - ☐ Can use **numbers** or **cell references** (like A4 or D4)
- Example:
  - ☐ =E4+6 adds the number in cell E4 to 6.
  - ☐ =E4\*8 multiplies the value in E4 by 8

| Formula | What it does                     |
|---------|----------------------------------|
| =E4+6   | Adds numbers or cells            |
| =120-B4 | Subtracts one value from another |
| =E4*8   | Multiplies one value by another  |
| =B4/12  | Divides one value by another     |



## Spreadsheet calculations

### What Are Functions?

- Functions are special built-in tools in spreadsheets.
- They help you do big jobs easily.
- Instead of typing a long formula, just use a function name.
- **Example:**

| Function      | What it does                                  |
|---------------|-----------------------------------------------|
| =SUM(E4:E8)   | Adds all the values in cells E4 to E8         |
| =COUNT(E4:E8) | Counts how many numbers are in cells E4 to E8 |

- After typing your formula, press **Enter**.
- The result will show in the cell.
- You can **double-click the cell** to see or edit the formula



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| <b>UNIT/STRAND</b> | <b>Managing Data</b>          |
| <b>TOPIC</b>       | <b>DATABASES</b>              |
| <b>Sub Topics</b>  | <b>What is a Primary key?</b> |
| <b>Session</b>     | <b>2025-26</b>                |
| <b>Prepared By</b> | <b>(Sahibzadi Annum)</b>      |



## What is Primary key?

### What is a Database?

- A **database** is a collection of related data.
- Data is stored in a table made of **rows** and **columns**.
- Example: A list of games with their age rating and genre.

### Understanding Fields and Records

- **Field** = A column in the table
- **Record** = A row in the table

| Game Name          | Age rating (Age+) | Genre        |
|--------------------|-------------------|--------------|
| Bill & Betty       | 12                | 2D plat form |
| Build Blocks       | 3                 | arcade       |
| Ping Pong          | 3                 | arcade       |
| Puzzle Place       | 8                 | puzzle       |
| Super Adventurer   | 12                | 2D plat form |
| Blocks Super Build | 3                 | puzzle       |
| The Great Race     | 3                 | racing       |
| Work It Out        | 8                 | puzzle       |

← Record

↑  
Field



## What is Primary key?

### What is Primary key?

- A **Primary Key** is something that makes a record **unique**.
- It helps the database **identify each row separately**.
- Example: Game Name can be used as a Primary Key *if it is unique*.

### Why is Uniqueness Important?

- If two records are exactly the same, the database gets confused.
- Every record must be **different** in at least one field.
- That's why we use a **Primary Key** – something no two records share.

### Example Problem

Let's look at Database:

- Two players are called **Mohammed Khan**.
- Both like the game **Bill & Betty**.
- These two records look **exactly the same**.
- So, this database **does not have a unique record**.

| Player        | Game Name    | Age rating | Genre        |
|---------------|--------------|------------|--------------|
| Mohammed Khan | Bill & Betty | 12+        | 2D plat form |
| Charlie Jones | Build Blocks | 3+         | arcade       |
| Anisa Nababan | Ping Pong    | 3+         | arcade       |
| Mohammed Khan | Bill & Betty | 12+        | 2D plat form |
| Carla Estevez | Ping Pong    | 3+         | arcade       |



## What is Primary key?

### How Do We Fix It?

- We add a **new field** with a unique value for each record.
- Example: A unique **Player ID** like 1, 2, 3...
- This new field becomes the **Primary Key**

| Player number | Player Name   | Game Name    | Age rating | Genre        |
|---------------|---------------|--------------|------------|--------------|
| 1             | Mohammed Khan | Bill & Betty | 12+        | 2D plat form |
| 2             | Charlie Jones | Build Blocks | 3+         | arcade       |
| 3             | Anisa Nababan | Ping Pong    | 3+         | arcade       |
| 4             | Mohammed Khan | Bill & Betty | 12+        | 2D plat form |
| 5             | Carla Estevez | Ping Pong    | 3+         | arcade       |



## Practical Task 2.5

### **Practical Task 2.5** **CB(Pg 180-181)**



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# Computing

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| <b>UNIT/STRAND</b> | <b>Managing Data</b>     |
| <b>TOPIC</b>       | <b>DATABASES</b>         |
| <b>Sub Topics</b>  | <b>Creating a query</b>  |
| <b>Session</b>     | <b>2025-26</b>           |
| <b>Prepared By</b> | <b>(Sahibzadi Annum)</b> |



## Creating a query

### What is a Query?

- A **query** is a search for data that meets specific conditions.
- It helps you quickly find information in a large database.
- Example: Find all games that use a puzzle format.

### Why Use Queries?

- Databases can contain **hundreds or thousands** of records.
- Queries help find specific data **quickly and accurately**.
- Businesses use queries to:
  - Track sold products.
  - Analyze customer behavior.
- You've already used phrase searches — this is similar!

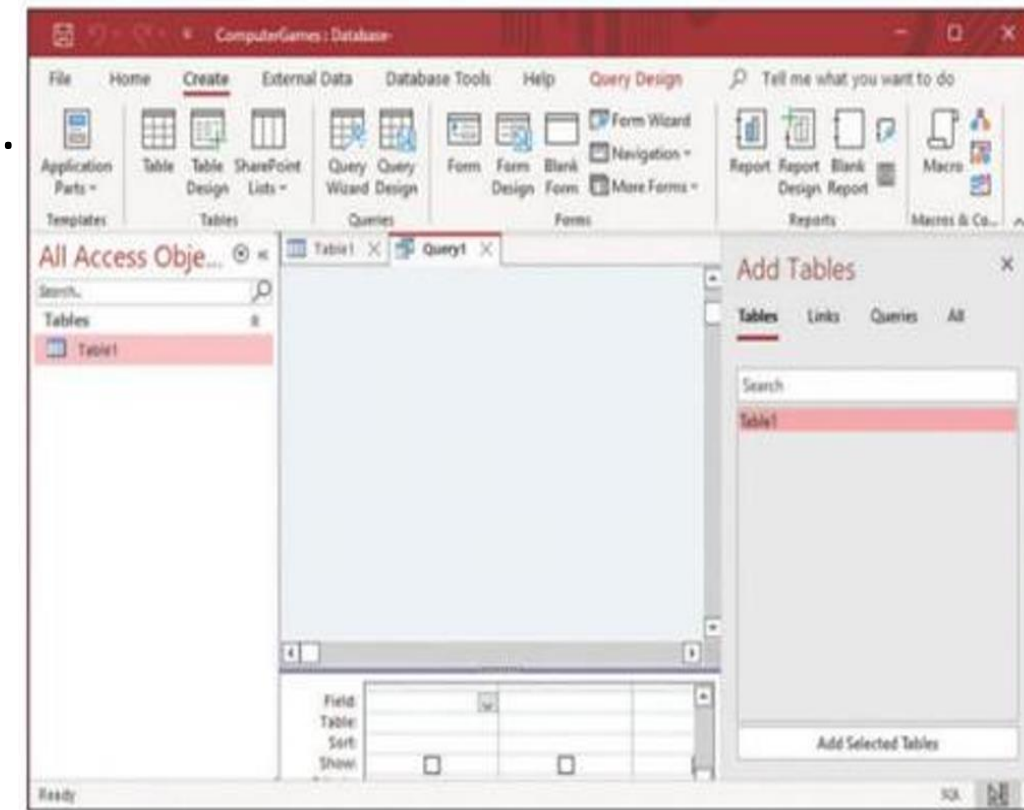


Figure 2.17: Query tab in 'Design View'



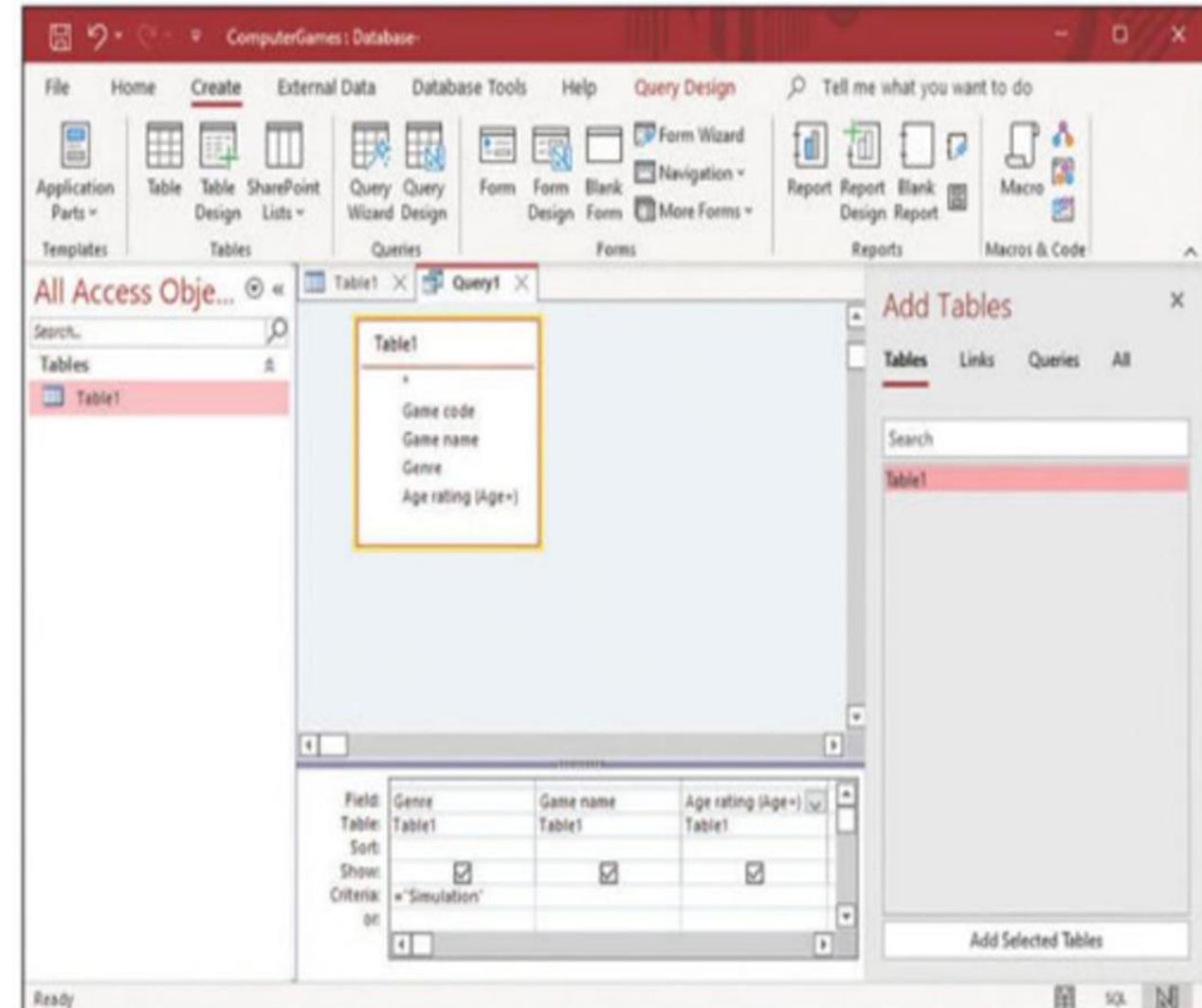
## Creating a query

### How to Create a Query (Steps)

1. Open Microsoft Access.
2. Click **Create** tab.
3. Select **Query Design**.
4. A new tab will open for designing your query.

### Add Tables and Fields

- In the right panel, double-click the table you need.
- Select the fields you want:
  - Fields to **search**
  - Fields to **show in the result**
- Fields appear in the bottom grid.





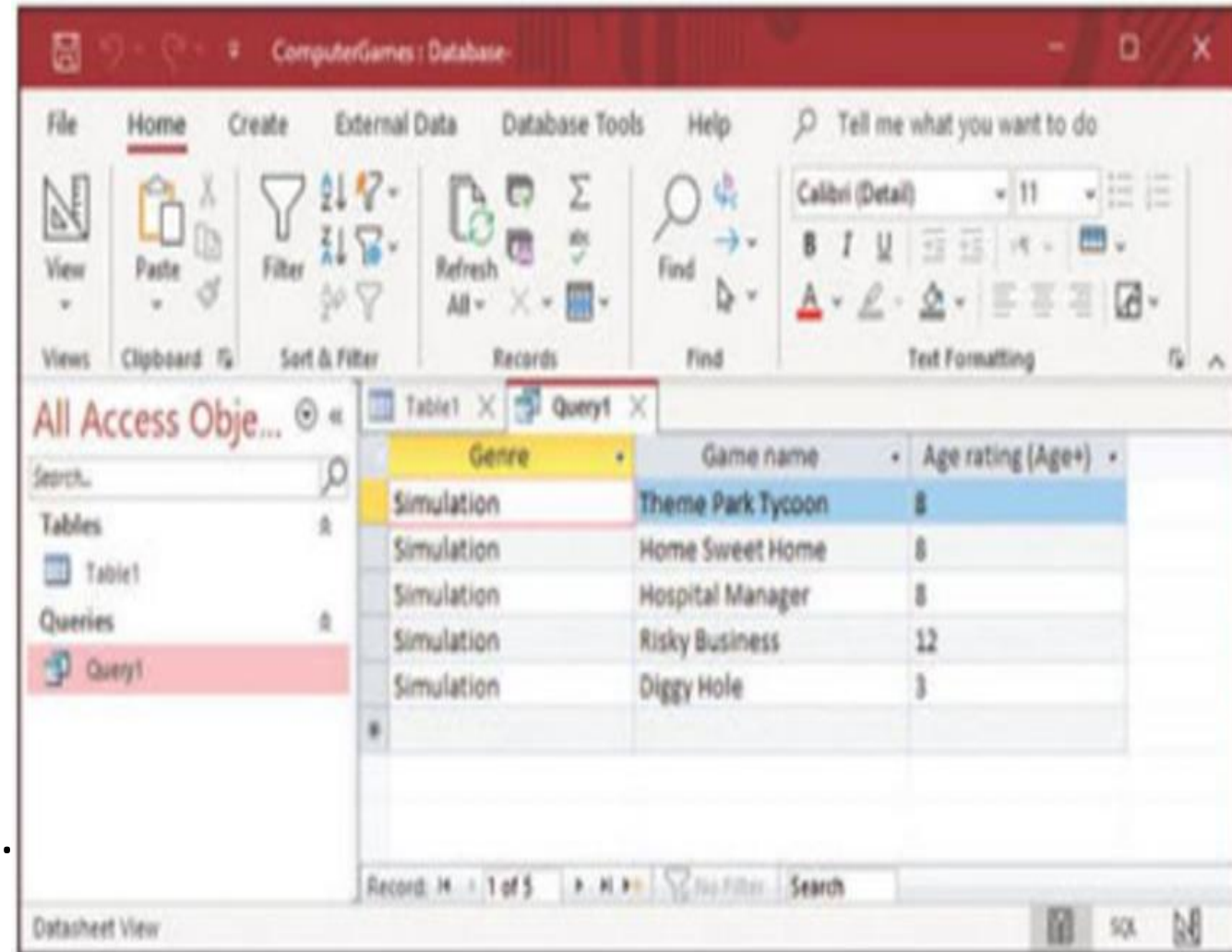
## Creating a query

### Add Search Criteria

- Enter conditions in the **Criteria row**.
  - Example: Genre = "Simulation"
- Enclose text in **double quotation marks**.
- Tick the **Show** checkbox for visible results.

### View Your Query Results

- Click **View** or **Run** to see results.
- Choose between:
  - **Datasheet View** – to see results as a table.
  - **Design View** – to edit the query setup.





## Creating a query

### Summary

- A **query** is used to find specific data.
- Use **Query Design** in Access.
- Always enter criteria clearly (e.g., in quotes).
- Run your query to view filtered results.



## Practical Task 2.6

## Practical Task 2.6 CB(Pg 184-185)



## Practical Task 2.7

### **Practical Task 2.7** **CB(Pg 185)**



## Using < and > with letters

- Learning how to use "**less than**" (<) and "**greater than**" (>) in database queries.
- Understanding **alphabetical order**: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z.
- Using > in a query will select letters nearer to the **end** of the alphabet (like X, Y, Z).
- When searching with letters, always use **double quotation marks**:  
**Example: "A" < "D"**
- Using < in a query will select letters nearer to the **start** of the alphabet (like A, B, C).

**Example Database Table**

| Player Number | Player Name   | Game Name    | Age Rating | Genre       |
|---------------|---------------|--------------|------------|-------------|
| 1             | Mohammed Khan | Bill & Betty | 12+        | 2D Platform |
| 2             | Charlie Jones | Build Blocks | 3+         | Arcade      |
| 3             | Anisa Nababan | Ping Pong    | 3+         | Arcade      |
| 4             | Mohammed Khan | Bill & Betty | 12+        | 2D Platform |
| 5             | Carla Estevez | Ping Pong    | 3+         | Arcade      |



## Using < and > with letters

### Query Example

#### Query:

Player Name < "D"

**Results:** (All names starting before 'D' alphabetically)

| Player Number | Player Name   | Game Name    | Age Rating | Genre  |
|---------------|---------------|--------------|------------|--------|
| 2             | Charlie Jones | Build Blocks | 3+         | Arcade |
| 3             | Anisa Nababan | Ping Pong    | 3+         | Arcade |
| 5             | Carla Estevez | Ping Pong    | 3+         | Arcade |

### Explanation

- Names starting with:
  - C (Charlie, Carla)
  - A (Anisa)

All come **before** D in the alphabet.

**Conclusion:** Using < and > helps sort and filter text fields alphabetically in a database



## Practical Task 2.8

### **Practical Task 2.8** **CB(Pg 187)**



## Practical Task 2.9

### **Practical Task 2.9** **CB(Pg 188-189)**