**Choosing the Right Data Container**

Software often needs to hold and organize information. But **how** you organize it depends on what you need to do with it.

For each scenario below:

1. Read the situation.
2. Use the **Guided Questions** to think about how the information should be handled.
3. Write down what kind of container (data structure) might fit best.
   * Don’t worry about knowing the names yet — focus on how it should behave.

**Guided Questions (Use these for *each* scenario)**

1. Can I add or remove things anywhere, or only at one end?
2. Do I care about the **order** things go in?
3. Do I need to get to a specific item quickly (like by a number or label)?
4. Is it important that the first thing in gets handled first, or the last thing in gets handled first?
5. Does the container have a fixed size, or can it grow/shrink?

**Scenarios**

**1. Grocery List**

You’re writing down what you need to buy. Sometimes you add items, sometimes you cross things out.

**2. Cafeteria Plates**

Plates are stacked on top of each other. You can only take the top plate, and new clean plates go on top.

**3. Movie Theater Line**

People line up to buy tickets. The first person in line gets served first, new people join at the back.

**4. Apartment Mailboxes**

Every apartment has its own mailbox. If you know the apartment number, you can go straight to that box.

**5. Browser Back Button**

You’ve been clicking through websites. Pressing “back” takes you to the most recent page you visited before this one.

**6. Customer Service Tickets**

People send in questions. The oldest ticket should be answered first, while new tickets wait their turn.

**7. Classroom Seating Chart**

Every desk has a student. You want to find who sits at a particular desk quickly by row and column.

**8. Undo Button in Word**

Every time you type, Word remembers what you did. Pressing undo takes away the most recent change first.

**9. Playlist**

You have a list of songs. Sometimes you play them in order, sometimes you shuffle them randomly.

**Wrap-Up Question**

Looking back at your answers, what patterns do you notice?

* Some situations only let you add/remove at one end.
* Some situations keep things in order like a line.
* Some situations let you jump straight to the one you want.