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Lazy Loading vs Eager Loading in C# (Entity Framework)

👨‍💻 A real-life story to make it easier!

As a developer, we often deal with how data is loaded from the database. Two common approaches are:

✅ Deferred (Lazy) Loading

Imagine Clarck runs a library.

A student asks for a list of authors — she gives it.

Later, when he asks, “Show me books of this author,” she then checks and gives the books.

🟢 That’s **Lazy Loading** –

Load only when needed.

Efficient if you don’t always need related data.

But can cause multiple database hits (N+1 problem).

In code:

```
var author = context.Authors.FirstOrDefault(); // Books not loaded yet
var books = author.Books; // Now books are loaded
```

✅ Eager Loading

Now imagine Mark runs a restaurant.

A customer says, “Give me the set menu.”

She brings rice, fish, and vegetables — all at once.

🟢 That's **Eager Loading** –

Everything is loaded together in one go.

Great if you know you'll need all the data.

In code:

```
var author = context.Authors
    .Include(a ⇒ a.Books)
    .FirstOrDefault();
```

🔄 Summary:

	Lazy Loading	Eager Loading
🔄 When?	When accessed	Right away
📩 Query Count	Many (if looped)	One big query
✅ Good for	Optional data	Required data
