## What is ORM?

ORM is a programming technique that allows developers to interact with a relational database using object-oriented paradigms. It automatically maps C# classes to database tables and object instances to table rows, eliminating the need to write raw SQL.

• Explain how ORM maps C# classes to database tables.

ORM tools like Entity Framework Core use a mapping layer where:  
- A C# class (e.g., Product) maps to a database table (Products)  
- Properties of the class (e.g., Name, Price) map to table columns  
- Relationships like one-to-many are mapped using navigation properties and foreign keys  
  
EF Core uses DbContext and DbSet to configure and manage these mappings.

• Benefits: Productivity, maintainability, and abstraction from SQL.

- Productivity: Developers can focus on business logic instead of writing SQL queries.  
- Maintainability: Changes in schema can be tracked with migrations and reflected in code.  
- Abstraction: Eliminates boilerplate CRUD SQL code.  
- Cross-platform: EF Core works on Windows, Linux, and macOS.  
- Security: Prevents SQL injection when used properly.

## EF Core vs EF Framework:

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| --- | --- | --- |
| Feature | EF Core | EF Framework (EF6) |
| Platform | Cross-platform (.NET Core, .NET 5+) | Windows-only (.NET Framework) |
| Performance | Faster, optimized, lightweight | Heavier but more stable |
| LINQ support | Full, with async/await | Partial async support |
| New features | JSON columns, compiled models | No JSON column support |
| Future development | Actively developed | In maintenance mode |

3. EF Core 8.0 Features:

EF Core 8.0 introduces several modern enhancements:  
1. JSON Column Mapping - Allows storing complex objects in JSON format directly in a database column.  
2. Compiled Models - Precompiles EF Core models at build-time to improve app startup time and performance.  
3. Interceptors and Bulk Operations - Add hooks to intercept queries and support optimized bulk insert/update/delete.  
4. Improved Raw SQL Mapping - Better support for custom SQL queries and mapping to entities.