

Xây dựng phần mềm

## Mô hình nhiều tầng (n tiers)

Th.S Cao Thái Phương Thanh  
caothaiphuongthanh@gmail.com

### 3-layer model

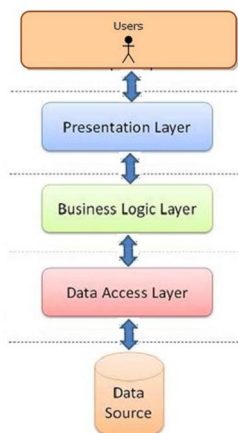
Logic model → design classes

Presentation	=	Windows/Web/Mobile
UI	=	Windows Forms/Web Forms
Business Logic	=	.NET Business Objects
Data Access	=	Business Objects & ADO.NET
Data Storage	=	SQL Server

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### 3-layer model



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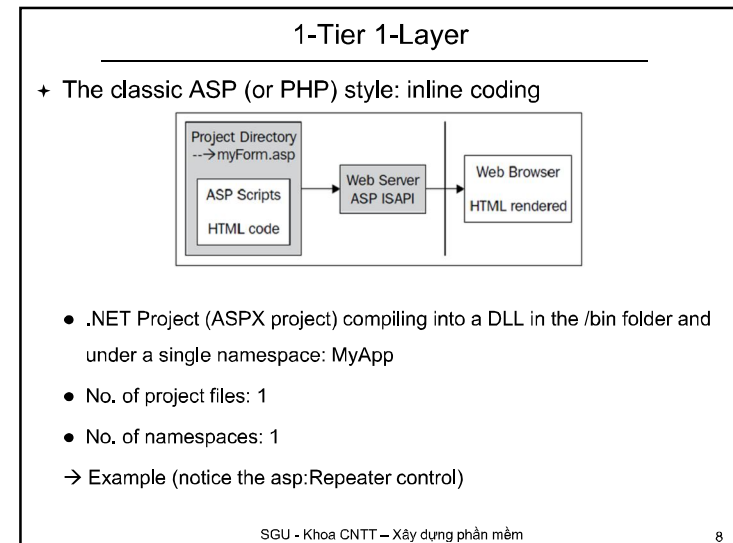
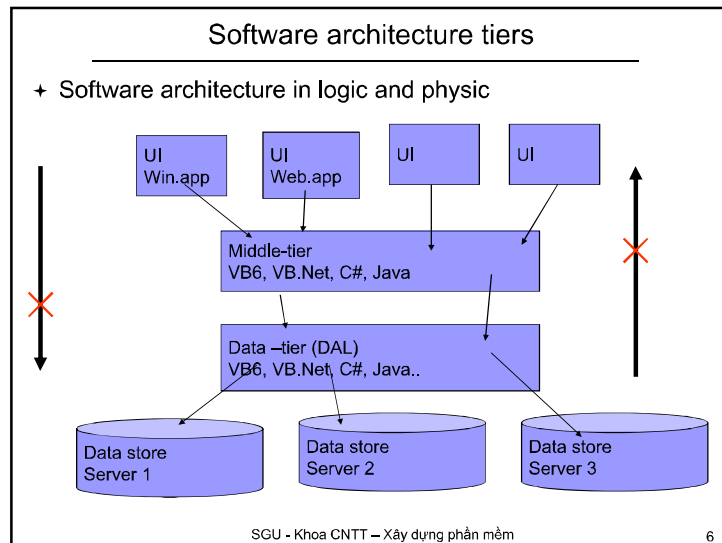
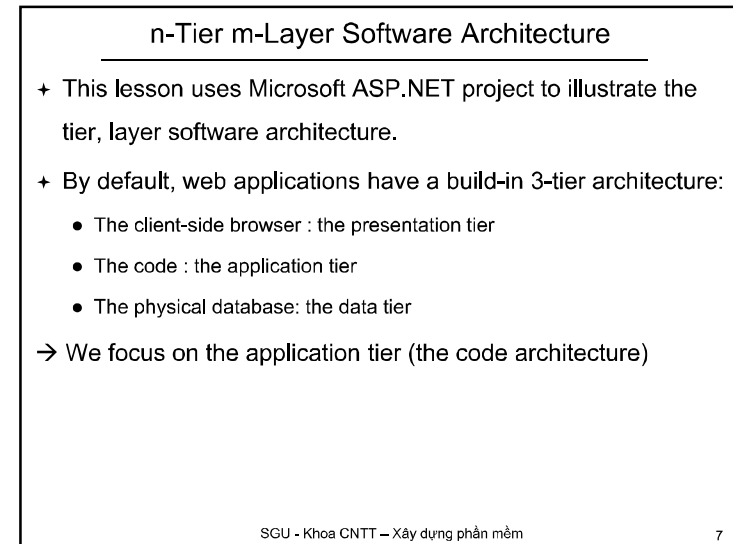
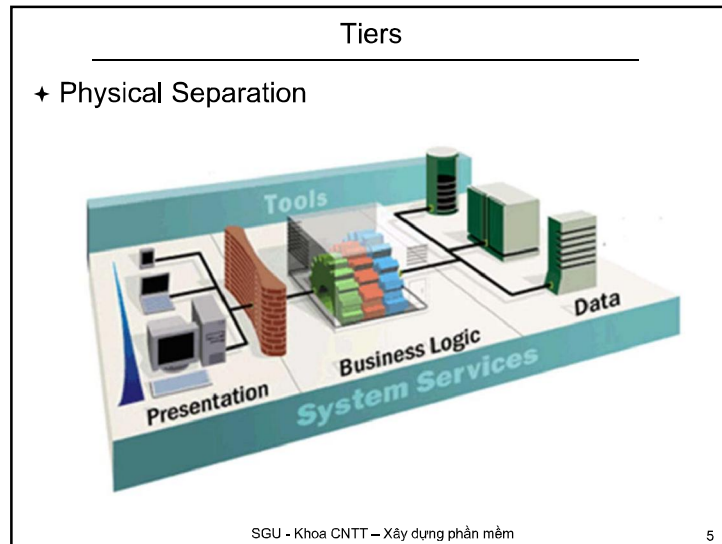
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### Layers and Tiers

- + Logical Separation
- and
- + Physical Separation

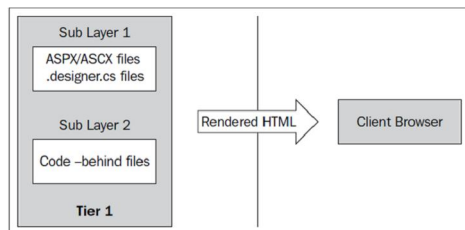
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### 1-Tier 1-Layer

#### + ASP.NET: code behind model



- We still have one single physical DLL, but the UI code itself is logically separated into two layers — one in the markup code and the other in the code-behind file

→ Example

### 1-Tier 2-Layer

#### + 2 layers:

- UI-layer with ASPX and code-behind classes
- Data access classes under a different namespace and in the folder separate Code
- All files are in the same project

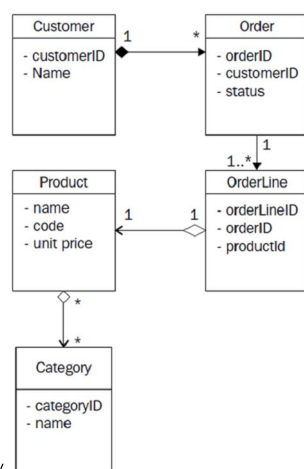
→ Example

Notice:

- + Web.config: connection string
- + ASPX data source control: Quick but less control over data access.

### Example

#### + Another sample database:



### 1-Tier 3-Layer

#### + 3 layers:

- UI-layer with ASPX and code-behind classes
- Business classes under a different namespace and folder (BL) but in the same project
- Data access classes under a different namespace and folder (DAL) but in the same project

→ Example

Notice:

- SQLHelper: utility class
- Code 3 lớp: tự điều khiển (showall.aspx) → cách code
- ObjectDataSource (datasource-customers.aspx) : cách dùng ?

### 2-Tier 3-Layer

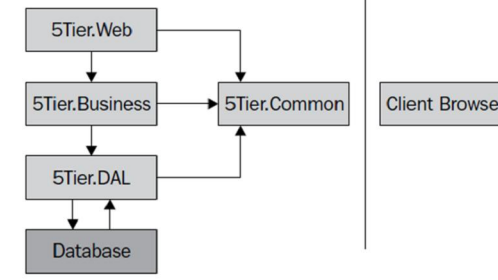
The solution will have:

- + ASP.NET Web Project having Presentation Layer coding in ASPX and ASCX files, under the namespace, MyApp.Web (Tier 1)
- + A class library project having two folders (Tier 2):
  - Business: for business logic code, with namespace MyApp.Code.Business (Layer 1)
  - DAL: for data access code, with namespace MyApp.Code.DAL (Layer 2)

→ Example

Notice: add reference

### n-tier (e.g. 5 tiers)



→ Example

### 3-Tier 3-Layer

The solution will have:

- + ASP.NET Web Project having Presentation Layer coding in ASPX and ASCX files, under namespace MyApp.Web (Tier 1)
- + A class library project having business logic code, with namespace, MyApp.Code.Business (Tier 2)
- + A class library project DAL for data access code, with namespace, MyApp.Code.DAL (Tier 3)

→ Problem ?

### Layers and Tiers

- + Logical Separation
- and
- + Physical Separation

### n-Layer software architecture

- + Tư tưởng chính của mô hình phân lớp: chia để trị
- + Cách code phân lớp không phải là cách code duy nhất
  - Cũng không phải là cách code luôn đúng
  - Nhưng chắc chắn là một cách code **tốt**
  - ...

### Bài tập lớn

- + Các chức năng chính của bài tập:
  1. Giới thiệu, tìm kiếm, quản lý sản phẩm
  2. Khách hàng đặt hàng online
  3. Xử lý đơn hàng đã đặt
  4. Nhập kho sản phẩm
  5. Báo cáo thống kê