



University of Dhaka  
**Institute of Information Technology (IIT)**  
Bachelor of Science in Software Engineering (BSSE)



**Course:** SE 506 Design Patterns  
**Lab 06:** Implementation of Builder and Proxy Design Pattern  
**Time:** 2 hours

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### **Part 1: Builder**

Consider a food shop where customers can order customizable sandwiches. The system allows customers to specify each component of the sandwich individually—such as the type of bread, the filling and the spread or accompaniment. For example, a chicken sandwich might be assembled with regular bread, grilled chicken, and cheese. An egg sandwich could include toasted bread, fried egg and sauce. The system also shows the full menu of sandwiches to the customer.

### **Part 2: Proxy**

Consider an image viewer program that displays high-resolution photos. To optimize memory use and keep the application responsive, it avoids loading large files of high-resolution photos until needed. However, the program lists all photos with filenames but only loads the full image when the user selects it from the list.