UML Diagrams

CSE 403
Think of it as …

- A more concise and accurate documentation of software architecture than English
- A way to guide discussion to reveal assumptions and miscommunications
- A compact and quick way to take notes in meetings
Think of it as … (Cont.)

- A way to verify that a system is capable of meeting its requirements
- An intuitive way to identify a system’s weaknesses
- A way to quickly onboard new team members
- A way to remind yourself of decisions you made months ago
Class Diagrams
A Brief Review

Describes

- The system’s classes
- Their attributes
- Their operations
- Their relationships with each other
Representing a class

**AdjacencyListGraph**

<table>
<thead>
<tr>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Count : Integer</td>
</tr>
<tr>
<td>+ Neighbors : Map&lt;Node, Map&lt;Node, Edge&gt;&gt;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ AddEdge(src : Node, dst : Node, edgeData : Edge) : Boolean</td>
</tr>
</tbody>
</table>
General Association

A two-way connection between peers
Aggregation

One or more classes are generally treated as members of some larger whole, but may belong to multiple objects during their lifetimes.
Composition

One or more classes are always treated as members of some larger whole, and are destroyed with the whole
Dependency

Changing the interface of one class may change the implementation or interface of another
Sequence Diagrams
A Brief Review

- Describes the sequence of messages passed between instances of components over time
- Time flows down the diagram
- Shows how control flow moves from one component to another
Design Exercise

Design the models (not any views or controllers) for course registration software based on the UW’s system. Create:

- A sequence diagram for the use case “user attempts to register for one or more courses by entering their SLNs”.
- A class diagram.

The system should let a student register if and only if they have taken the prerequisite courses and have no scheduling conflicts.