

C++ Programming

Class Diagram in UML

Mostafa S. Ibrahim

Teaching, Training and Coaching since more than a decade!

Artificial Intelligence & Computer Vision Researcher

PhD from Simon Fraser University - Canada

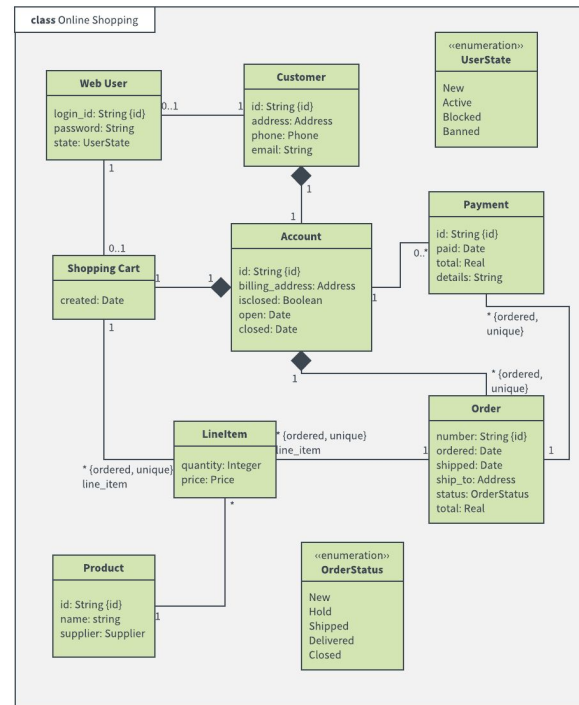
Bachelor / Msc from Cairo University - Egypt

Ex-(Software Engineer / ICPC World Finalist)



How could we represent some system/task?

- Natural text (Functional Requirements) to describe it!
- Just code the system (Like AskMe Projects)
- Draw a **diagram** for it!

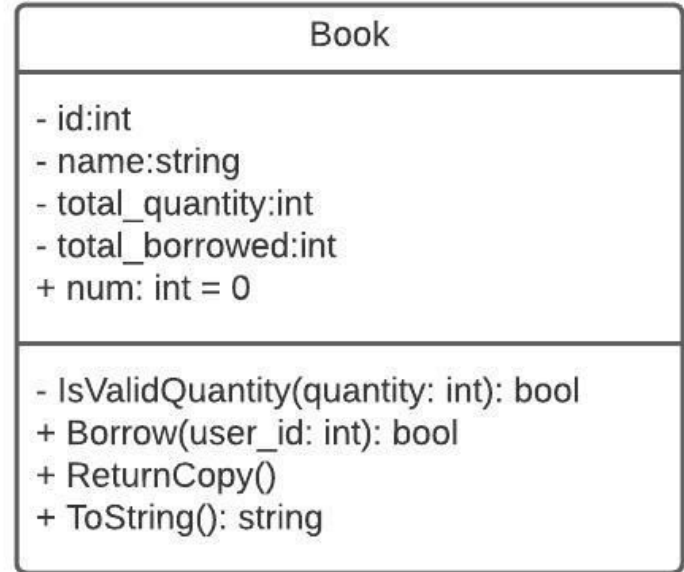


Unified Modeling Language (UML)

- **Standardized** modeling language for Software **visualization** purposes
- Imagine a system that consists of
 - 3 subsystems,
 - each sub-system consists of ~10 components,
 - each component has ~100 classes
- We need different ways to communicate this system details with others
 - Written documents are one aspect
 - Another is diagrams to visualize different aspects of the system
- Class Diagram is one of the important UML diagrams

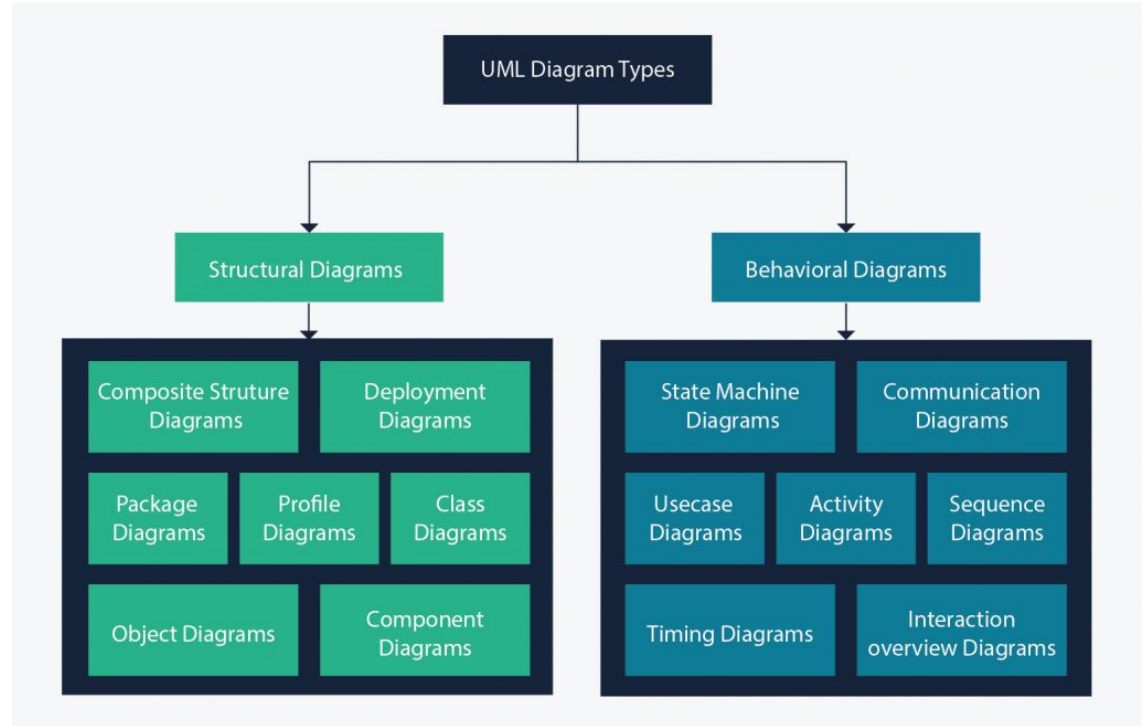
Class Diagram

```
6- class Book {  
7   private:  
8     int id;  
9     string name;  
10    int total_quantity;  
11    int total_borrowed;  
12  
13+   bool IsValidQuantity(int quantity) {  
16  
17   public:  
18     int num = 0;  
19  
20+   bool Borrow(int user_id) {  
26  
27+   void ReturnCopy() {  
31  
32+   string ToString() {  
35 };  
36
```



Other UML Diagrams

- Future readings
 - [Reading Reading](#)



UML Tools

- [lucidchart](#) (online)
- [Diagrams](#) (online)
- ArgoUML
- Visual Paradigm
- StarUML
- Microsoft visio

“Acquire knowledge and impart it to the people.”

“Seek knowledge from the Cradle to the Grave.”