

# *C++ Programming*

## Classes Relationship

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*Teaching, Training and Coaching since more than a decade!*

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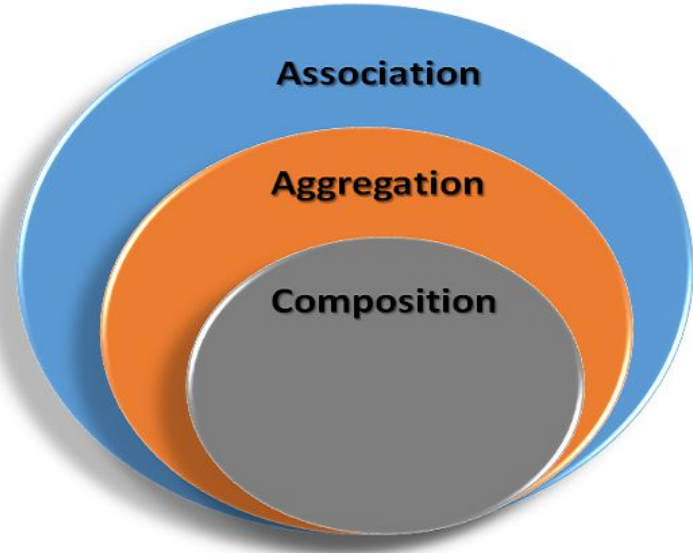
*Bachelor / Msc from Cairo University - Egypt*

*Ex-(Software Engineer / ICPC World Finalist)*



# Classes Relationship

- In a complex systems, we have several **classes** that have **relationships**
- There are 4 types of relations
  - Association
    - User **borrow**s a book
    - User add\_item to shopping cart
  - Aggregation
    - Department **has** employes
  - Composition
    - Car **has an** engine / wheels
    - University **has** departments
  - Generalization (Inheritance)
    - Circle **is a** shape
    - Bicycle **is a** vehicle



*“Acquire knowledge and impart it to the people.”*

*“Seek knowledge from the Cradle to the Grave.”*