



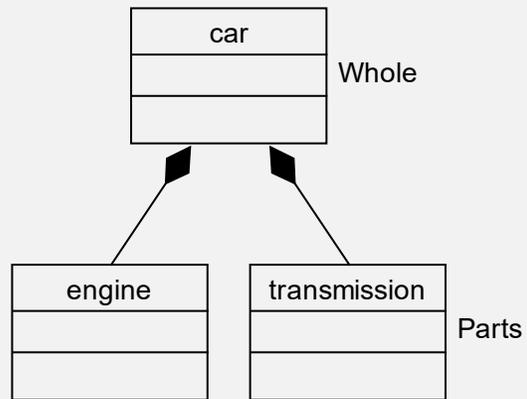
# CONSTRUCTIVE RELATIONSHIPS

The fundamental structure of object-oriented programs

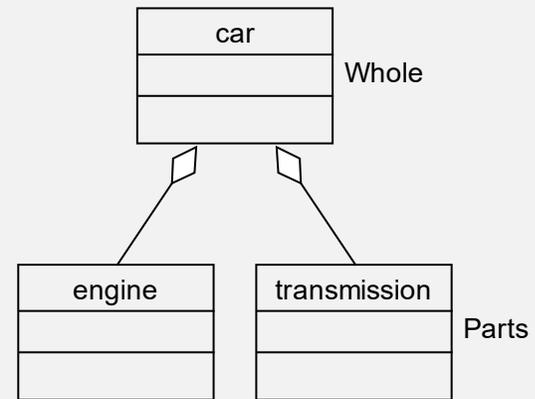


# TWO WHOLE-PART IMPLEMENTATIONS

## COMPOSITION



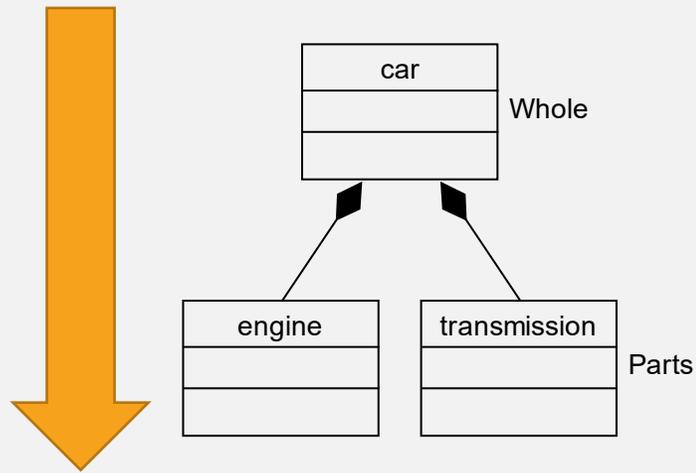
## AGGREGATION





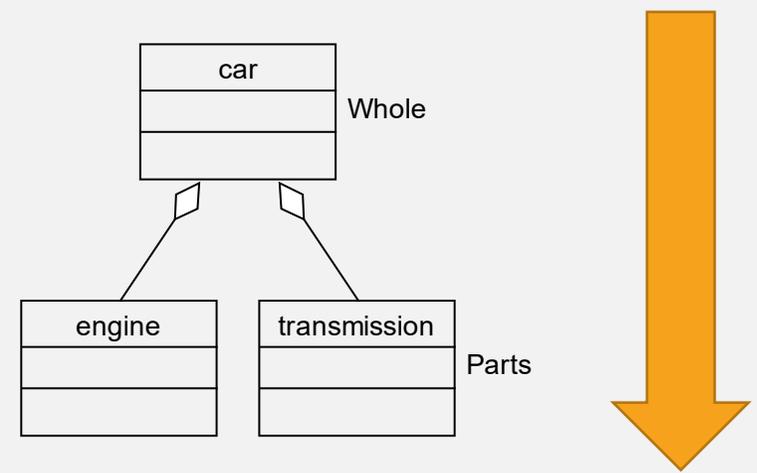
# TWO WHOLE-PART IMPLEMENTATIONS

COMPOSITION



“Has-A”

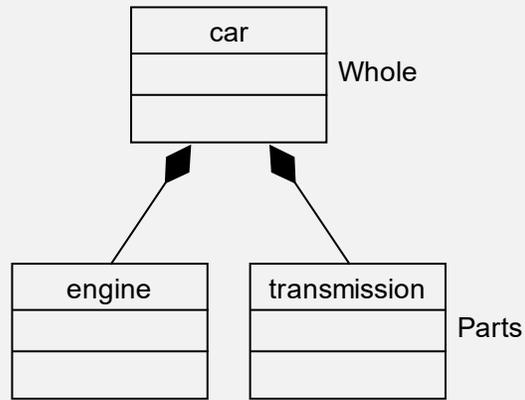
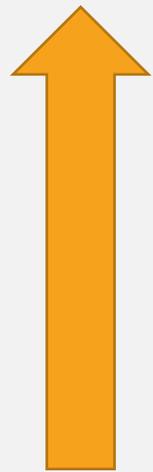
AGGREGATION





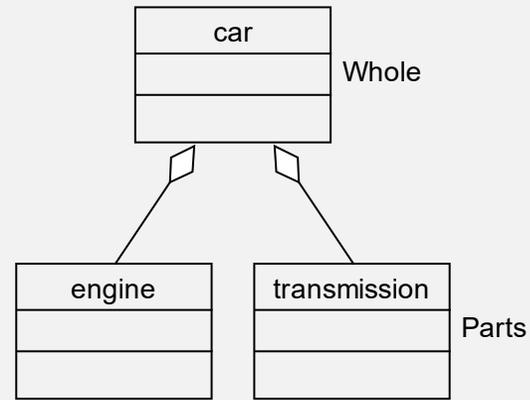
# TWO WHOLE-PART IMPLEMENTATIONS

COMPOSITION



“Is A  
Part-Of”

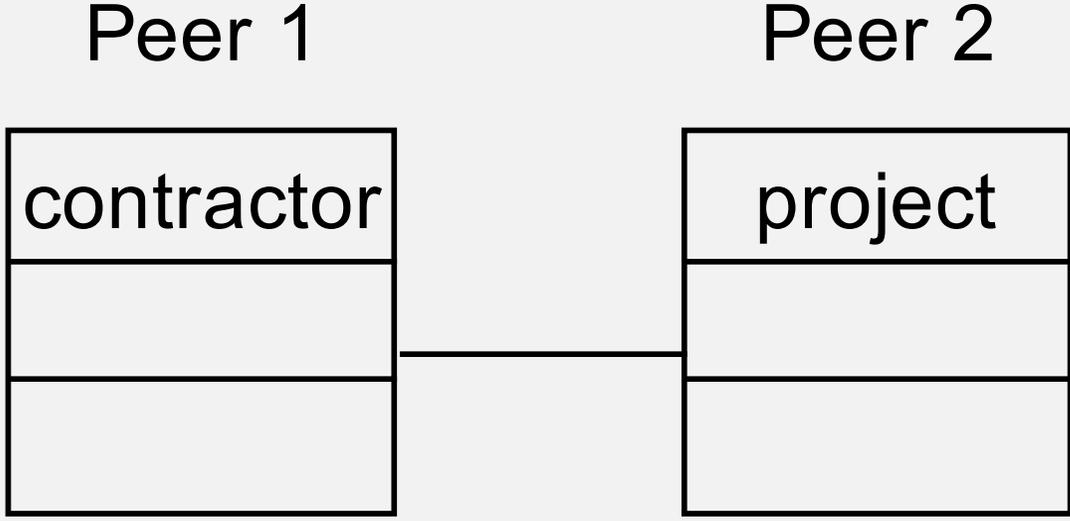
AGGREGATION

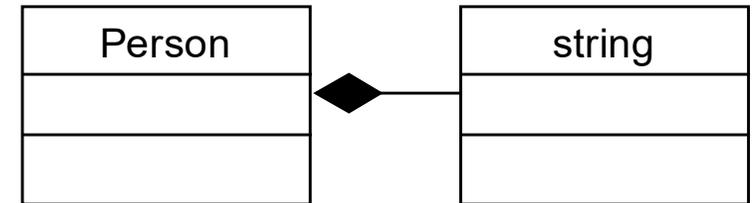
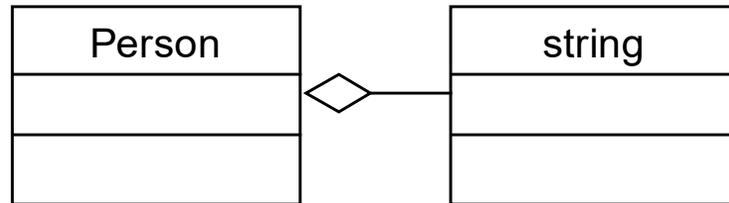
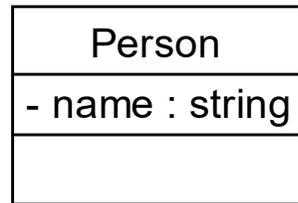




# ASSOCIATION

- Association is bidirectional
- “Has-a” relationship that reads well in both directions
  - A contractor “has-a” project
  - A project “has-a” contractor





# MODELING WITH LIBRARY CLASSES