

Software Engineering

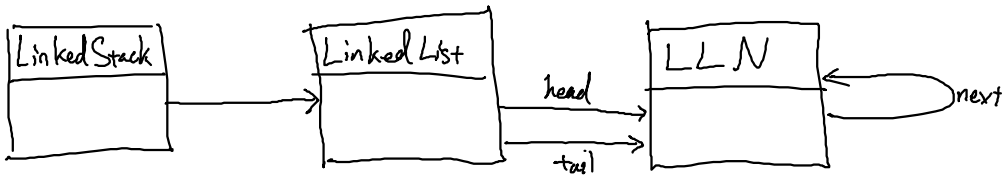
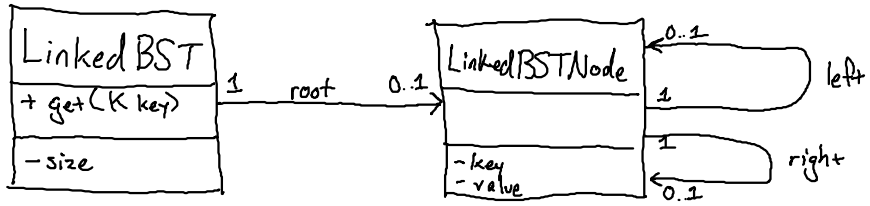
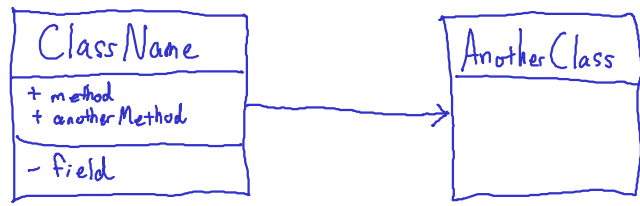
Scientific construction

Waterfall model:

1. Requirements — description of problem to solve
2. Design — plan for how to solve the problem
3. Implementation — actual solution (code)
4. Testing — (unit tests, etc.)
5. Maintenance

UML Class Diagrams

unified
modeling
language



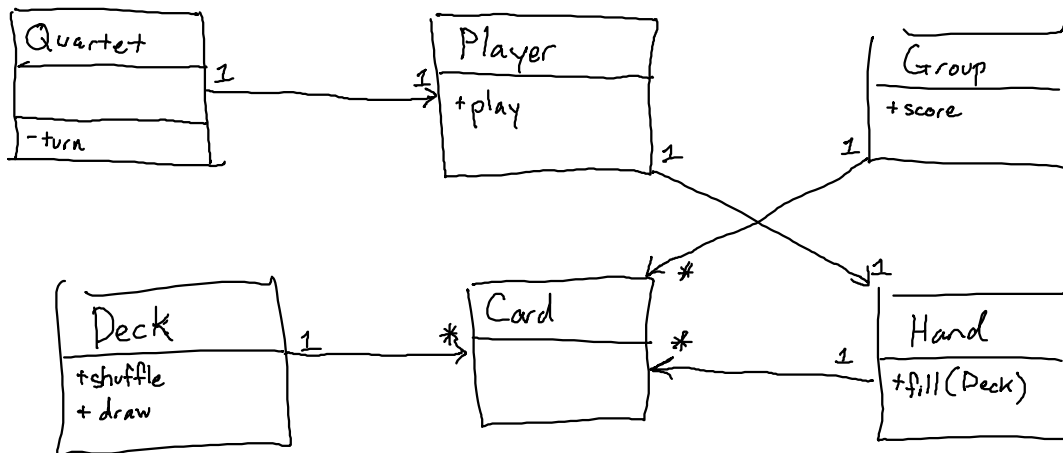
Quartet (Requirements)

Quartet deck replacements rule shuffle inform
 player cards groups hand draw score
 hand turns value point play

Quartet is a game in which the player plays and scores groups of cards from their hand. The game includes a deck of sixteen cards: four 1 cards, four 2 cards, four 3 cards, and four 4 cards. At the beginning of the game, the player shuffles the deck and draws four cards. Gameplay then proceeds in a series of turns in which the player will play some number of cards, gain points based upon those cards, and then draw replacements for each of those cards. When the player draws the last card from the deck, the game ends immediately. Groups of cards are scored according to three rules. First: a group containing multiple cards of the same value score the sum of those cards' values; a group containing two 3s gains six points, for instance, and a group containing three 4s gains twelve points. Second: a group containing a 1, a 2, and a 3 gains five points. Third: a group containing a 2, a 3, and a 4 gains five points. Multiple rules may apply to the same group: a group containing two 1s, a 2, and a 3 is worth seven points. At the end of the game, the player should be informed of their total score as well as the best group they scored.

4	4	3	3	14
3	3	2	2	6
2	1	4	2	4
1	1	4	1	2
1	4	4	1	10

✓ Quartet ✓ deck replacements rule ✓ shuffle ✓ inform
 ✓ player ✓ cards groups hand ✓ draw ✓ score
 hand turns value point ✓ play



Over-engineering is bad.

