# Common Characteristics of Semester-long Projects

* Must have a need for non-volatile data storage (i.e., use plain text file, text-based XML file, or Rdb) and thus can use 1 or more data structures.

# Domains used in Case Studies, Assignments and Projects

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| **Course, Term** | **Case Study** | **Assignments** | **Project** |
| 271, 09/fa | Digital library |  | Personal finance |
| 272, 10/sp | On sabbatical | | | |
| 271, 10/fa | Digital library |  | Personal finance |
| 272, 11/sp | Address book  Course-class enrollment | Personal calendar | Checkers |
| 271, 11/fa | Digital library | Monopoly  Airline reservation  Online retail shopping cart  Simulate bank activities | Personal finance |
| 272, 12/sp | Address book |  | Pig |
| 271, 12/fa | Digital Library | Monopoly  Airline reservation  Automated teller machine  Online retail shopping cart | Choice of:  Gin rummy (2 players)  Farkle (2 players) |
| 272, 13/sp | Address book | Student transcript records  Address book | Choice of:  Backgammon  Dice Chess  **(Both of these were too complex!)** |
| 271, 13/fa | Address book  Used Ver0.1 of book |  | Pig |
| 276, 15/sp | Address book  Used Ver0.2 of book |  | Cosmic Wipeout |
| 276, 16/sp | Address book  Used Ver0.3 of book |  | Choice of:  Gin rummy (2 players)  Farkle (2 players) |
| 276, 18/sp | Address book  Personal finances  Used Ver0.3 of book |  | Choice of:  Tunk (2 players)  Cosmic Wipeout (2 players) |
| 276, 19/sp  Independent study |  |  | Choice of:  Tunk (2 players)  Cosmic Wipeout (2 players) |

# Semester-long Project Ideas

* Artificial Intelligence (model human intelligence)
* Games
  + Board games
    - Types of board games (<http://en.wikipedia.org/wiki/Board_game>)
    - Strategy: chess, checkers, go, reverse, abalone, stratego, othello.
    - Educational: Arthur saves the planet, Cleopatra and the Society of Architects.
    - Race: parchisi, backgammon, worm up
    - Roll-and-move: monopoly, life.
    - Trivia: trivial pursuit
    - Wargame: risk, battleship, diplomacy to attack, conquest of the empire.
    - Word: scrabble, boggle, what’s my word?
  + Card games
    - Types/lists of card games (<http://en.wikipedia.org/wiki/Card_game>)
    - Trick-taking: e.g., bridge, pitch, whist, euchre, spades, salad (each trick, hearts, queens, king spade, last trick, fan-tan, all)
    - Matching: e.g., rummy, go fish, old maid, tunk (www.bicyclecards.com/how-to-play/tunk/)
    - Shedding: phase 10, rummikub, old maid.
    - Accumulating: war.
    - Fishing: scopa, cassino.
    - Comparing: poker, blackjack, baccarat.
    - Solitaire:
  + Die/Dice games
    - List of dice games (<http://en.wikipedia.org/wiki/List_of_dice_games>)
    - Boggle (?) 4x4 grid of 6-sided dice with letters on each side
    - Cosmic Wipeout?
    - Dayakattai? (similar to Parchesi)
    - Dice 10000/5000/1000 (looks pretty good; lots of conditional logic)
    - Dice chess (pretty cool!)
    - Farkle (or Farkel) similar to 10000/5000/100 and Cosmic Wipeout
    - Greed similar to 10000/50001000 and Cosmic Wipeout
    - High Rollers or Shut the Box
    - Kismet or Yahtzee
  + Maze games
    - (<http://www.allmazegames.com/>)
  + Other types of games?
* Management Information Systems (support organization functions & processes)
  + Address book
  + Airline reservation & seat assignment
  + Auto rental reservation
  + Automated teller machine
  + Bank transactions (deposit, withdrawal, transfer, schedule auto payment, buy bank services e.g., foreign currency)
  + Bus transportation system, times, routes
  + Course-class enrollment
  + Digital library (reserve, checkout)
  + Financial computations (Braude 13.3)
  + Inventory and distribution control
  + Online retail shopping cart
  + Personal calendar
  + Personal finance
  + Retail point-of-sale (video store, dept store)
  + Simulate bank activities (tellers, customer queue(s), etc.)
  + Traffic control system (roadway control, smart cars)
* Scientific computing (complex calculations-fast and accurate)
* Systems (operating systems, network systems, programming tools)
  + Music/multimedia player
  + XML parser (Braude 9.2)
* Web-centric (event-driven, e-commerce)