For Sale

In this étude you will develop a strategy for playing the game *For Sale*, and implement it as a Java class. The rules of *For Sale* are attached (for use only as part of this educational exercise). Two copies of the game are also available from the Computer Science reception if you want to play against actual people.

A framework that allows you to run tournaments among different players is provided. A simple `Test` class is provided that has a couple of very naïve strategies in it. You are encouraged to use this to evaluate and refine your strategies. If you wish to share your strategy with other groups, that's fine – but please treat such sharing as a "black box", i.e., do not inspect or use the code from other groups' work.

The town hall on May 27th will feature a tournament among your strategies, so code must be submitted no later than the end of the day on May 24.

Task

There are four parts to this task:

- Choosing a team name.

- A project diary. This should be a PDF file which informally documents your work (it could well include, e.g., scanned handwritten notes and comments like "Stuck because of a bug in the tournament framework – waiting for a fix".)

- One or more implementations of the `forsale.Strategy` interface. If you submit more than one, you should clearly identify which one you wish to be used in the tournament.

- A short formal report (from one to two sides of A4 at 10 to 12 point size for the body text) that explains your strategy and the processes you used to come up with it. Think of this as a sales pitch to a client who is not only interested in the direct comparisons between competing versions of the current product, but of evidence about good processes for future projects.

Relates to Objectives

1.4, 2.2, 2.6, 2.8, 3.4, 3.5, 4.4, 4.7, 4.8

(1 point, Group)

Overview

One man's castle is another man's cardboard box (or maybe his RV, treehouse, igloo, or skyscraper). In this fast-paced game of bidding and bluffing to get the highest-ranking properties, it isn't how much you pay for the properties, it is how much you sell them for. Manage your money wisely during the bidding and property acquisition phase, then outsmart (or just outguess) your rival tycoons during the selling phase. Be the richest real estate mogul at the end of the game to win!

Object

All players try to purchase the most valuable properties with the least amount of money and then turn around and sell those properties for the highest-valued Currency Cards. Whoever has earned the most money at the end of the game wins!

Setup

Separate the cards by type (Property and Currency) and shuffle each pile. Set aside the Currency Cards. They will be used in the second half of the game. Place the Property Cards face down as a deck.

With 3-4 players, give each person two $2,000 Coins and fourteen $1,000 Coins.

With 5-6 players, give each person two $2,000 Coins and ten $1,000 Coins.

With three players, remove six Property and six Currency Cards from the game without looking at them. With four players, remove two Property and two Currency Cards . These cards are discarded and placed back into the box.

How to Play

Phase 1: Buying Properties
Setup: Turn face up the number of Property Cards equal to the number of players. For example, in a four player game, turn up four Property Cards. All of the face-up properties will now be auctioned so that no player goes empty-handed. Each player may bid or pass.

Bidding: The player who lives in the largest house begins and lays down any number of his Coins onto the table. Play then continues clockwise around the table. The next player must decide whether he will bid or pass. If he bids, the bid amount must be more than the previous bid. Bidding continues around the table for as many times as necessary until all players have passed.

Passing: If a player passes, he takes the property that remains on the table with the lowest value. He also takes back half of his bid (rounded down). For example, if a player had previously bid $3,000, but ultimately decides to pass, he takes back $1,000 into his hand. The rest of the money is returned to the bank and is placed out of the game. After all players but one have passed, the remaining bidding player takes the highest-valued property, but pays the full amount of his bid to the bank. It is not necessary to bid anything to gain the least valuable property. You can pass, pay nothing and secure the least valuable property at no charge.

Tip: Keep your money secret!

Purchased properties are placed face down in front of the player who purchased them. The player who took the most valuable property turns over the next set of Property Cards for auction and continues play by bidding or passing. This continues until all of the Property Cards have been sold. When all Property Cards have been sold, Phase 1 is finished and unused Coins are kept by the players. They will be worth their face value at the end of the game.

Phase 2: Selling Properties
It's time to sell your Property Cards and earn some money! In this phase, the Property Cards will be sold for Currency Cards. As in Phase 1, the same number of Currency Cards will be turned face up as there are players. Each player takes his Property Cards into his hand and places one Property Card face down in front of him. Once all of the other players have their face-down Property Card ready to play, all players turn over their Property Cards simultaneously. The player who has played the most valuable Property Card takes the highest-valued Currency Card. The player who has played second most valuable Property Card takes the second highest-valued Currency Card, and so on. Property Cards are then discarded from the game.

Game End
The game ends when all players have sold all of their properties. Players add up their Currency Cards and remaining Coins and the richest player wins! Ties are resolved in favor of the player with the most remaining Coins.