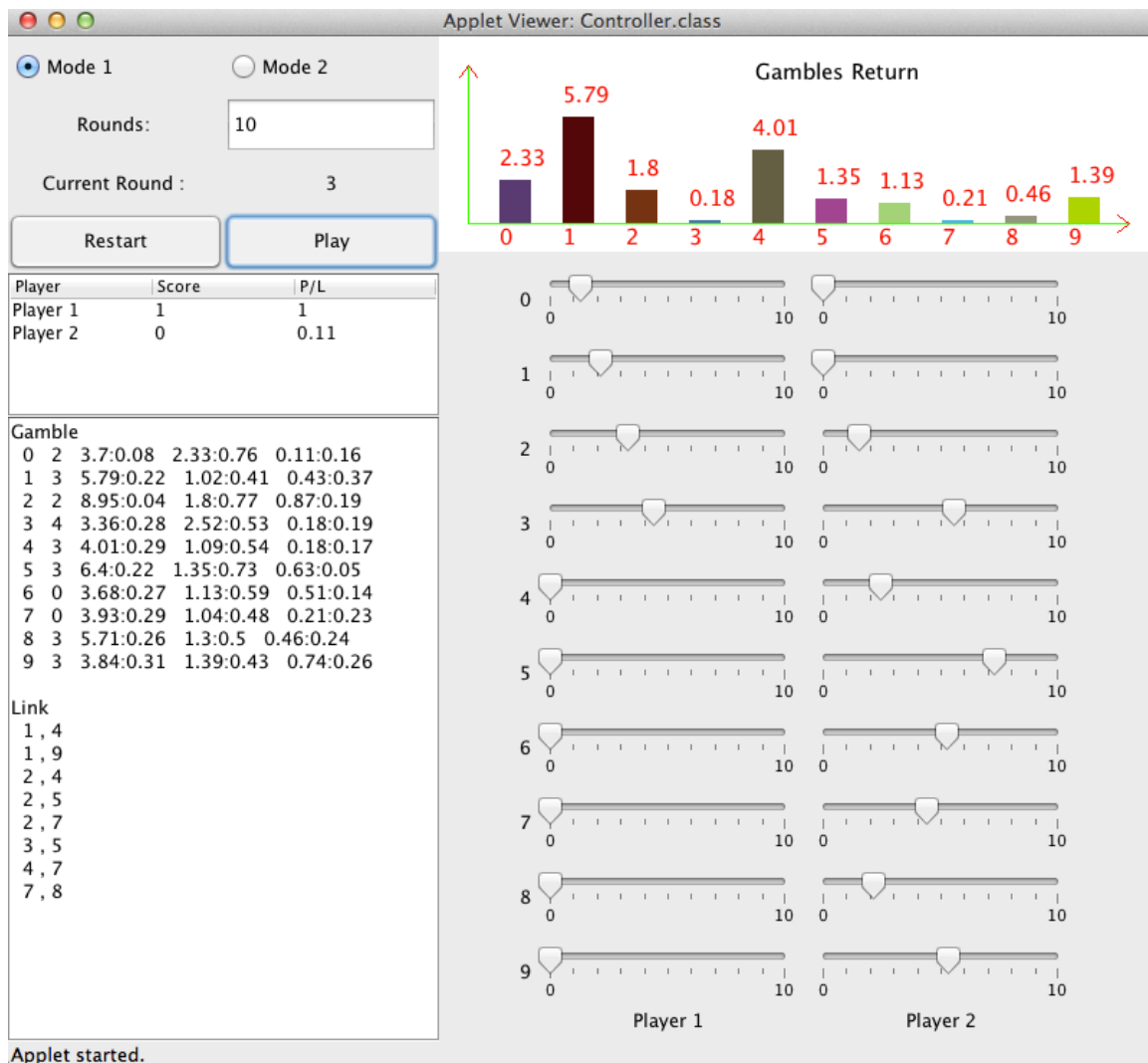


# Portfolio Optimization

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## 1.Game Design

Portfolio Optimization game is based on Java applet. It has 2 modes. Details about each mode could be found in the Website. The game GUI looks like following:



It contains 5 parts: operation panel, info panel, gambles panel, return panel, and allocation panel. The operation panel let users to set game mode, rounds, start/restart game, and play one round. Info panel shows players their score, P/L, wealth, sharpe ratio differently based on game mode. Gambles panel lists the gamble properties.

The format is showed below:

Gameble

<gamble id> <gamble class> <high\_return>:<high\_prob>  
<med\_return>:<med\_prob> <low\_return>:<low\_prob>

Links

<gamble id> , <gamble id>

Players could make their optimization based on these properties.

Return panel shows players the returns of gambles of each round.

Allocation panel let players decide how much amount they want to put in each gamble for each round. The sliders value will be normalized in the game. In mode 1, the sum of sliders value will be scaled to 1, while in mode 2, the sum will be scaled to the player's current wealth.

## 2. How to play

1. Choose game mode and rounds number
2. Press "Start"
3. The two players adjust their sliders, the sliders' values will be normalized
4. Press "Play" if they are ready for the next round
5. Repeat steps 3 and 4 or hit "Restart" to begin a new game

## 3. Code structure.

This game contains five java classes.

Controller.java -- the main class to control the whole game, including start game, simulates gambles' return, calculate scores.

Gamble.java – the java class for gamble, which contains returns and probabilities

MyPanle.java – the panel class helps to draw histogram.

Player.java – the java bean class for players, it contains players' id, wealth, returns.

PortfolioGenerator.java – the utility class to generate gambles and links for game.

The description of each functions could be found in the java source code.