Financial AI

Homework 3

Due at 06:00 pm (Korea Standard Time) on Saturday.

Problem 1.

(a) Solve 3 problems in the book. Select each one from easy, medium, and hard, respectively.

Problem 2. There is a fair coin that has an equal probability of landing heads or tails (50:50). You are a casino manager, and you want to design a game that uses this coin. The game must be slightly advantageous to the casino, with a winning ratio of each individual game not exceeding 60%.

(a) Design a game using the fair coin that satisfies the above condition.

(b) Unfortunately, some sneaky players want to cheat on you by using a rigged coin that has a higher probability of landing heads (55%). Can you detect if they are using a cheating coin? If so, how?

(c) Write a Python code that simulates both problem 2-(a) and 2-(b).