

# Algorithmic Thinking and Representations Homework

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1. Marble Flowchart:

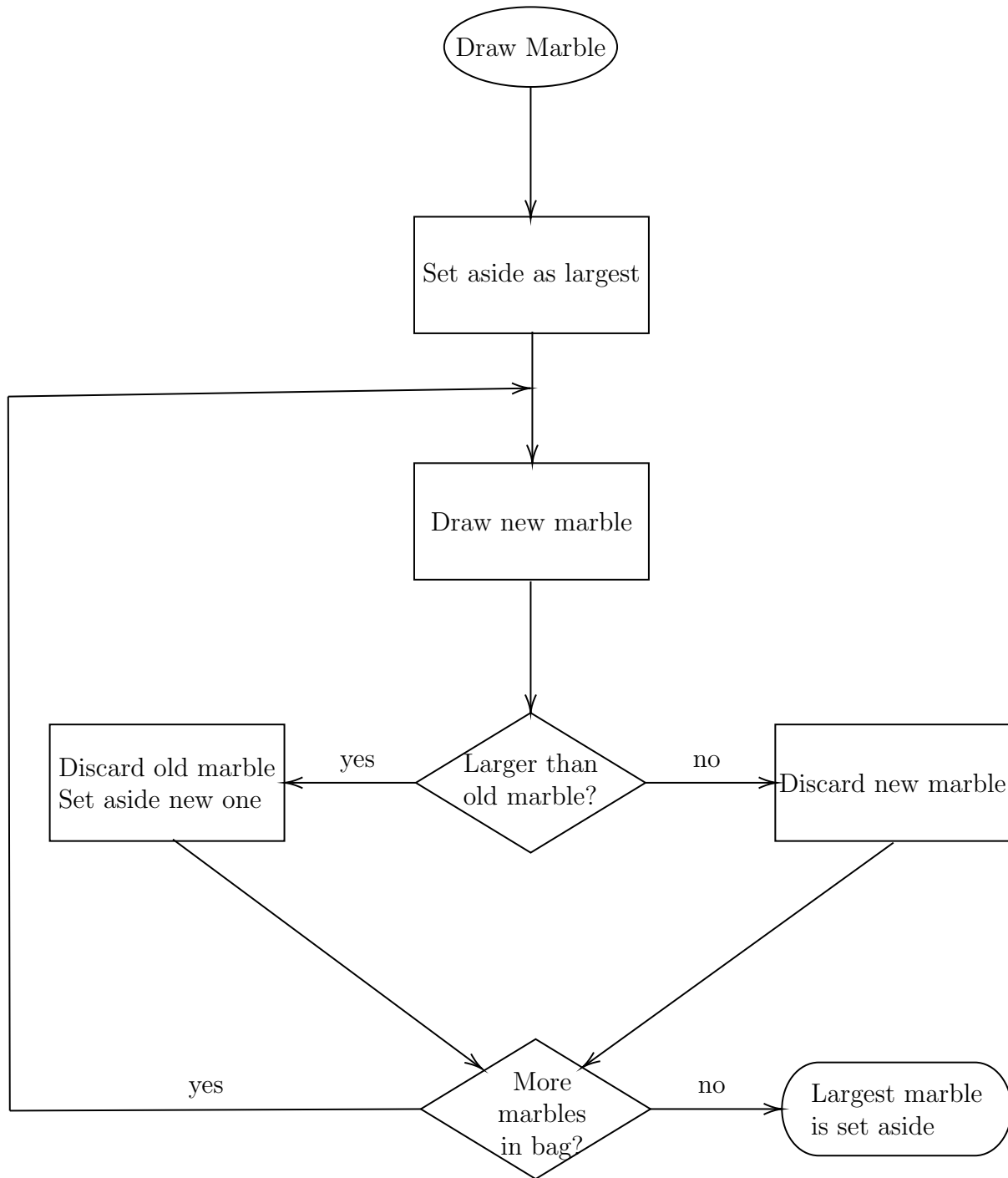


Figure 1: Flowchart for Drawing the Largest Marble

## 2. Rock Paper Scissors Pseudocode:

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**Algorithm 1** Rock, Paper, Scissors

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1: procedure ROCK PAPER SCISSORS
2:   Players (P1 & P2) Throw Hands;
3:   if P1 has rock then
4:     if P2 has scissors then P1 wins; → Game ends;
5:     else if P2 has paper then P2 wins; → Game ends;
6:     else Tie; → Play again;
7:   else if P1 has scissors then
8:     if P2 has paper then P1 Wins; → Game ends;
9:     else if P2 has rock then P2 Wins; → Game ends;
10:    else Tie; → Play again;
11:  else
12:    if P2 has rock then P1 Wins; → Game ends;
13:    else if P2 has scissors then P2 Wins; → Game ends;
14:    else Tie; → Play again;
15:
```

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### 3. Blackjack Dealer Flowchart for $n$ players:

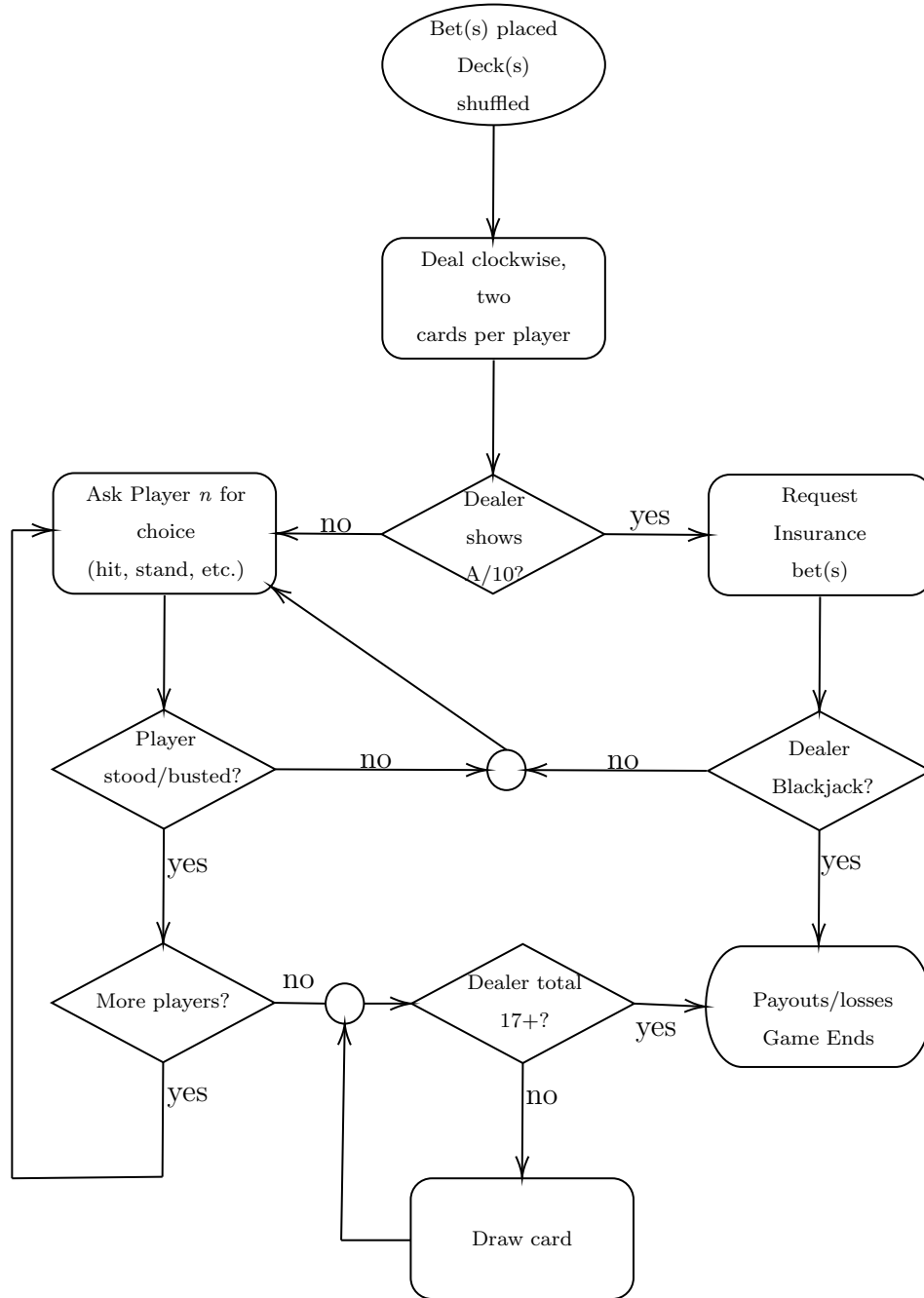


Figure 2: Flowchart for a Blackjack Dealer with  $n$  players

Initially, I had only the dealer perspective (where the dealer would draw to 17 or greater), and no actual player interaction. This was too simple, and not much of a game, so the player interaction, with  $n$  players, was added to make it more like the real game, and add complexity. Evaluation of who wins and who loses still omitted (simplified as “Payouts/losses”). Additionally, the dealer asking for insurance added more complexity, in addition to an integral part of the game.