Poker Tournament Manager

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Course: Data Structures and Object Oriented Programming

Final Project report

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Project Description

This application simulates and manages poker tournaments. Players can register, participate in games, and get ranked based on chip count or winnings. The system tracks eliminations, calculates a prize pool with tiered distribution, and logs results to a file.

Program Features
• Register and manage players
• Play simulated hands for all players at a table
• Sort players by chip count using Streams
• Filter active players using Streams
• Log actions and results using TournamentLogger
• Increment blinds in BlindStructure

- Calculate tiered prize pool for top 3 players

- Demonstration using Main.java

Screenshots

```java
6  ▷  public class Main {   ▲ ThomasArchambault225
7  ▷      public static void main(String[] args) {   ▲ ThomasArchambault225
8              Player p1 = new Player( name: "Daniel Negreanu",  id: 1);
9              Player p2 = new Player( name: "Phil Ivey",  id: 2);
10             Player p3 = new Player( name: "Phil Hellmuth",  id: 3);
11             Player p4 = new Player( name: "Fedor Holz",  id: 4);
12
13             List<Player> players = Arrays.asList(p1, p2, p3, p4);
14             Table table = new Table(players);
15
16             table.playHand();
17
18             BlindStructure blinds = new BlindStructure();
19             blinds.incrementBlinds();
20
21             PrizePool.TournamentLogger logger = new PrizePool.TournamentLogger();
22             logger.writeLog("A hand was played with " + players.size() + " players.");
23
24             PrizePool prizePool = new PrizePool();
25             prizePool.calculatePrizes(players,  buyIn: 100);
26
27             System.out.println("\nFinal prize distribution:");
28             prizePool.getPrizeDistribution().forEach((player, prize) ->
29                     System.out.println(player.getName() + " won $" + prize)
30             );
31     }
32 }
33
```

```
C:\Users\archa\.jdks\openjdk-23\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2024.2.1\lib\idea_rt.jar=50985:C:\Program Files\JetBrains\Ir
=== Playing a hand at the table ===
Daniel Negreanu played a hand and now has 805 chips.
Phil Ivey played a hand and now has 940 chips.
Phil Hellmuth played a hand and now has 920 chips.
Fedor Holz played a hand and now has 821 chips.

Players sorted by chips:
Phil Ivey: 940
Phil Hellmuth: 920
Fedor Holz: 821
Daniel Negreanu: 805

Active players:
Daniel Negreanu: Active
Phil Ivey: Active
Phil Hellmuth: Active
Fedor Holz: Active
Blinds increased to: SB=75, BB=150
Total prize pool: $400
1st: Phil Ivey wins $200
2nd: Phil Hellmuth wins $120
3rd: Fedor Holz wins $80

Final prize distribution:
Phil Ivey won $200
Phil Hellmuth won $120
Fedor Holz won $80
```

Challenges

- Ensuring that all the required class material was present in the project
- Remembering to gradually commit the code to show the work process
- Handling the cases with null input and empty lists
- Designing the top 3 prize payout logic

Learning Outcomes

- Practiced Java OOP concepts such as inheritance and interfaces
- Better understanding of lists, maps and sorting/filtering using streams
- Learned to structure a project using Git
- Better understanding of Junit 5 testing