**SPACESHIP ODYSSEY FINAL REPORT**

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"Space Explorers Odyssey" immerses players in an interstellar journey filled with discovery and challenges. As commanders of their spaceship, players embark on a thrilling quest to explore diverse planets, each holding unique mysteries and encounters.**

**With each planet offering a new adventure and strategic trade-offs, "Space Explorers Odyssey" challenges players to balance risk and reward on their quest for exploration.**

**Design and Development:**

**Class Structure and Functionality:**

1. **Spaceship Class:**
   * **Attributes:** Fuel capacity, crew capacity, current fuel, current crew, current money, and fuel efficiency.
   * **Methods:** Refueling, upgrading ship capabilities, adding crew members, exploration simulation, and a description getter for each ship type.
2. **Planet Class:**
   * **Attributes:** Name, description, fuel required for exploration, and hostility level.
   * **Functionality:** Simulates planet exploration events that affect spaceship attributes upon discovery. Each planet has a unique event associated with it, impacting fuel, crew, money, and ship capabilities.
3. **RandomEvent (Inside Planet):**
   * **Derived Classes:** Represent various random events during planet exploration.
   * **Functionality:** Each event affects the spaceship differently, involving scenarios like solar flares, encounters with strangers, bandit ambushes, mysterious artifacts, and alien diplomacy.
4. **Game Class:**
   * **Functionality:** Manages the overall game logic, player interactions, and the main game loop.
   * **Features:**
     + **Choose Ship:** Players select from different ship types at the start, each with its unique attributes.
     + **Explore Planets:** Sequential exploration of planets, triggering unique events, and gaining resources.
     + **Display Game Status:** Show spaceship details, resources, explored planets, and remaining ones.
     + **Save/Load Game:** Allow saving progress to a file or loading a previously saved game state.
     + **Buy Fuel/Crew:** Purchase fuel or hire crew members using in-game currency.
     + **Win/Lose Conditions:** Game ends if all planets are explored or if the ship runs out of crew/fuel.

**Development Insights:**

* **Polymorphism and Inheritance:** Utilizes inheritance for different spaceship types (**StealthShip**, **JetShip**, **TravelShip**) and polymorphism to ensure a uniform interface for describing ships and simulating exploration across all ship types.
* **Dynamic Events:** The inclusion of random events adds variability and unpredictability to the gameplay, enhancing player engagement by introducing unforeseen challenges and opportunities during exploration.
* **Game Loop Implementation:** The main game loop orchestrates player choices, interactions, and condition checks for progression, providing a structured yet flexible environment for gameplay.

**Plan vs. Implementation:**

* **Accomplished Features:**
  + Sequential planet exploration with unique events impacting the spaceship's attributes.
  + Save/load functionality to retain game progress.
  + Inclusion of random events to add depth and unpredictability to the gameplay.
* **Evolved Features:**
  + *Original Plan:* The initial plan might have focused solely on sequential exploration without dynamic events.
  + *Expanded Interaction:* The random events might have evolved from a more straightforward exploration concept to provide diverse and engaging encounters during gameplay.