Sprint 2 Artifacts

**Overview**  
Sprint 2 builds on the foundational systems from Sprint 1. This sprint focuses on implementing the core gameplay mechanics, user interface improvements, and supporting systems such as statistics tracking and AI groundwork. The artifacts below describe the planned work for each Sprint 2 requirement (ticket), outlining its purpose, approach, and expected deliverables.

This sprint, we plan on working on the following:

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| Lay groundwork for AI/bots | Description: Implement the foundational structure for AI-controlled opponents to simulate real users in card games.  Planned Work: Create AI player classes that inherit from the base Player class. Stub decision logic for poker and blackjack (call, fold, hit, stay). Prepare a testing framework for AI versus player scenarios.  Expected Outcome: Functional AI architecture ready for integration into game loops.  Diagram: AIPlayer → Decision Engine → GameController → Game Loop |
| Gameplay loop for poker | Description: Develop the complete turn-based gameplay logic for poker, including dealing, betting, and winner evaluation.  Planned Work: Build a core game class for managing hands, pot, and betting rounds. Integrate turn-sequencing and player actions. Add temporary UI for debugging gameplay states.  Expected Outcome: Functional, testable poker round that can run locally with player and AI inputs.  Diagram: Start → Deal → Betting Round → Flop → Betting → Turn → Betting → River → Evaluate |
| Gameplay loop for blackjack | Description: Design and implement blackjack round logic for both human and AI players.  Planned Work: Implement dealer logic, hit/stay mechanics, and scoring. Connect player balance system for bets and winnings. Integrate preliminary UI for hand display.  Expected Outcome: Complete, testable blackjack gameplay loop integrated into the main menu.  Diagram: Deal → Player Decisions → Dealer Turn → Compare Hands → Update Stats |
| Gameplay loop for slots | Description: Implement a slot machine game loop to expand the in-game casino experience.  Planned Work: Create reel-spinning and matching logic. Implement RNG-based symbol generation and scoring. Connect winnings to the player currency system.  Expected Outcome: Working slots mini-game that returns results and updates balance.  Diagram: Spin → Generate Symbols → Check Matches → Award Winnings |
| Statistic-tracking and leaderboards | Description: Add a system for tracking player statistics and displaying leaderboards.  Planned Work: Create persistent storage for stats such as wins, losses, and net earnings. Track metrics through a StatsManager and display rankings in the UI.  Expected Outcome: Players can view cumulative performance and rankings.  Diagram: Game End → StatsManager → Save Data → LeaderboardUI |
| Lay out shop/bar/item system | Description: Lay the foundation for in-game purchases, cosmetics, and bar interactions.  Planned Work: Define item classes and an inventory system. Implement shop UI and transaction logic. Connect all purchases with the player’s wallet balance.  Expected Outcome: Preliminary shop system where players can view and buy items.  Diagram: Player → Wallet → Shop → Purchase → Inventory |
| Game settings/lobby menu for poker | Description: Develop a configurable pre-game lobby for poker matches.  Planned Work: Create menu UI for player count, blinds, and buy-ins. Add a start game button linking to the poker gameplay loop. Support both AI and local multiplayer configurations.  Expected Outcome: Players can customize game parameters before starting a match.  Diagram: Main Menu → Poker Lobby → Configure → Start Game |
| Game settings/lobby menu for blackjack | Description: Build a similar setup screen for blackjack.  Planned Work: Create adjustable rule options such as deck count and dealer behavior. Add a start button linking to the blackjack loop. Include quick-start testing options.  Expected Outcome: Configurable blackjack setup for single-player or AI play.  Diagram: Main Menu → Blackjack Lobby → Configure → Start Game |

**Expected Deliverables**  
 Functioning prototypes for Poker, Blackjack, and Slots gameplay. AI/bot architecture integrated into card games. Basic shop and leaderboard systems. Game lobbies for Poker and Blackjack with adjustable settings. Visual documentation (simple diagrams) for each artifact.

**Notes**  
 Each requirement corresponds to a specific ticket in the Sprint 2 backlog. Diagrams can be block diagrams or simplified UML sketches. This document should serve as a reference for sprint verification and grading.