Timeline for Networking Team

Week 1 (March 1st - March 7th)

- Define at least 5 use case descriptions for networking functionality:
  - Connect with Players in Matchmaking (ID01).
  - Real-Time Game Synchronization (ID03).
  - Session Reconnection (ID07).
  - Latency Compensation & Network Stability (ID08).
  - Redirect Client Queries (ID05).
- Divide tasks among team members and start drafting use case descriptions.
- Create a use case diagram to connect all networking use cases.
- Develop planning documents, including:
  - Timeline for networking tasks.
  - Roles and responsibilities for team members.
- Prepare and submit P1 deliverables (Planning Documents).

Week 2 (March 8th - March 14th)

- Establish an accountability contract with other teams (e.g., Authentication, Game Logic, GUI).
- Review networking designs from two other teams, noting strengths and areas for improvement.
- Evaluate use case descriptions and diagrams from other teams, providing feedback to ensure alignment with project goals.
- Begin drafting stubs for networking functionality, such as:
  - APIs for real-time communication.
  - Matchmaking and session reconnection logic.
- Simulate networking behavior:
  - Implement stubs for real-time game synchronization.
  - Simulate database interactions for user profiles and game state.

Week 3 (March 15th - March 21st)

- Collaborate with other teams to compile a Grade Adjustment Table.
- Suggest two major improvements for networking integration based on last week's analysis.
- Create a formal feedback document summarizing recommended changes for another team.
- Draft a feature proposal document detailing key networking functionalities, including:
  - Real-time data transfer protocols.
  - Matchmaking API integration.
  - Latency compensation mechanisms.
  - Session reconnection logic.
- Prepare and submit P2 deliverables (Review & Feedback).
- Enhance stubs to handle edge cases, such as network failures and high latency.
- Simulate interactions with the leaderboard and chat systems.

Week 4 (March 22nd - March 28th)

- Complete the bulk of the networking system's code, focusing on:
  - Real-Time Game Synchronization (ID03): Implement game state updates using stubs.
  - Session Reconnection (ID07): Develop logic to restore player sessions after disconnections.
  - Latency Compensation (ID08): Add mechanisms to handle network fluctuations.
- Review and incorporate feedback from external evaluations.
- Simulate network interactions to test:
  - Latency and packet loss.
  - Error handling and recovery.
- Collaborate with the Game Logic Team to ensure smooth data flow during gameplay.
- Test stubs for matchmaking, authentication, and game logic integration.
- Simulate database interactions for storing and retrieving game state.

Week 5 (March 29th - April 4th)

- Wrap up coding for core networking features, ensuring everything functions as intended.
- Work with the GUI Team to integrate networking elements into the user interface, such as:
  - Lobby and matchmaking screens.
- Collaborate with the Integration Team to connect the networking system to the broader project infrastructure.
- Assist the Matchmaking Team to ensure seamless integration with ranking and game history tracking.
- Create and organize test cases to validate networking functionality, including:
  - Stress testing for multiple concurrent users.
  - Latency and packet loss simulations.
  - Error recovery testing.
- Finalize all networking stubs and ensure they integrate seamlessly with the GUI and game logic.

Week 6 (April 5th - April 11th)

- Collaborate with other teams to document all modifications and improvements made throughout the project.
- Create a final demonstration video showcasing key networking features, such as:
  - Real-time gameplay synchronization.
  - Matchmaking and lobby functionality.
  - Session reconnection and latency compensation.
- Complete and execute all test cases to ensure the system meets project requirements.
- Finalize documentation, including:
  - API documentation.
  - Troubleshooting guide.
  - Suggestions for future improvements.
- Demonstrate how stubs simulate real-world networking and database interactions, highlighting the system's robustness.

Key Deliverables

P1 Deliverables (March 7th):

- Use case descriptions and diagrams.
- Planning documents (Timeline, Roles & Responsibilities).
- Initial stubs for server-client communication.

P2 Deliverables (March 21st):

- Feedback document for other teams.
- Feature proposal document for networking functionalities.
- Enhanced stubs for matchmaking, authentication, and game logic.

P3 Deliverables (April 11th):

- Fully functional networking system using stubs.
- Test cases and results.
- Final demonstration video.
- Comprehensive documentation.

Networking Team Focus Areas

1. **Matchmaking Integration:** Simulate seamless player connections (ID01).
2. **Real-Time Synchronization:** Simulate game state updates (ID03).
3. **Session Reconnection:** Simulate rejoining games after disconnection (ID07).
4. **Latency Compensation:** Simulate handling network fluctuations (ID08).
5. **Error Handling:** Simulate network failures and ensure stability (E1 scenarios).