Functional Requirements

User Account & Profile Management

- **FR-1**: The system shall allow users to link their gaming profiles (e.g., Steam, Riot, Xbox) to their account.
- **FR-2**: The system shall check whether a gaming profile is public or private and return an error if private.
- **FR-3**: The system shall allow users to connect and manage multiple gaming profiles for a unified view.

Data Collection & Retrieval

- **FR-4**: The system shall retrieve data on games played, achievements unlocked, and gameplay statistics from supported platforms (Steam, Riot, Xbox).
- **FR-5**: The system shall regularly update the user's data by pulling it from these platforms.

Profile Insights Generation

- **FR-6**: The system shall analyze the retrieved gaming data and generate a descriptive paragraph about the user's gaming behavior, accessed via `/user`.
- **FR-7**: The system shall generate a detailed readout including games, achievements, skill assessments, and insights about the player, accessed via `/user/details`.

Attribute Prediction

- **FR-8**: The system shall predict player attributes (e.g., problem-solving, time management, leadership) based on gaming activity when queried via `/user/[attribute]`.
- **FR-9**: The system shall present these attributes with a confidence level based on gameplay patterns, achievements, and game types.

Error Handling & Feedback

- **FR-10**: The system shall detect if a Steam account is set to private and return a user-friendly error message.
- **FR-11**: The system shall inform the user if there's a delay or error in retrieving data from a gaming platform, offering a retry option.

Multi-Platform Data Integration

- **FR-12**: The system shall consolidate and merge data from multiple gaming platforms into one comprehensive user profile.

Notifications & Updates

- **FR-13**: The system shall notify users when their profiles have been successfully updated, analyzed, or if issues have occurred (e.g., private accounts).

Non-Functional Requirements

Performance

- **NFR-1**: The system shall provide responses to user requests (e.g., profile generation) in under 5 seconds.
- **NFR-2**: The system shall support at least 500 concurrent users without any significant degradation in performance.

Scalability

- **NFR-3**: The system shall be able to handle increased demand by scaling horizontally, supporting more users and larger data sets as the platform grows.
- **NFR-4**: The system shall be able to integrate additional gaming platforms in the future without major architectural changes.

Security

- **NFR-5**: The system shall use HTTPS for all communications, ensuring encryption of data in transit.
- **NFR-6**: All user data (including gaming profiles and personal data) shall be encrypted at rest using AES-256 encryption.
- **NFR-7**: The system shall comply with applicable data privacy regulations (e.g., GDPR) and allow users to delete their data upon request.

Reliability

- **NFR-8**: The system shall ensure 99.9% uptime, excluding scheduled maintenance periods.

- **NFR-9**: The system shall automatically retry data retrieval from gaming platforms up to 3 times in the event of an API failure or timeout before displaying an error message to the user.

Usability

- **NFR-10**: The user interface shall be designed to be intuitive and easy to navigate, with no more than three clicks required to access detailed player profiles or insights.
- **NFR-11**: The system shall provide clear feedback for any errors or delays (e.g., private profiles or API failures), helping users resolve issues easily.

Maintainability

- **NFR-12**: The system shall follow modular design principles, allowing for easy updates and bug fixes. Documentation shall be provided to enable future developers to maintain the system.
- **NFR-13**: The codebase shall be regularly updated to accommodate new gaming platforms and features, ensuring compatibility without requiring major overhauls.

Interoperability

- **NFR-14**: The system shall be compatible with third-party APIs (e.g., Steam API, Riot API) and must adapt to changes in these APIs without disrupting service.
- **NFR-15**: The system shall support integration with gaming platforms from different regions and ecosystems (e.g., console vs. PC gaming).

User Privacy

- **NFR-16**: The system shall only collect and store user data necessary for its functionality and delete unused data after a predetermined period.
- **NFR-17**: The system shall provide users with options to adjust privacy settings, including the ability to control what data is shared or analyzed.

Extensibility

- **NFR-18**: The system architecture shall allow new attribute prediction models or additional features (such as new skill assessments) to be added with minimal impact on existing functionality.