

System Vision, Scope Statement, and Stakeholder Analysis

Lindsey A. Monyelle

DAT 445 Predictive Analytics and Machine Learning (WI)

Dr. Jess Schwartz

September 1, 2026

Project Background

KolMafia, commonly referred to as Mafia, is a community-maintained project that provides quality-of-life improvements for players of the browser-based game Kingdom of Loathing. Although Mafia includes tools such as the Modifier Maximizer to help players manage equipment, consumables, potions, and buffs, it does not currently provide a comparable system for organizing and evaluating combat items. Because combat items can deal damage, restore resources, weaken or stun enemies, banish monsters, or produce other effects, players often have to research them manually or rely on community-maintained information that may be outdated. A centralized combat-item catalog would help players better understand their inventory, avoid wasting rare or expensive items, identify useful alternatives, and support future automation within Mafia.

System Vision Statement

The proposed system will provide KolMafia users with a structured catalog of combat items that allows them to identify, categorize, and query items by their effects and other useful properties so that players can make better-informed decisions about how to use their inventory.

Project Scope

The initial project will focus on creating a combat item database and a companion script that can be used to query information about the items available to the player. The database will contain the basic properties and effects of combat items and allow items to have multiple categories when appropriate. A list of combat items can be obtained through existing Mafia functionality to populate some database fields, but additional information that is not readily available will need to be captured and added either manually or through automated methods. The companion script will provide the basic mechanics for querying the database, including identifying items in the player's inventory based on the type of damage or restoration they provide, the quantity available, and their current Mall prices using existing ASH functions such as `mall_price()` and `mall_prices()`. A data validation or "spading" script will also be included to help verify information added to the database. Similar scripts are already used within the Mafia community to collect information about game mechanics and report the results to the script creator for validation. This will provide a way to identify incorrect or incomplete data and improve the accuracy of the database over time.

Out-of-Scope Items

Several features will be excluded from the initial project to keep the scope manageable. First, integration into the Mafia codebase itself will not be included at this stage. Once the system is functioning well enough to demonstrate its value, it could be presented to Gausie for consideration as a potential Mafia feature, but initially it will be simpler to develop and test it as an independent script. Second, the project will not attempt to fully implement every possible combat-item behavior. The initial focus will be on stat-based behaviors that are relatively easy to quantify, such as damage and restoration, before expanding into more unusual behaviors. As those behaviors are examined, the project will look for common patterns that can be used to develop additional categories rather than attempting to account for every possible behavior from the beginning. Finally, non-combat items will be excluded from the project. The system will focus specifically on items that can be used during combat.

Stakeholder Analysis

Identifying five categories of stakeholder for this project was probably harder than most since the community itself is pretty small, but I was able to identify them as Mafia users, maintainers, and script authors, KoL Wiki maintainers, and project contributors. Mafia users would be interested in accurate item information, useful categories, and an easier way to understand the combat items in their inventory. Their main concern would be inaccurate or outdated information leading to poor decisions about which items to use. Mafia maintainers are responsible for reviewing and maintaining the Mafia codebase if the system is eventually considered for integration. They would need a maintainable data structure, clear documentation, and a reasonable process for updating the information that integrates well into their current system. Mafia script authors could use the catalog to enhance their own scripting, including within commonly used tools. They would need a consistent, clear way to query item effects and inventory information and would be concerned with customization and granularity. Wiki maintainers could benefit from a way to run queries to quickly update existing documentation, but may be less technical when it comes to running scripts. Finally, project contributors may help research items, add data, test functionality, or maintain the system. They would need clear requirements and a manageable process for adding and correcting information, while the large number of combat items and limited volunteer time could make populating the catalog time-consuming.

Assumptions

The project is based on several assumptions about the available data, community support, and intended users. It is assumed that though the queryable list of combat items (based on user collected data) is lacking in needed details, it is a complete and accurate list of all combat items in the game. Volunteers are also assumed to be willing to help out with manual filling in of data. Although not every combat item is expected to fit perfectly into a standardized category, most effects are assumed to be representable through structured properties that scripts can query. Finally, the initial system is intended primarily for existing KolMafia users who have some familiarity with ASH scripting, allowing the project to focus on improvements for more advanced users in the beginning.

Constraints

The project will have several constraints that may affect its development. KolMafia is maintained by community volunteers, so development and ongoing maintenance time may be limited. Some combat items have unusual or conditional effects that may not fit cleanly into a standardized category. The proposed system will also need to work within the technical limitations and conventions of the existing Mafia codebase. Finally, the usefulness of the system depends on keeping item information accurate as the game changes.

Preliminary Success Criteria

The proposed system will be considered successful if users can query the catalog to identify combat items that perform a particular function, such as dealing a specific type of damage. The system should also distinguish between multiple items that provide similar effects while exposing useful information such as quantity, effect strength, and current Mall price. KolMafia scripts should be able to access the catalog information when making combat decisions. From the player's perspective, the system should make it easier to identify appropriate combat items without requiring them to manually research individual items. Ultimately, the system should reduce the likelihood of players unnecessarily using rare, expensive, or limited-use items when suitable alternatives are available.

References

- A KoL Wiki. (2024, January 18). *Combat Items*. A KoL Wiki. Retrieved September 1, 2026, from https://wiki.kingdomofloathing.com/Combat_Items
- A KoL Wiki. (2025, February 17). *Cost Analysis of Restoring HP and MP*. A KoL Wiki. Retrieved September 1, 2026, from https://wiki.kingdomofloathing.com/Cost_Analysis_of_Restoring_HP_and_MP
- gausie. (2026, August 22). *kolmafia/src/data/modifiers.txt*. Github. Retrieved August 30, 2026, from <https://github.com/kolmafia/kolmafia/blob/4b19681c000308d08c4e55452c246883847a4d6c/src/data/modifiers.txt>
- KoLmafia Wiki. (2026). CLI reference. KoLmafia Wiki. Retrieved September 1, 2026, from https://wiki.kolmafia.us/index.php?title=CLI_Reference
- KoLmafia Wiki. (2021, March 15). *Custom Combat Script - Kolmafia*. KoLmafia Wiki. Retrieved September 1, from https://wiki.kolmafia.us/index.php?title=Custom_Combat_Script
- KoLmafia Wiki. (2023, March 10). Modifier Maximizer - Kolmafia. KoLmafia Wiki. Retrieved September 1, 2026, from https://wiki.kolmafia.us/index.php?title=Modifier_Maximizer
- KoLmafia Wiki. (2010, November 23). KoLmafia Guide: Running ASH Scripts - Kolmafia. KoLmafia Wiki. Retrieved September 1, 2026, from https://wiki.kolmafia.us/index.php?title=KoLmafia_Guide:_Running_ASH_Scripts