Witcher Tracker
CMPE 230 – Project 3 Documentation

Akif Yıldırım
2020400144

June 1, 2025

Contents

1 Project Overview

The Witcher Tracker is an inventory-event management system that simulates Geralt's interactions in the Witcher universe. The system is implemented in C++ using Object-Oriented Programming and handles commands related to looting, brewing potions, learning monster weaknesses, and querying Geralt's inventory, bestiary, and alchemy formulas.

2 Design and Implementation

2.1 Class and Object Design

- **Inventory**: Manages ingredients, potions, and trophies.
- **Bestiary**: Stores knowledge about monsters and their effective counters.
- **Alchemy**: Maintains potion recipes and handles brewing logic.

2.2 Execution Flow

1. The program reads a line of input prefixed with `>>`.
2. The line is passed to the parser, which identifies the command type.
3. The appropriate handler is called, and the result is printed.

3 Challenges and Solutions

- **Flexible input parsing**: Regex patterns were carefully constructed to allow varying whitespace but disallow invalid characters or structure.
- **Input sanitization**: We had to trim and normalize input for accurate parsing and validation.

4 Usage Guide

4.1 Compilation

To compile the program:

```
make
```

This will generate an executable named `witchertracker`.

4.2 Execution

To run the program:

```
./witchertracker
```

4.3 Example Inputs and Outputs

```
>> Geralt loots 4 Vitriol, 3 Rebis
Alchemy ingredients obtained

>> Geralt learns Igni sign is effective against Harpy
New bestiary entry added: Harpy

>> Geralt encounters a Harpy
Geralt defeats Harpy

>> Total ingredient ?
3 Rebis, 4 Vitriol

>> What is in Black Blood ?
3 Vitriol, 2 Rebis, 1 Quebrith
```

5 Code Structure Summary

- `main.cpp`: Entry point
- `WitcherTracker.h/.cpp`: Main class that holds inventory, bestiary, and alchemy objects.
- `Inventory.h/.cpp`: Manages adding/removing/querying ingredients, potions, and trophies.
- `Bestiary.h/.cpp`: Manages effective signs and potions against monsters.
- `Alchemy.h/.cpp`: Manages potion recipes and brewing logic.

6 AI Assistant Usage

ChatGPT was used for:

- Suggesting regex patterns for flexible yet strict grammar validation.
- Debugging segmentation faults in input parsing stages.