

# Aetalag Tabletop RPG Asset Manager for UTM CSCI 352

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## Abstract

**“Aetalag Tabletop RPG Asset Manager” is a modular asset management system for tabletop roleplaying games. The targets for “Aetalag Tabletop RPG Asset Manager” are those who wish to “make it easy” when working with TTRPG assets: dungeon masters and players alike. The project is three fourths of the way through the planning stage of development.**

## 1. Introduction

“Aetalag Tabletop RPG Asset Manager” is a modular asset management system for tabletop roleplaying games built to assist the user in TTRPG character building and upkeep via gathering information from online databases and organizing the information in an accessible and dynamic manner. We expect the target audience to benefit from “Aetalag Tabletop RPG Asset Manager” due to its ability to better keep track of TTRPG elements in the heat of a game: initiative scores, health points, spell slots, etc.

### 1.1. Background

Tabletop RPGs, or role-playing games, are an increasingly common hobby in modern society that involve creating and acting out characters in fictional scenarios. One game is typically called a “session,” and multiple sessions are called a “campaign.” Two such examples of tabletop role-playing games are the widely popular Dungeons and Dragons (5th Edition) and Pathfinder (1st Edition). D&D [5e] and Pathfinder [1e] sessions tend to take place in high fantasy, magical settings; however, their rulesets are incredibly different. D&D [5e] is a simpler model and is thus easier to introduce to new players. Pathfinder [1], however, is better suited to players with some amount of tabletop experience, as there are an abundance of rules, some of which build off of an older model of D&D, that being D&D 3.5 edition. Some terms that would be useful to know are as follows:

Sheet: A page in a character’s portfolio, typically used to track their stats, equipment, and/or spells.

### 1.2. Challenges

A particular challenge in mapping out both the rulesets of D&D 5e and Pathfinder 1e is that, though we have access to source reference documents and particular websites that compile all of the information from several source books and pdfs, there is simply too much information out there (in Pathfinder specifically). In Pathfinder alone we have to compile all of the feats, classes, races, class archetypes, traits, alternate racial abilities, spells, and common equipment. This is a gargantuan undertaking, and a simple solution would simply be to add less content than we hope: to cut out the equipment databases and alternate features in favor of the minimum required amount.

## 2. Scope

Completion of the project entails the existence of a D&D 5e and Pathfinder 1e character maintenance tool that rivals traditional pen and paper sheets in terms of quality of life assurance and ease of access to information. While this software may not render the pen and paper style obsolete, it should prove valuable as a beginner’s introductory tool to tabletop roleplaying or as a reference for rules and monster stats for Dungeon Masters. As for stretch goals we would like to give the user to save their sheet at a .pdf or .txt, and have an automatic initiative roller.

### 2.1. Requirements

Most requirements for “Aetalag Tabletop RPG Asset Manager” are derived directly from the standard pen and paper style of managing a character. Each requirement listed below deserves to be here because it makes the player’s life easier, whether that requirement does something better than pen or paper, or adds new functionality.

Use Case ID	Use Case Name	Primary Actor	Complexity	Priority
1	Closing the Program	User	Low	1
2	Adding a New Entity to "HP Tracker"	User	Low	1
3	Creating a Blank Character Sheet	User	Low	1

TABLE 1. SAMPLE USE CASE TABLE

### 2.1.1. Functional.

- Users are able to create new characters - By clicking on the "New Sheet" button on the "Aetalag Tabletop RPG Asset Manager" window the user is able to create a new character from scratch.
- Users are able to open old sheets - By clicking the "Open Sheet" button on the "Aetalag Tabletop RPG Asset Manager" window the user is able to open a saved sheet
- User is able to use the "Make it Easy" functionality to create a new character - By selecting the "Make it Easy" button on the "Aetalag Tabletop RPG Asset Manager" the user is able to quickly make a character
- Users are able to keep track of the HP of entities - Using the "HP tracker" subsection of the "Aetalag Tabletop RPG Asset Manager" users should be able to add new entities, edit their values and name, and remove entities from the subsection
- Users are able to keep track of the initiative scores of entities - Using the "Initiative Tracker" subsection of the "Aetalag Tabletop RPG Asset Manager" users are able to track the initiative of entities. They should be able to add entities, move the initiative along, name the entities, and delete them as well
- Users are able to request more information on the HP, AC, Speed, Saves, and Initiative blocks from the "Character Sheet" window - By clicking on the dog ears present on these information block users are able to request more information about the blocks and edit information inside
- Users are able to take long and short rests - By clicking the "Short Rest" and or "Long Rest" buttons present on the "Character Sheet" window users can take rests, being prompted by a window
- Users can change program theme - using the drop down menu user can change the theme of the program, such as light mode, dark mode, etc
- Users need to have a save file for each character - analogous to a sheet of paper this will keep track of all his or her last saved values for said character
- Users need to be able to change the values of a character - through text boxes, he or she will be able to alter the character's values, after unlocking said boxes
- The software must not allow incorrect input - users should not be able to set their health too high, raise or lower skill levels to strange numbers, etc.
- The software must have all the important information found in the user's handbook - each part of the character should be laid out and described for the player, if so desired
- Different tabs for different information - a character is usually complex, having backstory, ability stores/feats, class and level, spells, proficiencies and an inventory. This data should be broken down logically into the different tabs: main, skills, equip, spells, ability
- Users have the ability to take notes - note taking is an important part of TTRPGs there should be a separate tab for these notes in the program

### 2.1.2. Non-Functional.

- Interchangeability - The program is easy for the developers to adapt to new TTRPG frameworks
- Speed of loading and saving - previous saves and the act of saving must load quickly for the user, in less than two seconds

## 2.2. Use Cases

Use Case Number: 1

Use Case Name: Closing the Program

Description: The use wants to close out of the program.

- User selects the "x" button on "Aetalag Tabletop RPG Asset Manager" window.
- User is prompted by a window, the "Close Program" window. The "Close Program" window has the message:  
"Are you sure you want to leave?"  
With these three buttons: "Save and Exit" "Exit Without Saving" and "Cancel"

Termination Outcome: If the user selects “Save and Exit”, all open sheets are saved, then the program closes all open windows. If the user selects “Exit Without Saving”, the program closes all open windows. If the user selects “Cancel” the “Close Program” window is closed.

Alternative: User selects the “x” button on the “Close Program” window.

- User selects the “x” button on the “Close Program” window.

Termination Outcome: The “Close Program” window is closed, similar to the “Cancel” button.

Use Case Number: 2

Use Case Name: Adding a new entity to “HP Tracker”

Description: User wants to create a new entity to the “HP Tracker” section on the “Aetalag Tabletop RPG Asset Manager” window. Allowing them to quickly view HP.

- User Selects the “+” button present to the top right of the “HP Tracker” section of the “Aetalag Tabletop RPG Asset Manager” window.
- A new HP bar appears with the fillable fields: “Enter Name” and “0/0” as current and max health, which each can be edited.
- User fills out these fields.

Termination Outcome: User has a new filled HP tracker.

Use Case Number: 3

Use Case Name: Creating a Blank Character Sheet

Description: The user wants to create a new character from scratch (without using the “Make It Easy” functionality).

- User Selects “New Sheet” button on the “Aetalag Tabletop RPG Asset Manager” window.
- A blank sheet is opened in a new window.
- The user will then be able to fill out any blank fields in the sheet.

Termination Outcome: User has a new filled sheet.

Alternative: Sheet Manager window is already open

- User Selects “New” on the “Aetalag Tabletop RPG Asset Manager” window.
- A blank sheet is opened in a new window.
- The user will then be able to fill out any blank fields in the sheet.

## **2.3. Interface Mockups**

## **3. Project Timeline**

### **1) Requirements:**

We plan to have all of our requirements established by the submission and review of the first project proposal draft on the 10th of February, 2020.

### **2) Design:**

We plan for our major design decisions to be fleshed out by March 12th.

### **3) Implementation:**

We hope to have finished implementing the primary, promised functionality of “Aetalag Tabletop RPG Asset Manager” by April 10th.

### **4) Verification:**

We hope to have fixed all bugs and leaks by April 14th.

### **5) Maintenance:**

After the end of April, any additional functionality and systems could be added at any point in the future.

## **4. Project Structure**

### **4.1. UML Outlines**

### **4.2. Design Patterns Used**

We have a Strategy/Observer hybrid pattern implemented. Also normal observer patterns are to be implemented.

## **5. Results**

As of handin four Chase and I have designed the project, both in UML and in GUI. Now all is needed is to begin development.

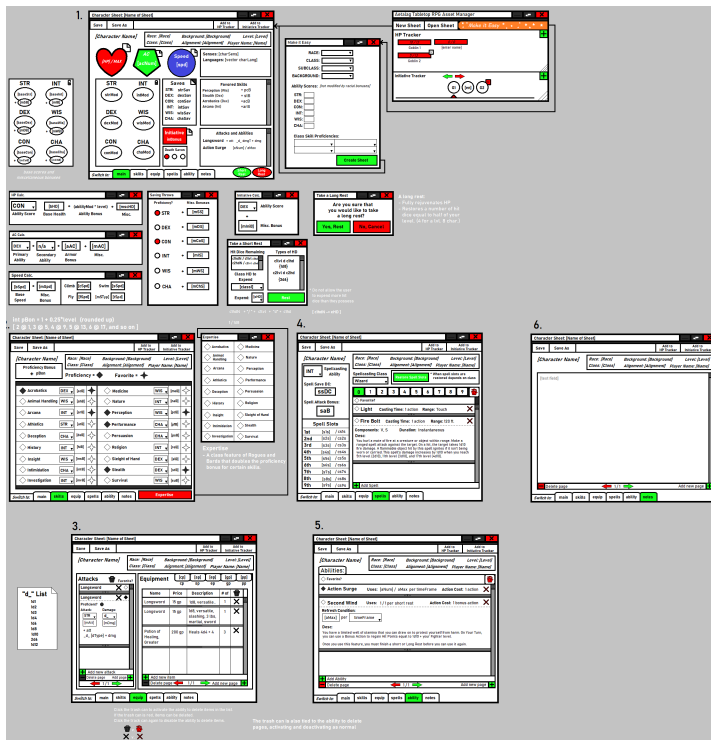


Figure 1. This is the entire user interface laid out.

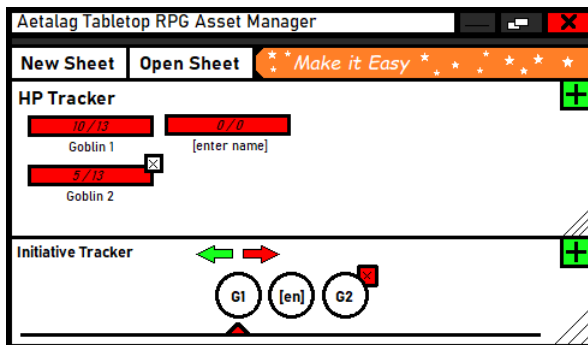


Figure 2. This is the window that the user will be welcomed with. Allowing them to take paths to all functionality. Has use cases 1, 2, and 3.

## 5.1. Future Work

Where are you going next with your project? For early deliverables, what are your next steps? (HINT: you will typically want to look back at your timeline and evaluate: did you meet your expected goals? Are you ahead of schedule? Did you decide to shift gears and implement a new feature?) By the end, what do you plan on doing with this project? Will you try to sell it? Set it on fire? Link to it on your resume and forget it exists?

## References

- [1] H. Kopka and P. W. Daly, *A Guide to L<sup>A</sup>T<sub>E</sub>X*, 3rd ed. Harlow, England: Addison-Wesley, 1999.

1.

STR

INT

DEX

WIS

CON

CHA

base scores and miscellaneous bonuses

Character Sheet: [Name of Sheet]

Save

Save As

Add to HP Tracker

Add to Initiative Tracker

[Character Name]

Race: [Race]

Background: [Background]

Level: [Level]

Class: [Class]

Alignment: [Alignment]

Player Name: [Name]

[HP] / MAX

AC [acNum]

Speed [spd]

Senses: [charSens]

Languages: [vector charLang]

STR

INT

DEX

WIS

CON

CHA

Saves

STR: strSav

DEX: dexSav

CON: conSav

INT: intSav

WIS: wisSav

CHA: chaSav

Initiative inBonus

Death Saves

Favored Skills

Perception (Wis) + pcB

Stealth (Dex) + stB

Acrobatics (Dex) + acB

Arcana (Int) + arB

Attacks and Abilities

Longsword + att \_d\_ dmgT + dmg

Action Surge [aNum] / aMax

Switch to:

main

skills

equip

spells

ability

notes

Short Rest

Long Rest

Figure 3. This is the window that the user will use to interact with the most of their characters information. This is the result of use case 3.

Make it Easy

RACE:

CLASS:

SUBCLASS:

BACKGROUND:

Ability Scores: [not modified by racial bonuses]

STR:

DEX:

CON:

INT:

WIS:

CHA:

Class Skill Proficiencies:

Create Sheet

Figure 4. This is the window that the user will use to create a character easily.

HP Calc.

CON

[bHD]

+

(abilityMod \* level)

+

[mscHD]

Ability Score

Base Health

Ability Bonus

Misc.

AC Calc.

DEX

+

n/a

+

[aAC]

+

[mAC]

Primary Ability

Secondary Ability

Armor Bonus

Misc.

Speed Calc.

[bSpd]

+

[mSpd]

Climb

[cSpd]

Swim

[sSpd]

Fly

[fSpd]

[mSTyp]

[tSpd]

Base Speed

Misc. Bonus

Figure 5. These are the windows that are present from the dog eared, HP, AC, and Speed buttons.

Saving Throws

Proficiency?

Misc. Bonuses

☒ STR

+

[mSS]

☐ DEX

+

[mDS]

☒ CON

+

[mCoS]

☐ INT

+

[mIS]

☐ WIS

+

[mWS]

☐ CHA

+

[mChS]

Figure 6. This window comes from the dog ear of the "Saving Throws" subsection of the Character Sheet.

Initiative Calc.

DEX

Ability Score

+

[miniB]

Misc. Bonus

Figure 7. This window comes from the dog ear of the "Iniative" subsection of the Character Sheet.

Take a Short Rest

Hit Dice Remaining

c1hdN / c1lvl c1hd  
c2hdN / c2lvl c2hd

Class HD to Expend

[class]

Expend: [eHD]

Types of HD

c1lvl d c1hd {1d8}  
c2lvl d c2hd {3d6}

Rest

Take a Long Rest

Are you sure that you would like to take a long rest?

Yes, Rest

No, Cancel

Figure 8. These windows come from the "Short Rest" and "Long Rest" buttons on the "Character Sheet" main window

[ 2 @ 1, 3 @ 3, 4 @ 7, 5 @ 13, 6 @ 17, and so on ]

Character Sheet: [Name of Sheet]
Save Save As Add to HP Tracker Add to Initiative Tracker

[Character Name]
Race: [Race] Background: [Background] Level: [Level]
Class: [Class] Alignment: [Alignment] Player Name: [Name]

Proficiency Bonus + pBon
Proficiency = ◆ Favorite = ★

◆ Acrobatics	DEX	[acB]	◆	◇ Medicine	WIS	[meB]	◇
◇ Animal Handling	WIS	[ahB]	◇	◇ Nature	INT	[naB]	◇
◇ Arcana	INT	[arB]	◆	◆ Perception	WIS	[pcB]	◆
◇ Athletics	STR	[atB]	◇	◆ Performance	CHA	[ptB]	◇
◇ Deception	CHA	[deB]	◇	◇ Persuasion	CHA	[psB]	◇
◇ History	INT	[hiB]	◇	◇ Religion	INT	[reB]	◇
◇ Insight	WIS	[insB]	◇	◇ Sleight of Hand	DEX	[slB]	◇
◇ Intimidation	CHA	[intB]	◇	◆ Stealth	DEX	[stB]	◆
◇ Investigation	INT	[invB]	◇	◇ Survival	WIS	[suB]	◇

Switch to: main skills equip spells ability notes Expertise

Expertise

◇ Acrobatics	◇ Medicine
◇ Animal Handling	◇ Nature
◇ Arcana	◇ Perception
◇ Athletics	◇ Performance
◇ Deception	◇ Persuasion
◇ History	◇ Religion
◇ Insight	◇ Sleight of Hand
◇ Intimidation	◇ Stealth
◇ Investigation	◇ Survival

Expertise  
- A class feature of Rogues and Bards that doubles the proficiency bonus for certain skills.

Figure 9. This window comes from the "Skills" tab of the "Character Sheet" window.

Character Sheet: [Name of Sheet]
Save Save As Add to HP Tracker Add to Initiative Tracker

[Character Name]
Race: [Race] Background: [Background] Level: [Level]
Class: [Class] Alignment: [Alignment] Player Name: [Name]

Attacks
Favorite?

Longsword
Longsword
Proficient?
Attack: STR d\_ [mAtt] [mDmg]
+ att \_d\_ [dType] + dmg

Add new attack
Delete page Add page
1/1

Equipment
[cp] [sp] [ep] [gp] [pp]
cp sp ep gp pp

Name	Price	Description	# of	
Longsword	15 gp	1d8, versatile...	1	✕
Longsword	15 gp	1d8, versatile, slashing, 3 lbs, martial, sword	1	✕
Potion of Healing, Greater	200 gp	Heals 4d4 + 4	3	✕

Add new item
Delete page 1/1 Add new page

Switch to: main skills equip spells ability notes

"d\_" List

1d1  
1d2  
1d3  
1d4  
1d6  
1d8  
1d10  
2d6  
1d12

Figure 10. This window comes from the "Equip" tab of the "Character Sheet" window.

Character Sheet: [Name of Sheet]

Save

Save As

Add to HP Tracker

Add to Initiative Tracker

[Character Name]

Race: [Race]

Background: [Background]

Level: [Level]

Class: [Class]

Alignment: [Alignment]

Player Name: [Name]

INT

Spellcasting Ability

Spell Save DC:

ssDC

Spell Attack Bonus:

saB

Spellcasting Class

Wizard

Restore Spell Slots

\* When spell slots are restored depends on class

0

1

2

3

4

5

6

7

8

9

Favorite?

Light

Casting Time: 1 action

Range: Touch

Fire Bolt

Casting Time: 1 action

Range: 120 ft.

Components: V, S

Duration: Instantaneous

Desc:

You hurl a mote of fire at a creature or object within range. Make a ranged spell attack against the target. On a hit, the target takes 1d10 fire damage. A flammable object hit by this spell ignites if it isn't being worn or carried. This spell's damage increases by 1d10 when you reach 5th level (2d10), 11th level (3d10), and 17th level (4d10).

Add Spell

Switch to:

main

skills

equip

spells

ability

notes

Figure 11. This window comes from the "Spells" tab of the "Character Sheet" window.

Character Sheet: [Name of Sheet]

Save

Save As

Add to HP Tracker

Add to Initiative Tracker

[Character Name]

Race: [Race]

Background: [Background]

Level: [Level]

Class: [Class]

Alignment: [Alignment]

Player Name: [Name]

Abilities:

Favorite?

Action Surge

Uses: [aNum] / aMax per timeFrame

Action Cost: 1 action

Second Wind

Uses: 1 / 1 per short rest

Action Cost: 1 bonus action

Refresh Condition:

[aMax] per timeFrame

Desc:

You have a limited well of stamina that you can draw on to protect yourself from harm. On Your Turn, you can use a Bonus Action to regain Hit Points equal to 1d10 + your Fighter level.

Once you use this feature, you must finish a short or Long Rest before you can use it again.

Add Ability

Delete page

1 / 1

Add new page

Switch to:

main

skills

equip

spells

ability

notes

Figure 12. This window comes from the "Ability" tab of the "Character Sheet" window.



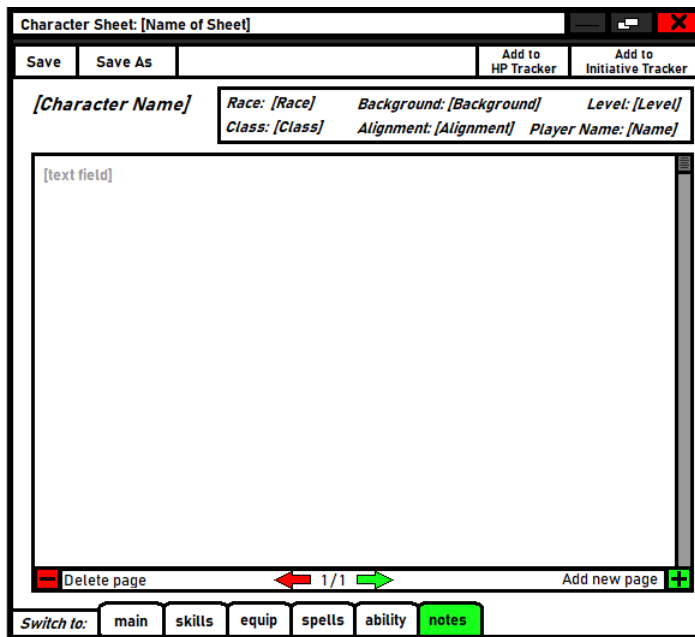


Figure 13. This window comes from the "Notes" tab of the "Character Sheet" window.

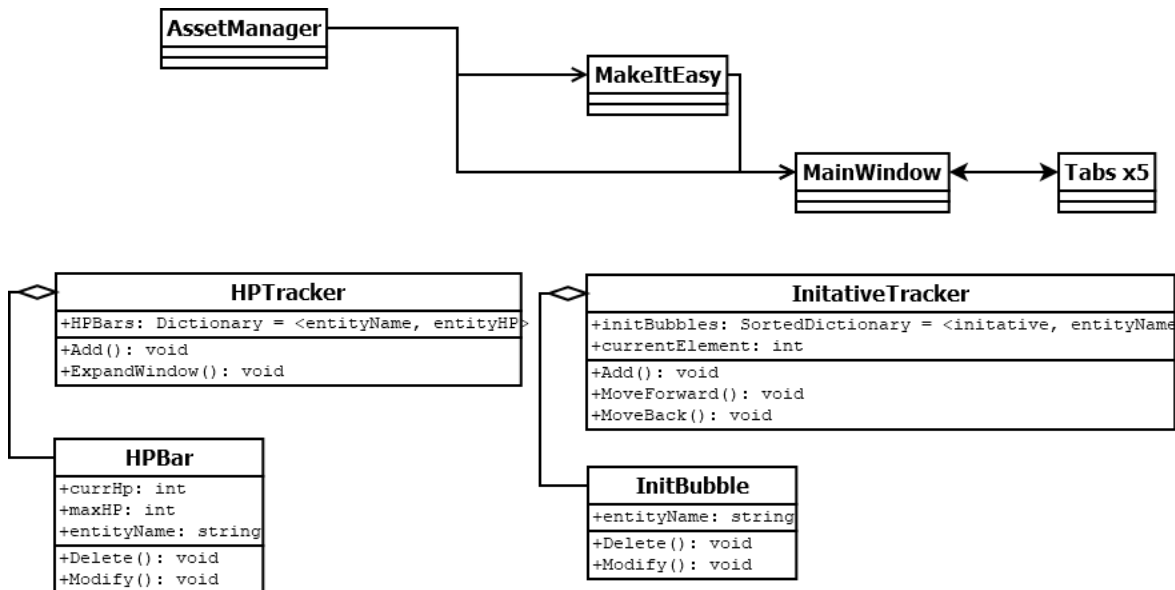


Figure 14. UML for the Asset Manager window.

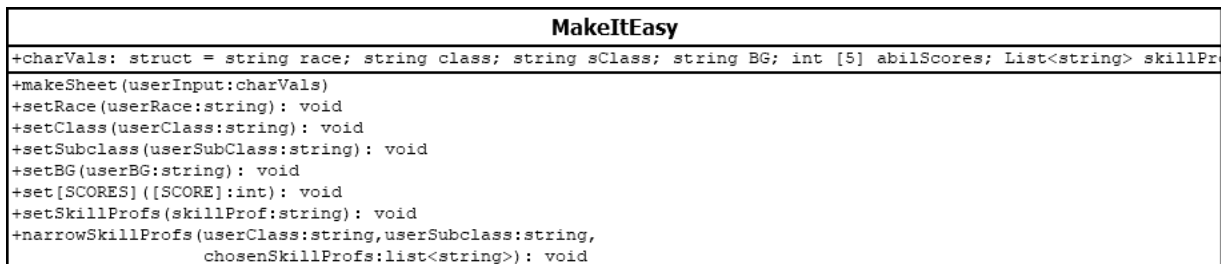


Figure 15. UML for the Make It Easy window.

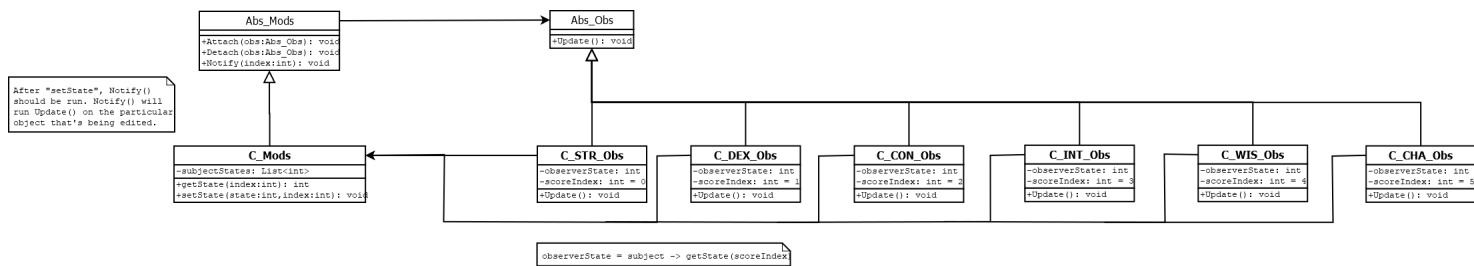


Figure 16. UML for a mesh between the Strategy and Observer Pattern.

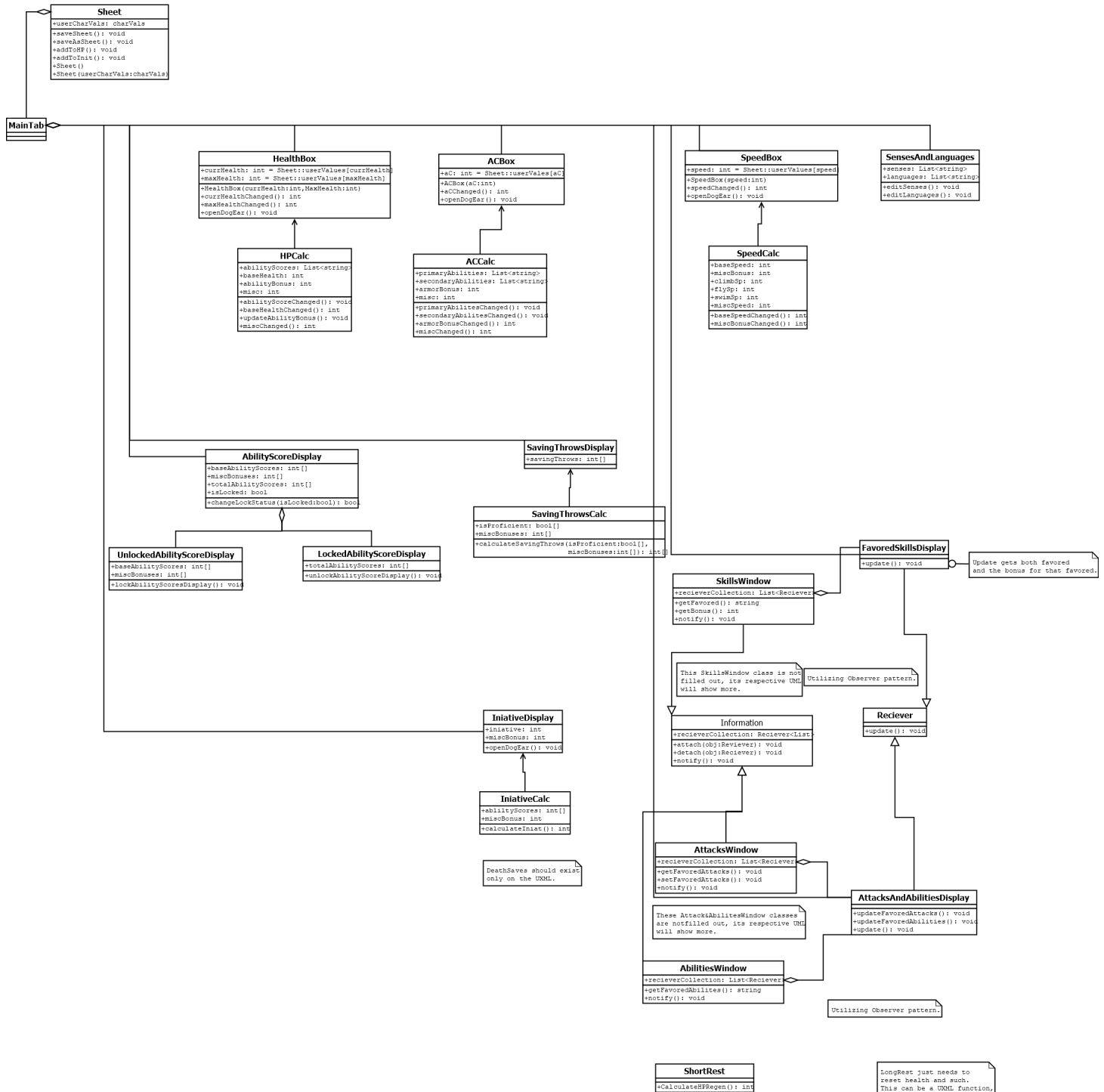


Figure 17. UML for the Main Tab window.

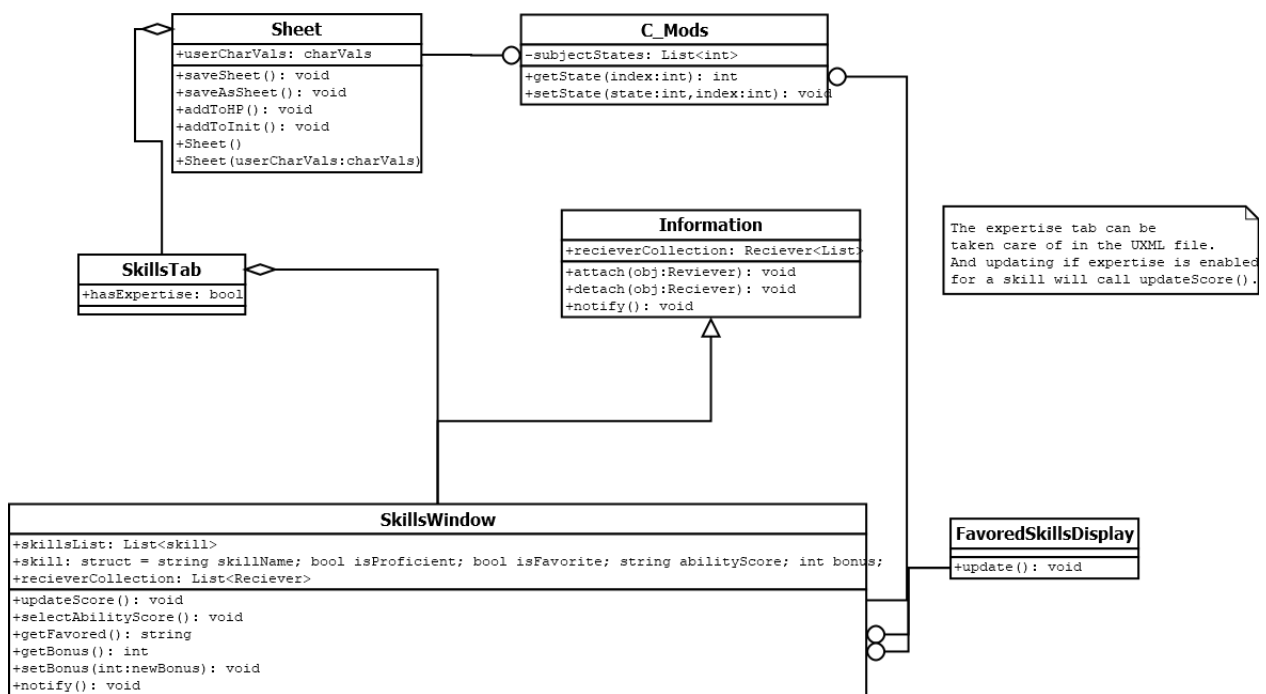


Figure 18. UML for the Skills Tab window.

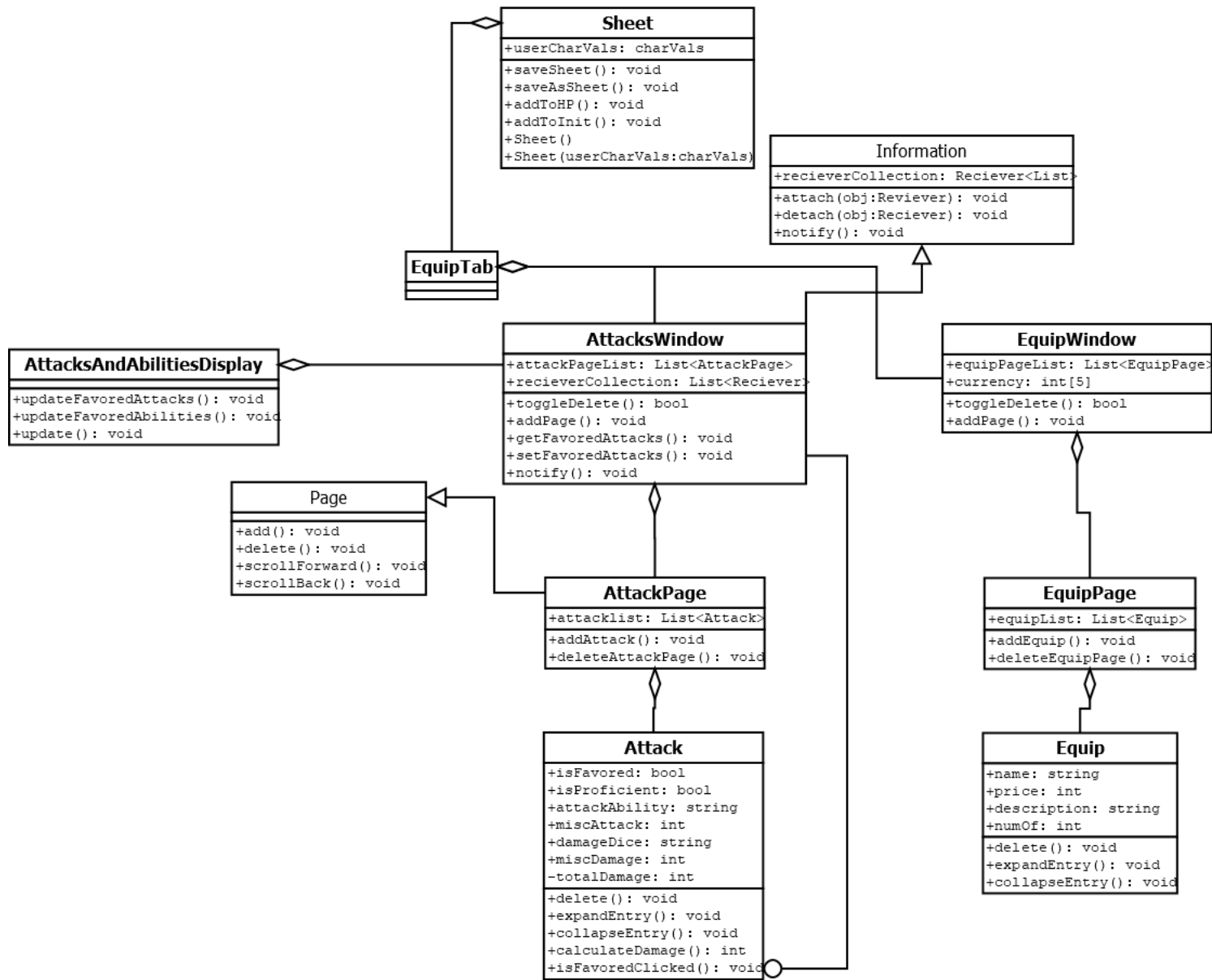


Figure 19. UML for the Equip Tab window.

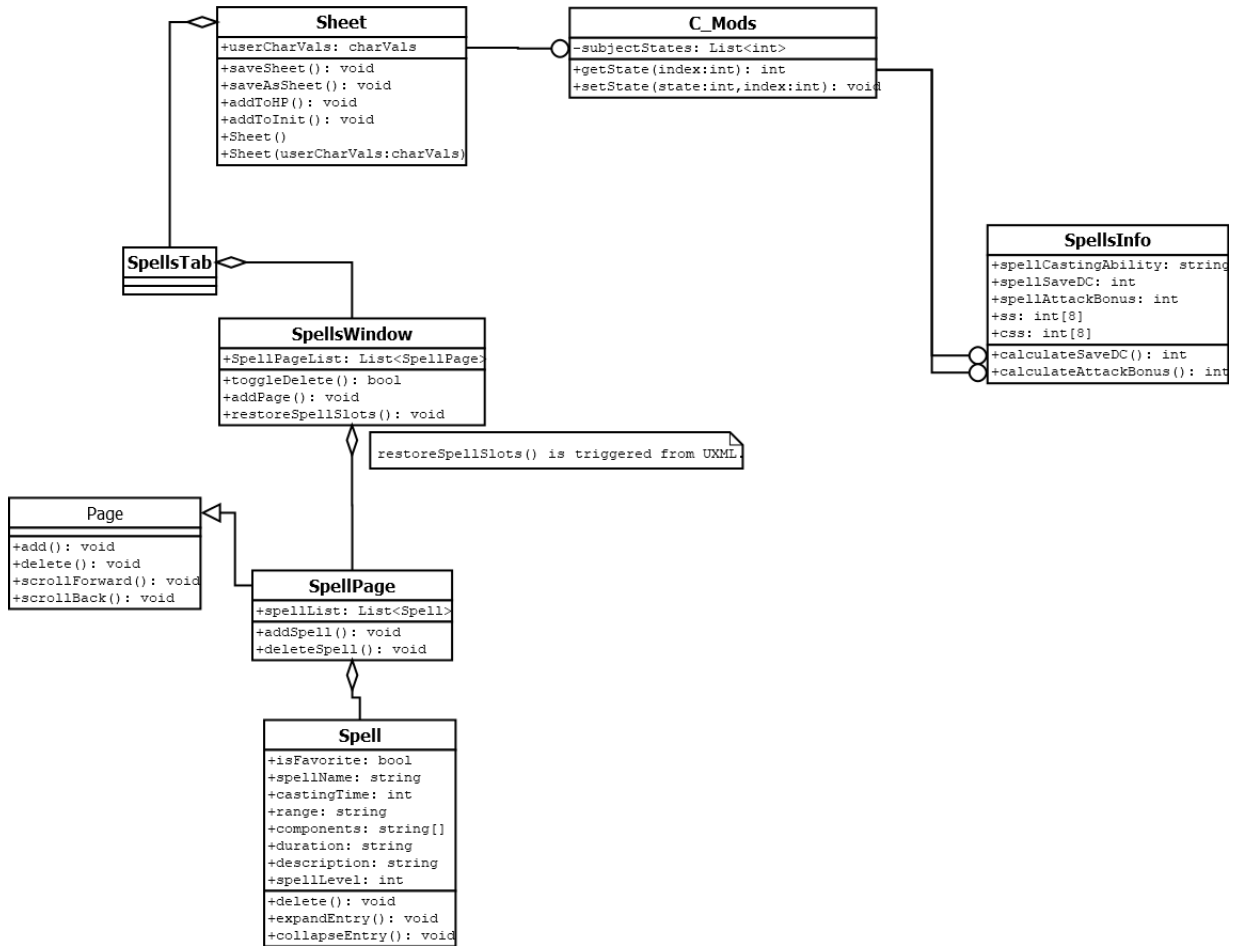


Figure 20. UML for the Spells Tab window.

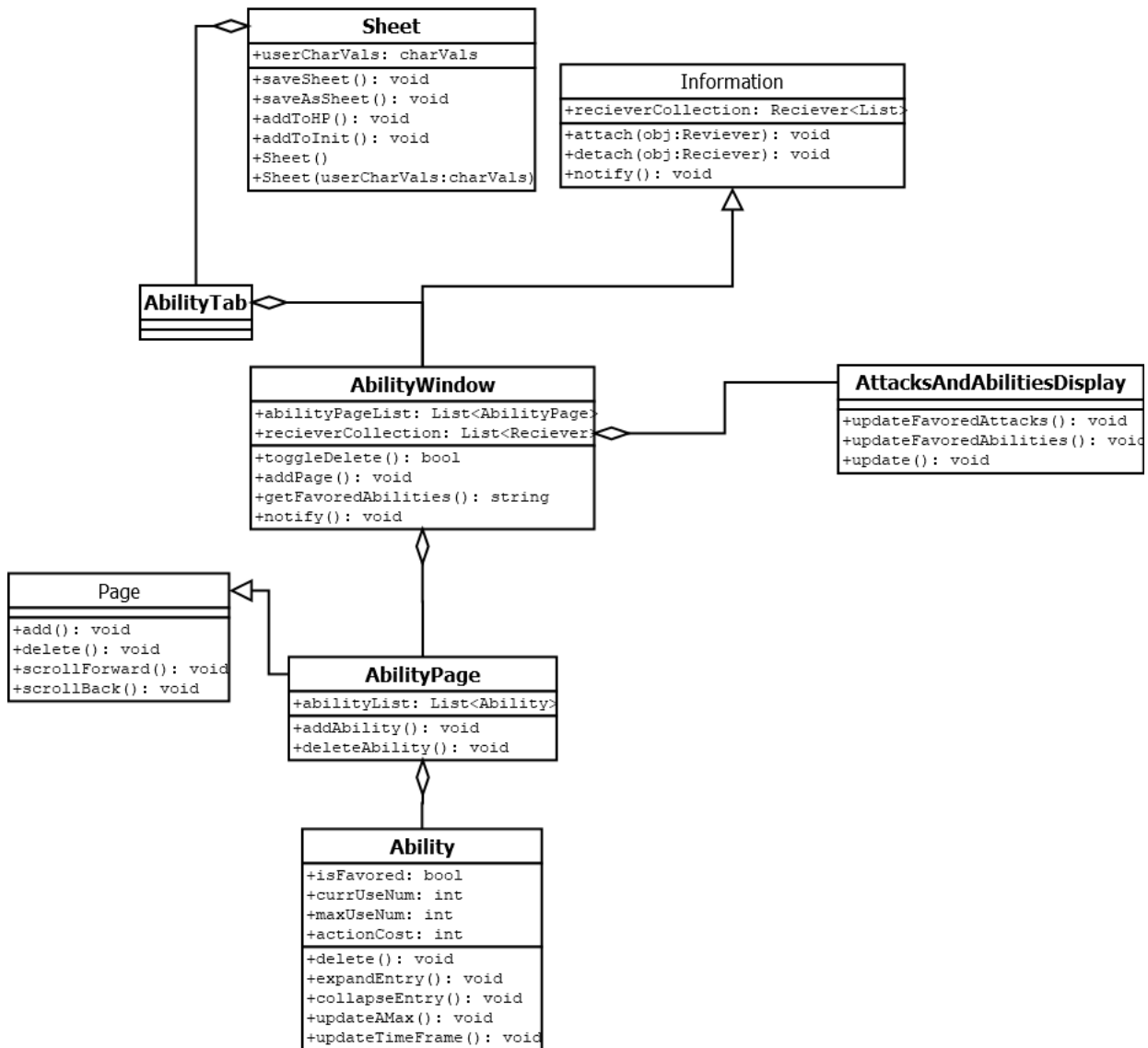


Figure 21. UML for the Abilities Tab window.

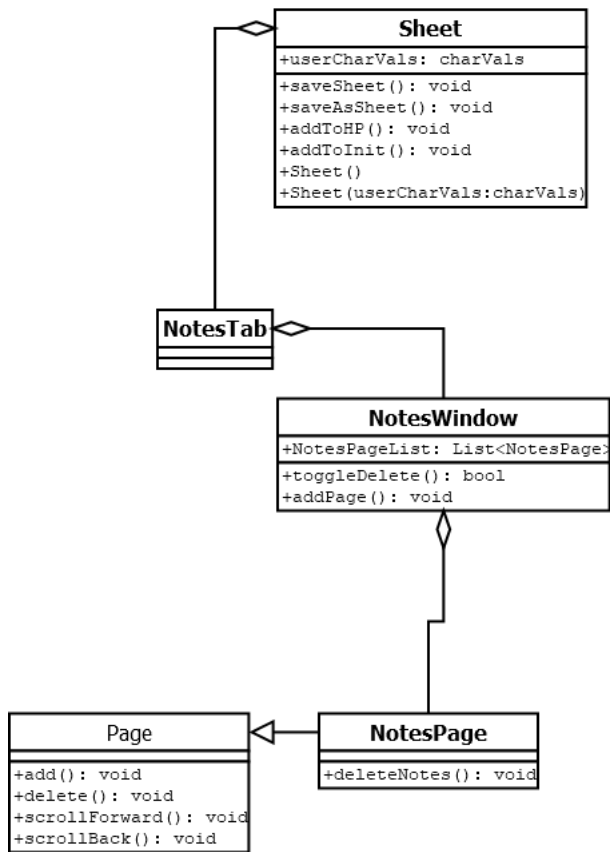


Figure 22. UML for the Notes Tab window.