EECS 268: The Game

User Manual

Version: May 7, 2020 Release

Game Walkthrough

The University of Kansas campus in Lawrence, a place full of books, youth, countless rushing stressed out students, and the beautiful blue Kansas sky. To survive this game, you will have to enter rooms filled with knowledge, coffee, and amazing professors willing to teach you about the ways of the world and of course whatever it is you are passionate about.

After clicking the start button and beginning this adventure, you will find yourself in front of the engineering facilities, from there you will have to rush to the other side of campus to get the precious knowledge that you need to fight the three evil EECS 268 exams. Do not rush too fast though, you will have to watch your energy, which will decrease as you walk around campus and study !
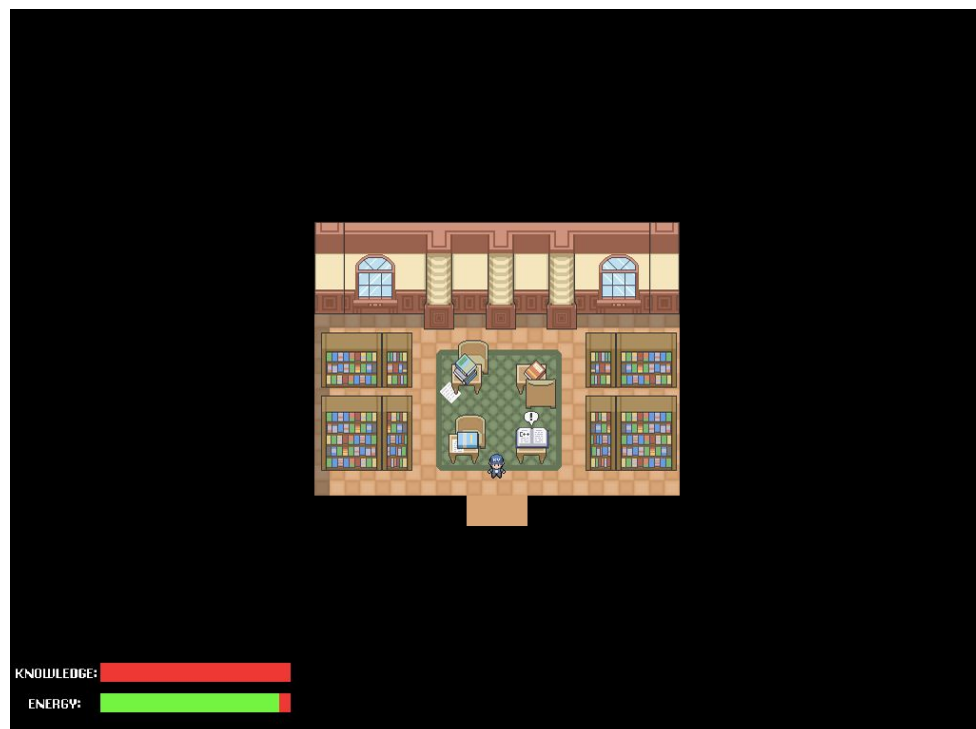
Since you are going to the library to study which could be exhausting, you might as well grab some coffee along the way, or you could go into McLains Market to get some extra strong coffee that will increase your energy.
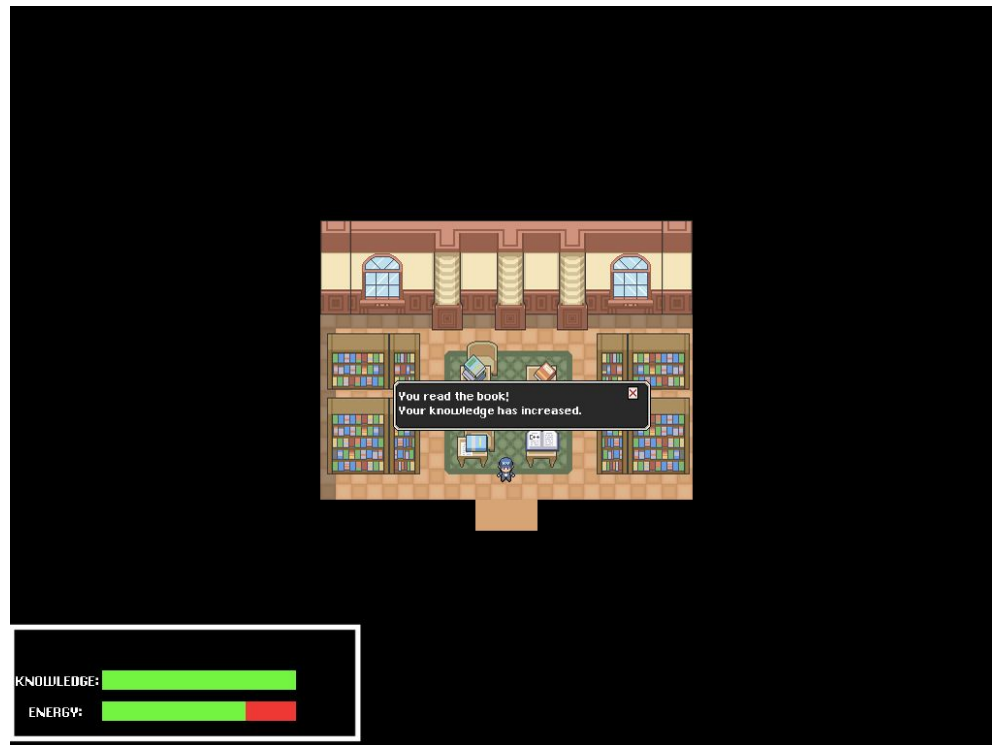
Click on the coffee to drink it !

Now off to the library to get the knowledge you need for the exam face off !

To get the knowledge all you have to do is click on the book and your knowledge will increase, but be careful because your energy will go down too !

Now you are ready to go back to the engineering building to fight the evil exam, but not without stopping by Professor Gill's lecture first to get a trick up your sleeve. Going to Gill's lecture will get you an extra attack against each exam (see Appendix A). Once in the engineering building, go to the left to go to professor Gill's lecture and to the right to go to the exam battle.
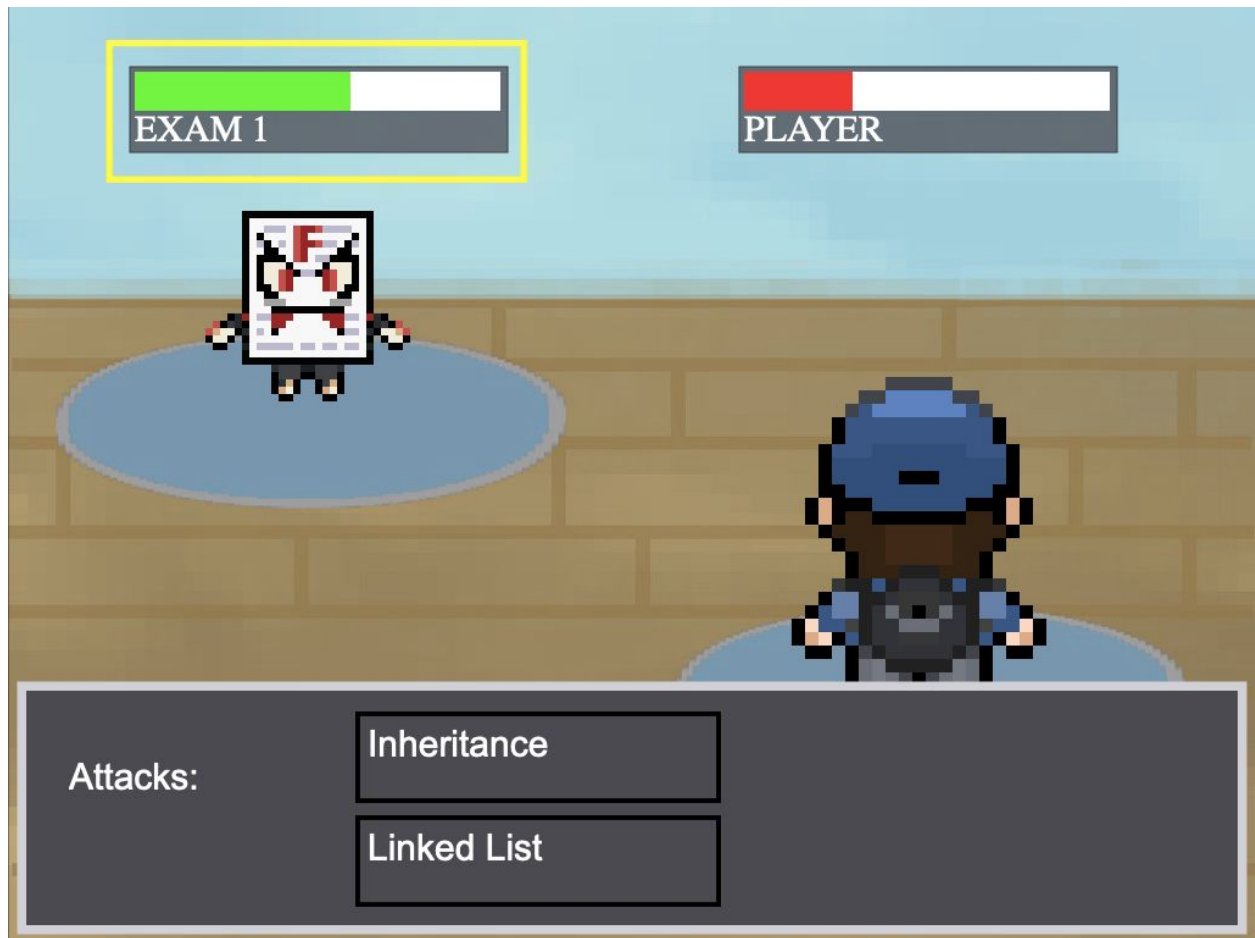
Now that you have full knowledge and a good amount of energy after drinking lots of coffee it is time for the battle.

Once entered, this is what the battle will look like.

Notice how the health of the exam goes down after you use your attacks. After attacking a few times and being attacked, you will survive if you have enough energy to take the hits. After winning the first battle, you will have to repeat the procedure for two more battles and if your energy never gets down to 0, you will win the game. On the other hand, if your energy goes down to 0, the game will be over and you will be able to restart by pressing the "Game Over" text on the screen.

Now go and have fun !!

Appendix A

Table of learnable attacks

| Name	Power	Accuracy	Critical hit rate	When to obtain	Explanation
Inheritance	40	95%	1x	Starting attack	Your starting attack and first topic in 268. Has reliable accuracy.
Linked List	60	85%	1x	Before 1st exam	The first data structure introduced in 268. A slightly stronger attack than your first.
Recursion	55	85%	2x	Between exam 1 and 2	A very useful concept in functional programming. While slightly weaker than Linked List, it is twice as likely to do double the damage!
Big O	85	70%	1x	Between exam 2 and 3	An attack inspired by complexity and big O notation. It's the strongest attack, but it can miss more often.

Appendix B

Testing

      A single battle turn can be simulated multiple times to collect data to be used in game balancing or testing new attacks. This simulation is accessible through the settings menu at the bottom left of the title screen.

Once in this menu, click on the testing option.
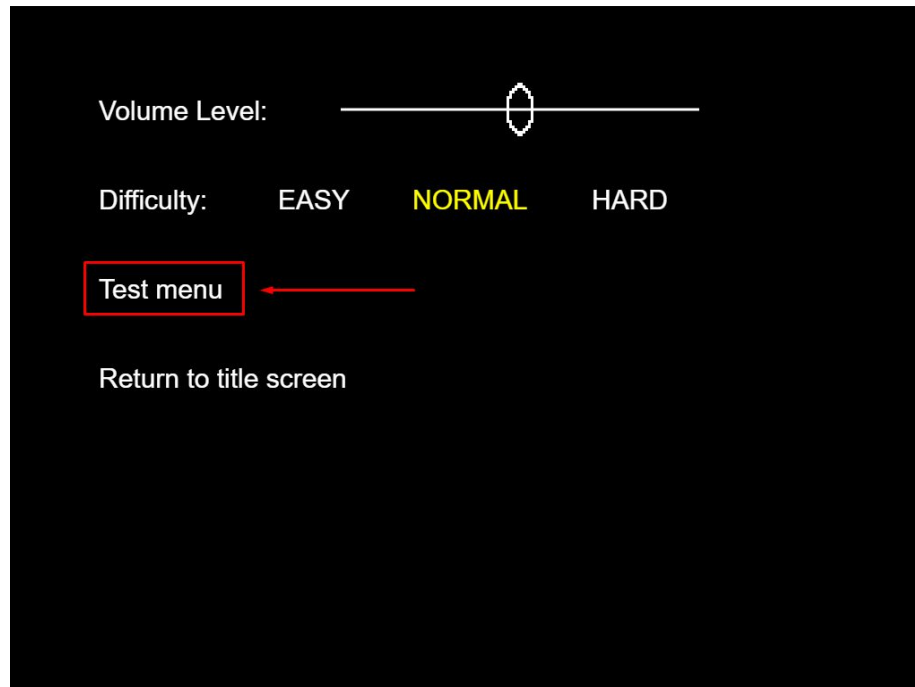
From here, click on the prompt to begin the simulation and the results will be shown in console.
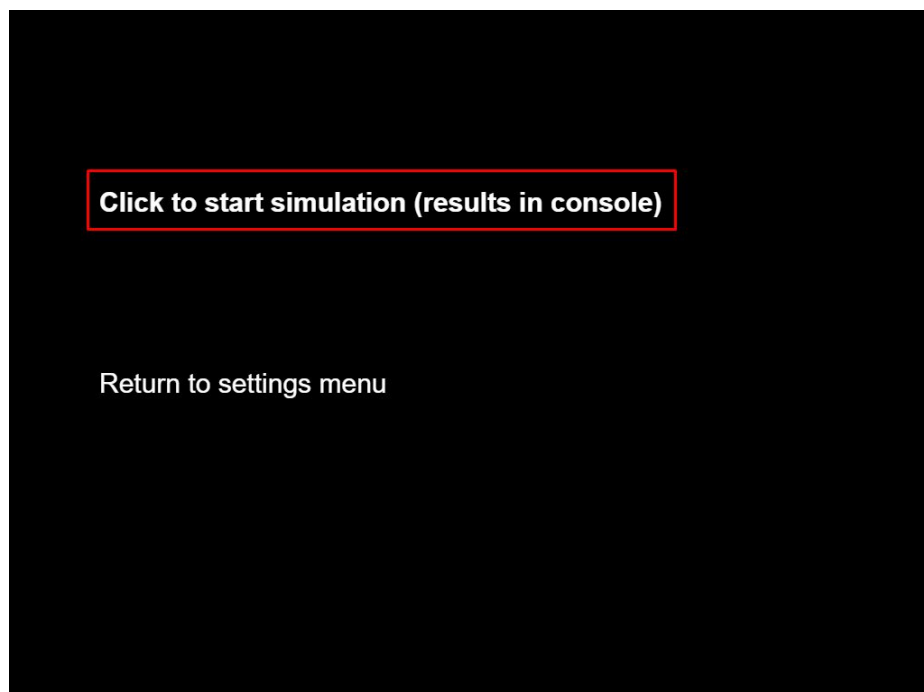
Sample results with the player attacks currently in the game as of the current version:

```
Beginning 1000 tests on 3 units using all attacks
Unit 1 with 0 knowledge using Inheritance results:
▶ {hits: 953, critical_hits: 119, max_damage: 2, min_damage: 1, average_damage: 1.066}
Unit 1 with 0 knowledge using Linked List results:
▶ {hits: 845, critical_hits: 136, max_damage: 2, min_damage: 1, average_damage: 0.955}
Unit 1 with 0 knowledge using Recursion results:
▶ {hits: 848, critical_hits: 259, max_damage: 2, min_damage: 1, average_damage: 1.067}
Unit 1 with 0 knowledge using Big O results:
▶ {hits: 696, critical_hits: 117, max_damage: 2, min_damage: 1, average_damage: 0.779}
Unit 2 with 50 knowledge using Inheritance results:
▶ {hits: 958, critical_hits: 122, max_damage: 42, min_damage: 21, average_damage: 22.491}
Unit 2 with 50 knowledge using Linked List results:
▶ {hits: 863, critical_hits: 139, max_damage: 62, min_damage: 31, average_damage: 30.442}
Unit 2 with 50 knowledge using Recursion results:
▶ {hits: 833, critical_hits: 270, max_damage: 58, min_damage: 29, average_damage: 30.624}
Unit 2 with 50 knowledge using Big O results:
▶ {hits: 681, critical_hits: 120, max_damage: 88, min_damage: 44, average_damage: 32.912}
Unit 3 with 100 knowledge using Inheritance results:
▶ {hits: 957, critical_hits: 123, max_damage: 82, min_damage: 41, average_damage: 44.075}
Unit 3 with 100 knowledge using Linked List results:
▶ {hits: 858, critical_hits: 121, max_damage: 122, min_damage: 61, average_damage: 58.56}
Unit 3 with 100 knowledge using Recursion results:
▶ {hits: 825, critical_hits: 247, max_damage: 112, min_damage: 56, average_damage: 58.072}
Unit 3 with 100 knowledge using Big O results:
▶ {hits: 706, critical_hits: 144, max_damage: 172, min_damage: 172, average_damage: 68.886}
```