Project 2

Title:  
Dungeons and Dragons Simplified

CIS-17A

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The GitHub repository:

https://github.com/kmai3/Fall-2020-CSC17-A/tree/master/Projects/Project%202

1. Introduction

Explanation:

My game is a simplified version of the Dungeons and Dragons board game and instead of a dungeon master, you are fighting against an AI Dungeon master rather than a human player. The AI Dungeon master will use 5 enemies and you will have 3 different classes to choose from due to it being a simplified version of the board game. In a sense technically I am the dungeon master because I coded everything for the computer, and you are to pass the dungeon.

Rules:

1. If your health drops to 0, it is game over
2. If you take too long in a fight, and run out of rounds it is game over as you are then surrounded by dungeon mobs and it is game over.
3. If you use an element that is super effective against the enemy, it will do critical damage.

Note: The only current playable class is mage and the only mob is the goblin due to the amount of time spent on the mid-term.

Clases: Mage, Ranger, Fighter

Enemies: goblin

Skeleton

Ogre

Skeleton Giant

Dark Mage

Dragon

Elements

Fire, Water, blunt, earth

Blunt equal damage to everything except for the dragon.

Goblin weak to fire, resistance to water

Skeleton weak to earth, resistance to fire

Ogre weak to fire, resistance to earth

Skeleton Giant weak to earth, resistance to fire

Dark Mage is resistant to everything but blunt force

Dragon weak to water, resistance everything else

Healing is based of damage value

Lvl 1-5 -> damage 2+2x; HP: 100:

Mage- fireball,hydro cannon, force smash, earthquake, barrier&Heal(100% damage nullification)

Lvl 1-5 -> damage 2+2^x(x=levels) HP:150:  
Archer - fire bolt, ice shot, charged shot, metal bolt, row&heal(50% damage nullification)

Lvl 1-5 damage 4+1xHP:300   
Fighter - Fire Blade, Water Slash, Heavy Strike, obsidian pillar, block&heal(100% damage nullification)

Goblin - 15hp, atk1

Turn to beat 9 before or game over.

Skeleton - 20Hp, atk2

Turns to beat 5 turns or game over

Ogre - 30hp, - attack 5

Turns to beat 5 or game over

Skeleton giant, - 56hp -atk10

Turns to beat 5 or game over

Dragon, 100 Hp, -atk 15

Turns to beat 10 or game over

My Approach on the game

Taking inspiration from my game from CIS 5 and later on project 1, I was able to utilize classes to not only shorten the size but also to be able to add much more content. In doing so I have tried to make a completely new game with a different structure, however less advanced as I wanted to have a templat/class default every enemy creature in the game. However with this addition I would have to make a new class or template for each of the weaknesses. Also adding the ability to heal in every new fight. The problem with healing is that it would go over the max amount of hp or the starting hp. This however could be fixed using unsigned short in which max hp is at most ~250. With the new classes and structures and parented classes I was able to make a template for each class. However, it was with many failures as classes were easily broken multiple times and finding and debugging them were a complete pain due to my overuse of the exit function. I did major testing on some experimental test called NewGame, these files are my failed creations in which I gave up on, as they required too many times and were a brief of ideas during thanks giving break.

The Program itself

My aim this time for the board game interpretation was to give the ability of the dungeon master which is controlled by the lines of code defining the creatures, and use the dice of a the dungeon master as the crit damage. With the power of classes I was able to automate the creation of new dungeons and mobs(the enemies you fight against) in the dungeon. In the board game you are allowed to go multiple dungeons, in the game I have lines setup to make multiple dungeons as a template like setup with the uses of classes. However the downside is new dungeons made by classes are extremely templated and there are no new features but rather different numbers unlike the board game. But with classes I was able to add to the dungeon list and finish the first, second, and third dungeon.

The Struggles

This may come to a surprise to why this is here, this shouldn’t be here because it is just noting my failures. A good example is the files of NewGame, in which it was a test I ran over thanks giving break to see if I was able to fully put my game into classes using concepts, but due to failures, I gave up on that project due to time. In addition due to splitting up the project into bite sides pieces doing it over a period of time, it caused me to not be 100% sure what my ideas were going. It also caused some inconsistency in my code as shown in the presentation, as explaining the use of a const int for size in one line and me not putting it in another. However binge coding(Some made up term basically saying code as much as possible for as long as possible) was much more efficient but also much more risky as I would have to get ideas and write lines of code for hours. In addition I was trying interesting things with inheritance and operator overload which also set me up for failure, due to them completely failing from what I was thinking of as I was considering how to use the operator overload to merge bosses together, in which I did succeed in later version as shown in the change log. One of the most annoying things was trying to figure out how to use the STL, as the 9th edition had it in chapter 17 which took me a while to figure out where it was in the book. And while looking at chapter 17 I was confused on how to use the STL very late into almost completing my game.

Lines of code Total:1414  
Substract 20% of this amount to remove comments(this is a rough estimate)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  | **Cross Reference for Project 2** | | | | | |
|  |  |  |  |  |  |  |
|  | **You are to fill-in with where located in code** | | | | | |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  | **Chapter** | **Section** | **Topic** | **Where Line #''s** | **Pts** | **Notes** |
|  | 13 |  | Classes | story2.h:17 |  |  |
|  |  | 1 to 3 | Instance of a Class | story2.h:17 | 4 |  |
|  |  | 4 | Private Data Members | story2.h:20 | 4 | Never Public |
|  |  | 5 | Specification vs. Implementation | story2.h + story2.cpp | 4 | .h vs. .cpp files Always split |
|  |  | 6 | Inline | Story2Enemies.h:30 | 4 |  |
|  |  | 7, 8, 10 | Constructors | story2.h:25 | 4 | Overloading |
|  |  | 9 | Destructors | story2.h:29 | 4 |  |
|  |  | 12 | Arrays of Objects | story2.cpp:48 | 4 |  |
|  |  | 16 | UML | story2.h+writeoff | 4 |  |
|  |  |  |  |  |  |  |
|  | 14 |  | More about Classes |  |  |  |
|  |  | 1 | Static | story2.h:19 | 5 |  |
|  |  | 2 | Friends | Story2Enemies:51 | 2 |  |
|  |  | 4 | Copy Constructors | Story3.h:25 | 5 |  |
|  |  | 5 | Operator Overloading | Story3Enemies.h:54 | 8 | Overload 3 operators |
|  |  | 7 | Aggregation | story2.cpp:50 | 6 |  |
|  |  |  |  |  |  |  |
|  | 15 |  | Inheritance |  |  |  |
|  |  | 1 | Protected members | Story3.h:18 | 6 |  |
|  |  | 2 to 5 | Base Class to Derived | Story3.h | 6 |  |
|  |  | 6 | Polymorphic associations | Story3Enemies.h:29 | 6 |  |
|  |  | 7 | Abstract Classes | Story3.h:25 | 6 |  |
|  |  |  |  |  |  |  |
|  | 16 |  | Advanced Classes |  |  |  |
|  |  | 1 | Exceptions | Story2.cpp:62 | 6 |  |
|  |  | 2 to 4 | Templates | main:49 | 6 |  |
|  |  | 5 | STL | Not In Program | 6 | In the book its chapter 17 |
|  |  |  |  |  |  |  |
|  |  |  | Sum |  | 100 |  |

Also a separate file.

Pseudo Code

//Initialize the code

Declaring Values

Boss Values

Amount of Rounds allowed to beat the boss

Show Old Scores

Opens up Score.txt

Mapping

Starts up the game

Converts Menu options from char to int with type casting

Choice 2 gives more information about the game

After Starting with Choice one or after choice 2, player chooses a class.

Attack values will depend on xp and class

If class chosen is a mage

Do battle

Menu for picking abilities

Stops the loop when someone is dead or when reinforcements come

Visual separation of the battle being ended

If goblin is killed

If reinforcements came

If player dies

Continues if player killed the goblin

This is repeated through every boss

Except dragon in which another option is to shield and heal oneself

Player is allowed to see a numeric score, decimal score, or both in which they pick.

Score is shown in and saved score.txt and score.bin

Flow chart is in a different file.

Project 1\_Import->NewGame

-NewGame Foulder: Created to essentially recode the entire game from scratch.

-Deleting many of the functions to just the game itself; ex: deleted saved scores.

>The Reason for the entire overhall is due to how inefficient memory was used in the first game, and it was just easier to start from scratch.

- Using orginal game as a template on though

- Applied Chapter 13 Concepts

NewGame->NewGameV0.1

-Just focusing on finishing the Cross Refrence for Project 2

- Applied Chapter 14 Concepts

NewGameV0.1->NewGameV0.2

-Applied Chapter 15 Concepts

NewGameV0.2->NewGameV0.3

-Working on Core Game Mechanics

-Failed, on inputting game mechanics; this is due to the run failing after the first few lines of code. This is due to the class implentation.

Futher research is needed to mess around more.

-Switching Priorities to focusing on getting a final product.

-Moving back to Project2\_V0.5

-Labeling NewGameV0.1-NewGameV0.3 as failures.

Project 1\_Import->Project2\_0.5

-Implenentation of Second Arc of the Story with Implenementation of Chapter 13

-Story after Killing the Dragon

Project2\_0.5->Project2\_0.6

- Automated making new bosses

- Put chapter 1 entirely into a class

- Added many bugs regarding the failure to use arrays correctly.

Project2\_0.6->Project2\_0.7

-Fixed those bugs

-Started working on chapter 3

Project2\_0.7-Project2\_0.8

-Added Chapter 3 gameplay

- Added Chapter 3 Enemies

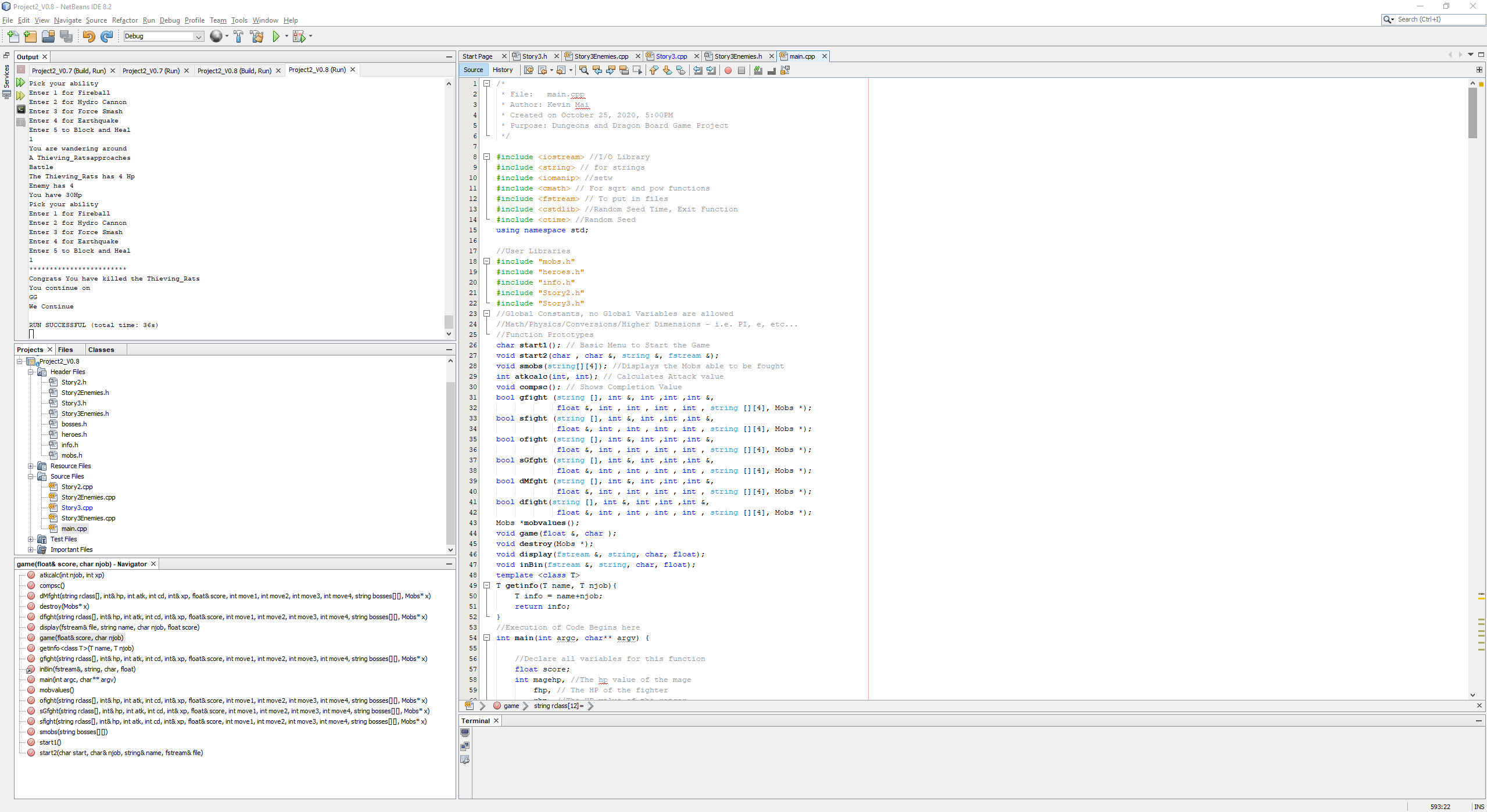
- Used inheritance for Chapter 3 Enemies being inherited and used by chapter 3

- Used friend function to get the stat of chapter 3 Enemies from anywhere essentially

- used operator overloading to allow the combination of mobs in terms of stats

- used Virtual chapter 3 enemies to allow the transfer to chapter 3.

The Picture(theres a lot of lines so heres a picture and output is below); Will have picture as a separate file.



The output:

Dungeon and Dragons AI ver

Enter 1 to Start, or Enter 2 for more information

Enter Anything Else to show the Previous Score

1

Enter Your Name for Scoreboard

1

Pick a Class

1=Mage, 2=Ranger, or 3=Fighter

Enter in the Number Associated

1

Mob List

Goblin-> Skeleton-> Ogre->

Skeleton Giant-> Dark Mage-> Dragon->

Your Completion Score is 0

You enter in the Dungeon and around the corner you see

A goblin approaches

Battle

The Goblin has 15 Hp

You have 100Hp

You have 9 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

1

You enter in the Dungeon and around the corner you see

A goblin approaches

Battle

The Goblin has 7 Hp

You have 99Hp

You have 8 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

1

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Congrats You have killed the Goblin

You have gained a Level

Down the Dungeon you go

Your Completion Score is 1

You went further down the dungeon

A Skeleton approaches

Battle

The Skeleton has 20 Hp

You have 98Hp

You have 5 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

1

You went further down the dungeon

A Skeleton approaches

Battle

The Skeleton has 17 Hp

You have 96Hp

You have 4 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

4

You went further down the dungeon

A Skeleton approaches

Battle

The Skeleton has 5 Hp

You have 94Hp

You have 3 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

4

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Congrats You have killed the Skeleton

You have gained a Level

Down the Dungeon you go

Your Completion Score is 2

You went further down the dungeon

A Ogreapproaches

Battle

The Ogre has 30 Hp

You have 92Hp

You have 5 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

1

You went further down the dungeon

A Ogreapproaches

Battle

The Ogre has 14 Hp

You have 87Hp

You have 4 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

1

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Congrats You have killed the Ogre

You have gained a Level

Down the Dungeon you go

Your Completion Score is 3

You went further down the dungeon

A Skeleton Giantapproaches

Battle

The Skeleton Giant has 56 Hp

You have 82Hp

You have 5 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

4

You went further down the dungeon

A Skeleton Giantapproaches

Battle

The Skeleton Giant has 36 Hp

You have 72Hp

You have 4 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

4

You went further down the dungeon

A Skeleton Giantapproaches

Battle

The Skeleton Giant has 16 Hp

You have 62Hp

You have 3 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

4

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Congrats You have killed the Skeleton Giant

You have gained a Level

Down the Dungeon you go

Your Completion Score is 4

You went further down the dungeon

A Dark Mageapproaches

Battle

The Dark Mage has 40 Hp

You have 52Hp

You have 10 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

3

You went further down the dungeon

A Dark Mageapproaches

Battle

The Dark Mage has 16 Hp

You have 32Hp

You have 9 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

3

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Congrats You have killed the Dark Mage

You have gained a Level

Down the Dungeon you go

Fighting the Dark Mage has taught you how to self heal

You can now self heal and block at the same time

Added on the next Update

Your Completion Score is 5

You are nearing the end of the dungeon

A Dragonapproaches

Battle

The Dragon has 100 Hp

You have 12Hp

You have 20 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

5

You are nearing the end of the dungeon

A Dragonapproaches

Battle

The Dragon has 100 Hp

You have 26Hp

You have 19 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

5

You are nearing the end of the dungeon

A Dragonapproaches

Battle

The Dragon has 100 Hp

You have 40Hp

You have 18 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

5

You are nearing the end of the dungeon

A Dragonapproaches

Battle

The Dragon has 100 Hp

You have 54Hp

You have 17 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

5

You are nearing the end of the dungeon

A Dragonapproaches

Battle

The Dragon has 100 Hp

You have 68Hp

You have 16 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

5

You are nearing the end of the dungeon

A Dragonapproaches

Battle

The Dragon has 100 Hp

You have 82Hp

You have 15 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

5

You are nearing the end of the dungeon

A Dragonapproaches

Battle

The Dragon has 100 Hp

You have 96Hp

You have 14 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

5

You are nearing the end of the dungeon

A Dragonapproaches

Battle

The Dragon has 100 Hp

You have 110Hp

You have 13 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

1

You are nearing the end of the dungeon

A Dragonapproaches

Battle

The Dragon has 93 Hp

You have 90Hp

You have 12 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

2

You are nearing the end of the dungeon

A Dragonapproaches

Battle

The Dragon has 65 Hp

You have 70Hp

You have 11 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

2

You are nearing the end of the dungeon

A Dragonapproaches

Battle

The Dragon has 37 Hp

You have 50Hp

You have 10 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

2

You are nearing the end of the dungeon

A Dragonapproaches

Battle

The Dragon has 9 Hp

You have 30Hp

You have 9 rounds left before reinforcements

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

2

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Congrats You have killed the Dragon

You have gained a Level

You Returned Home with your Glory

Your Completion Score is 6

Name: 1

Class: Mage

Score: 76.000000

0/

Name: 1

Class: Mage

Score: 76.000000

0/

Do you wish to continue with the story?

Please note your score from the dungeon will not change

In addition you will stay your level 6 and will be fully healed

Crit Damage becomes less RNG and will be at 100%

Enter anything to continue or Enter 2 to exit

1

Resuming

You are walking down in triumph after defeating The Dungeon

Suddenly a Bandit Gang Appears trying to rob you of your money

You are wandering around

A Thieving\_Ratsapproaches

Battle

The Thieving\_Rats has 200 Hp

Enemy has 200

You have 100Hp

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

1

You are wandering around

A Thieving\_Ratsapproaches

Battle

The Thieving\_Rats has 172 Hp

Enemy has 172

You have 90Hp

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

1

You are wandering around

A Thieving\_Ratsapproaches

Battle

The Thieving\_Rats has 144 Hp

Enemy has 144

You have 80Hp

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

1

You are wandering around

A Thieving\_Ratsapproaches

Battle

The Thieving\_Rats has 116 Hp

Enemy has 116

You have 70Hp

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

1

You are wandering around

A Thieving\_Ratsapproaches

Battle

The Thieving\_Rats has 88 Hp

Enemy has 88

You have 60Hp

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

1

You are wandering around

A Thieving\_Ratsapproaches

Battle

The Thieving\_Rats has 60 Hp

Enemy has 60

You have 50Hp

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

1

You are wandering around

A Thieving\_Ratsapproaches

Battle

The Thieving\_Rats has 32 Hp

Enemy has 32

You have 40Hp

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

1

You are wandering around

A Thieving\_Ratsapproaches

Battle

The Thieving\_Rats has 4 Hp

Enemy has 4

You have 30Hp

Pick your ability

Enter 1 for Fireball

Enter 2 for Hydro Cannon

Enter 3 for Force Smash

Enter 4 for Earthquake

Enter 5 to Block and Heal

1

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Congrats You have killed the Thieving\_Rats

You continue on

GG

We Continue

RUN SUCCESSFUL (total time: 36s)