

# CS246 FINAL PROJECT

## Sorcery Demo

Initialize/Setup the game	
	Command -init (player part)
	Setup player
	Command -deck
	Setup Deck
	Command -testing
	Command -graphics
User command and different type of cards	
	Command -init (command part)
	The command that can play this game
	Minion
	Ritual
	Enchantment
	Spell
Special Card Reaction	
If the game reach the end	

## Initialize/Setup the game

- run “./sorcery” directly will ask to input the player 1 and player 2 name and will use the default deck for both players.
- (as we can input player 1’s name “p1” and player 2’s name “p2”)

```
Gloria@liweideAir sorcery % ./sorcery
Player1 name:
p1
Player2 name:
p2
```

- There are three addition type of command that can use to start the game, there are “-init”, “- deck [1|2]”, “-testing”. It can be combined with any combination.

### Command -init

- “-init <filename>” will read from the file to set up the player’s name.
- run “./sorcery -init init.txt”.
- if the init.txt cannot read or does not exit, then it will throw the error message and will treat us no -init.

```
sorcery > ≡ init.txt
1      p1
2      p2
3
```

- then player 1 will have the name p1, and player 2 will have the name p2.
- if there are nothing in the init.txt, it will ask to enter both player’s name.
- if there are only one line in the init.txt, it will ask to enter the player 2’s name.

### Command -deck

- “-deck1 <filename> -deck2 <filename>” will use the information in the file as the player’s deck.
- if the either of the file is not exit or cannot read, it will throw the error message and will use the “default.deck” instead.

### Setup deck

- if the card name is incorrect or does not exist in the file provide, then it will print a message and pass this card name to the next line.

(Test file provide “wrong\_deck.txt”)

```
sorcery > ≡ wrong_deck.txt
1  Air Elemental
2  Earth Elemental
3  Dark Ritual
4  Fire Elemental
5  Giant Strength
6  Bombe
7  Banish
8  Blizzard
9
```

- run “./sorcery -deck1 deck1.txt”, since there are no card called Bombe, it will print an error message and it will not include in the player 1’s deck.

```
Gloria@liweideAir sorcery % ./sorcery -deck1 wrong_deck.txt
Player1 name:
p1
Player2 name:
p2
Unknown card in your deck: Bombe
```

### Command -testing

- this is a special mode for this game.

- run “./sorcery -testing”.

- Then the deck will not shuffle, it will have two command(draw, discard) for user to use and no limit on player’s magic.

- And everything else will be normal.

### Command -graphics

- this is an extra feather we add which is to show the graphic of the game.

- run “./sorcery -graphics”.

- After setting players’ names, a graphic window will pop up to display the gameboard, as well the text display will still remain the same.

- Cards with different types can be distinguished by their color.



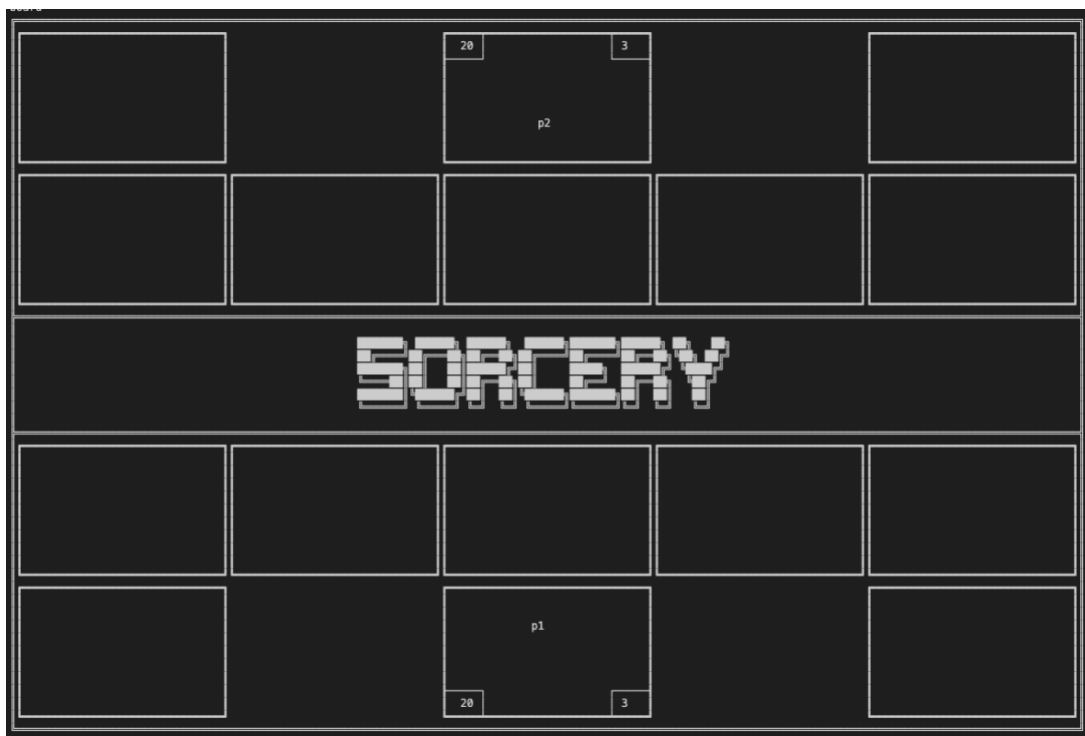
## User Commands on different type of Cards

- We will use “-testing” mode to illustrate the following part.
- As we already set up the player’s information and the deck using any of method above, then we can start to play.

(Test file provide “deck1.txt”)

1. We can use “board” to see the initial board and player’s information.

```
Gloria@liweideAir sorcery % ./sorcery -testing -deck1 deck1.txt -deck2 deck1.txt
Player1 name:
p1
Player2 name:
p2
board
```



- We have player 1 called p1, and player 2 called p2, and they both have 20 life and 3 magic.

2. Command “hand” to see the player 1’s hand.

Air Elemental	0	Earth Elemental	3	Dark Ritual	0	Fire elemental	2	Giant Strength	1
Minion		Minion		Ritual		Minion		Enchantment	
				1	At the start of your turn, gain 1 magic		Whenever an opponent's minion enters play, deal 1 damage to it		
1	1	4	4		5	2	2	+2	+2

- it will have 5 cards in their hand at the first turn.

- if the hand already have 5 cards or the deck is empty, it will not draw card form the deck.

3. Command “play” to play a card.

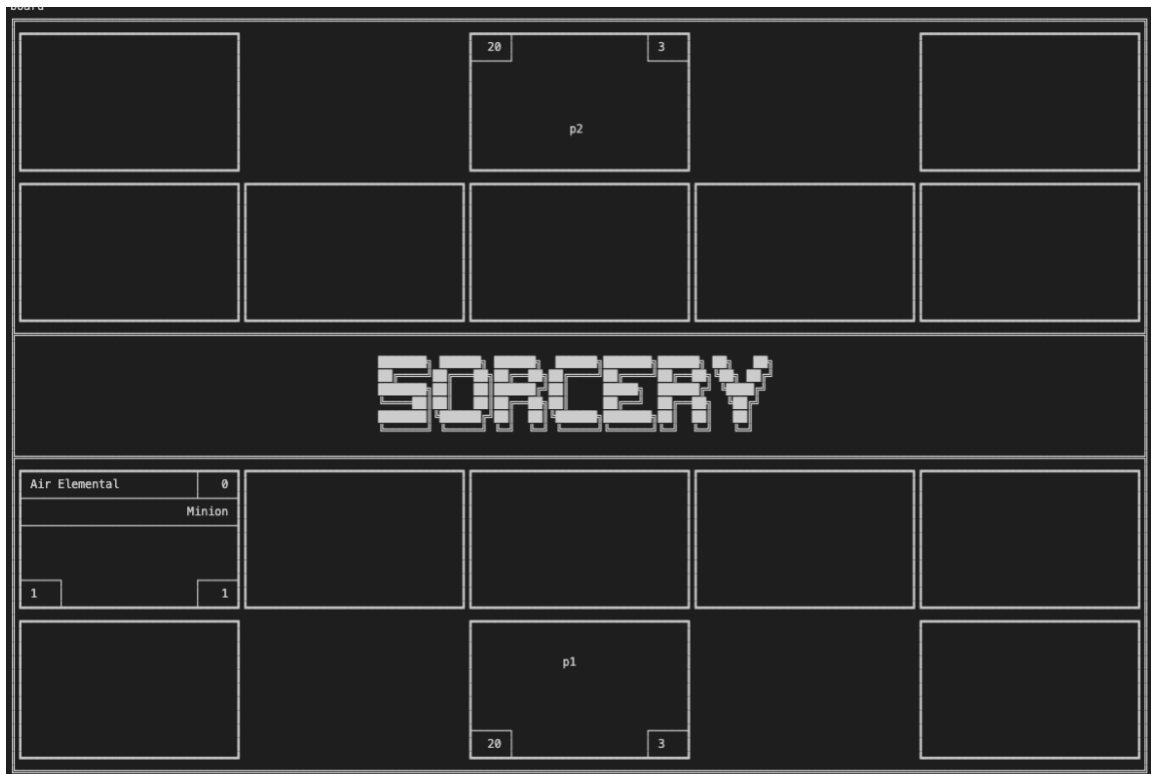
- We have two ways to use command “play”

\* “play card”, if the card does not exist in player’s hand, it will throw and error message.

\* “play card target-player target-card”, if the any of card, target-player, or target-card does not exist, it will throw an error message.

- Enter “play 1” and the first card on current player’s hand will remove and show on the board.

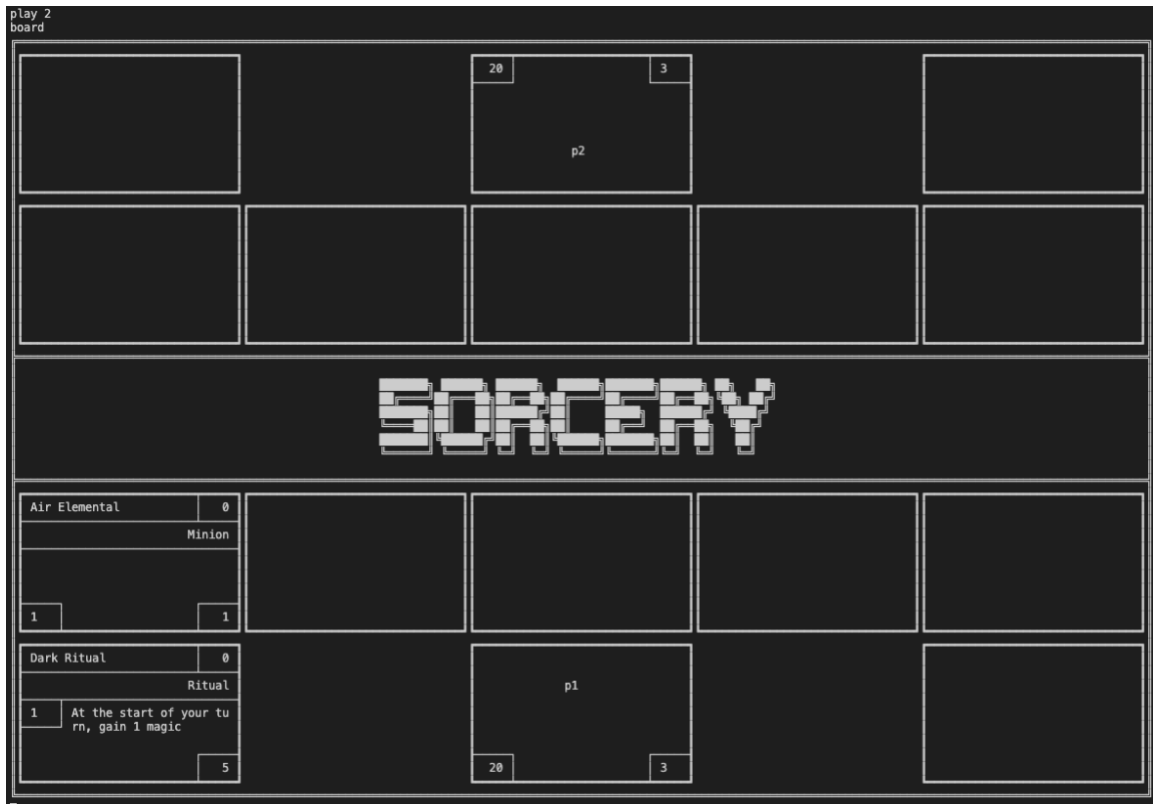
- If the hand does not have the card at 1 or if the board does not have space to play a [minion](#) card, it will throw an error message and you can enter a new command.



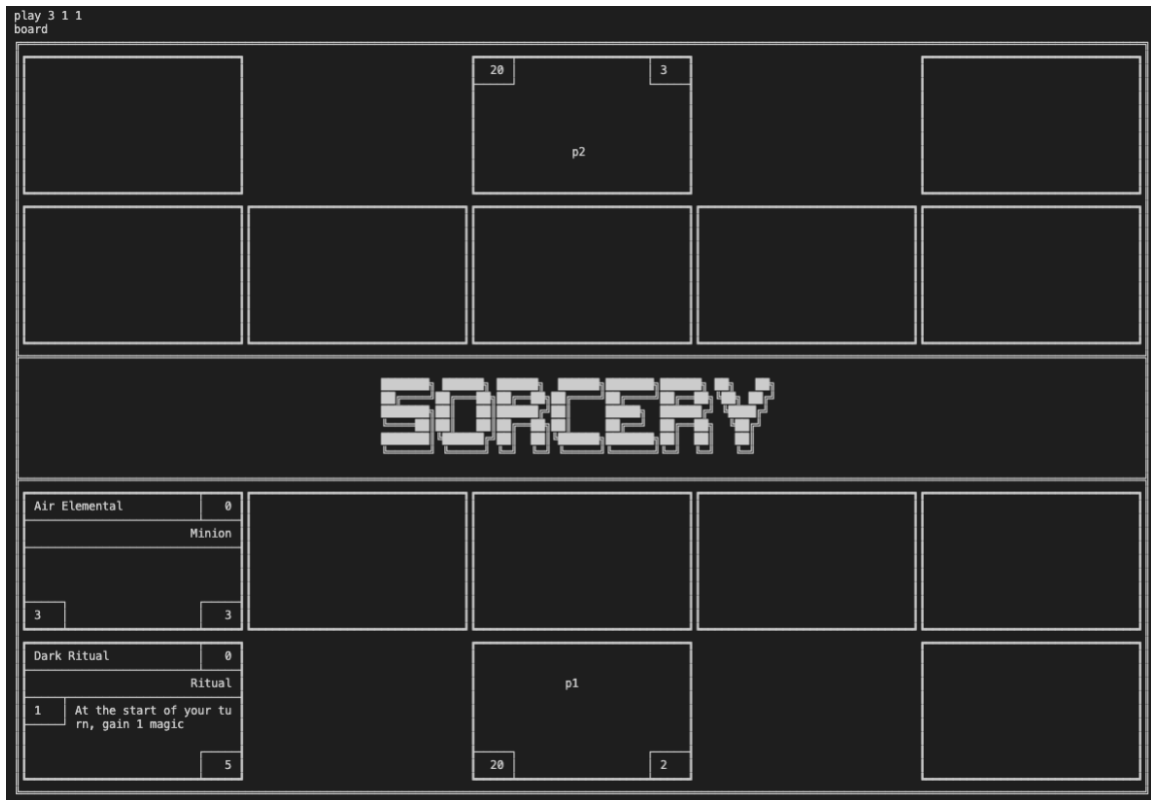
- Enter “hand”, it will have four cards now, since we play the first card.

Earth Elemental	3	Dark Ritual	0	Fire elemental	2	Giant Strength	1
Minion		Ritual		Minion		Enchantment	
		1	At the start of your turn, gain 1 magic		Whenever an opponent's minion enters play, deal 1 damage to it		
4	4		5	2	2	+2	+2

- Then enter “play 2” and then enter “board” to see what happened.
- We can see that the [ritual](#) card is on the left of the player name.



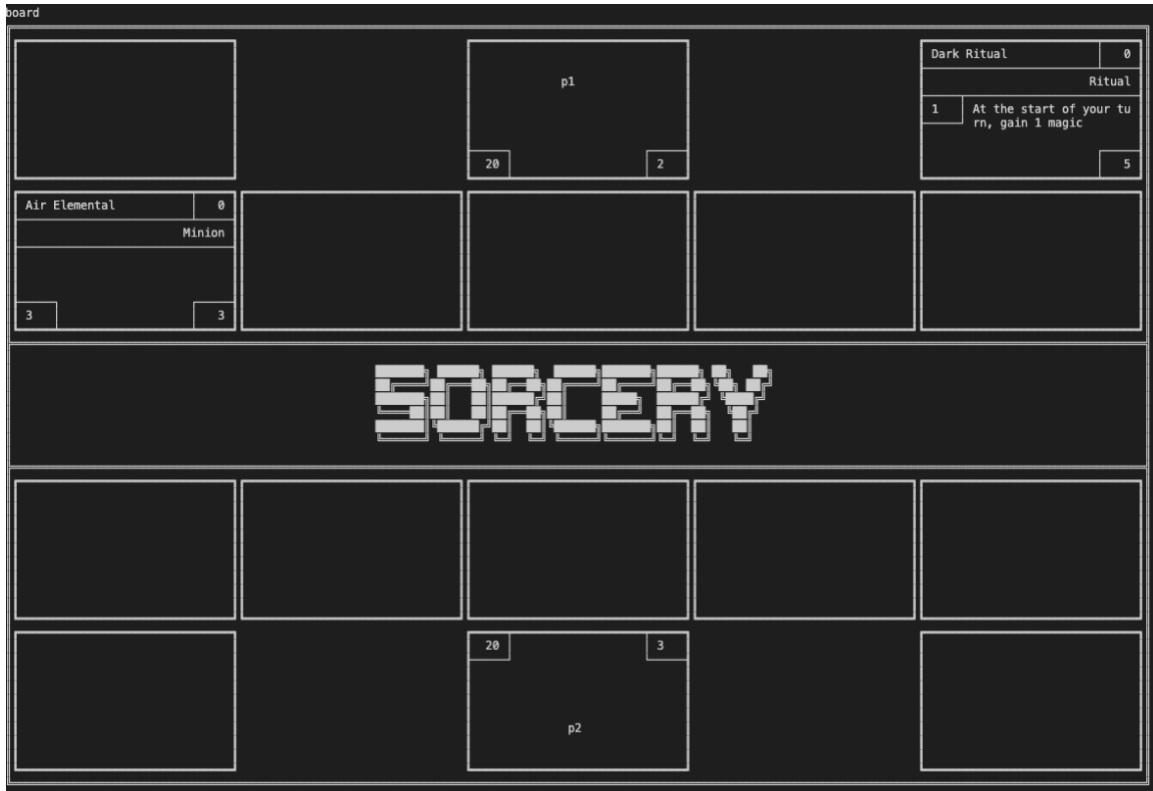
- Then enter “play 3 1 1”, it can play the 3<sup>th</sup> card in hand to the player 1’s first card on the board, and similar check the board to see the change.



- And we can see the [enchantment \(Giant Strength\)](#) card already played on minion.  
 - And we can see the magic for p1 changed from 3 to 2, since the card we play cost 1 magic.  
 - Since we are under the “-testing” mode now, we have no limit on player’s magic. Otherwise, if the player does not have enough magic to play a card, then the card will not play and will throw an error message.

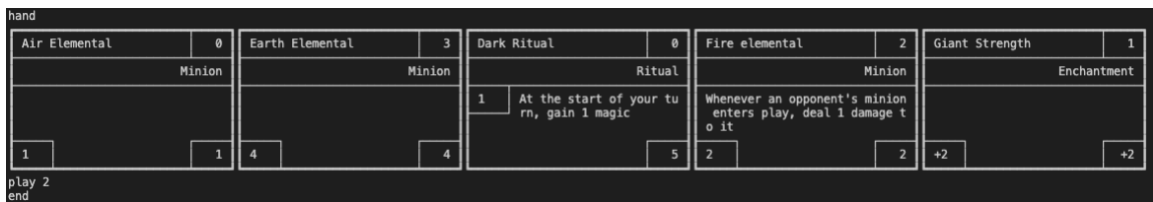
4. Enter “end” will switch the player.

- You can see the board was flip. The player 2 is on the bottom, since this is player 2’s round.



- similar player 2 can do the action.

- for example, entre “hand”, then “play 2”, then “end”





## 5. Command “draw”.

- Enter “hand” to see the player’s hand.

hand								
Earth Elemental		3	Fire elemental		2	Bomb		2
Minion			Minion			Minion		
			Whenever an opponent's minion enters play, deal 1 damage to it			Deals damage to all the opponent minions equal to its attack value when it dies		
4		4	2		2	1		2

- Since we are under the “-testing” mode, we can use enter “draw” to see the card. (This command is not work under the normal game)

- it will throw an error message when we try to draw from an empty deck.

Earth Elemental		3	Fire elemental		2	Bomb		2	Banish		2
Minion			Minion			Minion			Spell		
			Whenever an opponent's minion enters play, deal 1 damage to it			Deals damage to all the opponent minions equal to its attack value when it dies			Destroy target minion or ritual		
4		4	2		2	1		2			

play 4 2 1  
board

The image shows a digital representation of a board game called 'Sorcery'. The game board is a 4x2 grid of cards. The top row contains 'Earth Elemental' (3), 'Minion' (20/1), and an empty card. The second row contains '4', '4', and an empty card. The third row contains 'Air Elemental' (0), 'Minion' (3/3), and an empty card. The bottom row contains 'Dark Ritual' (0), 'Ritual' (1/4), and an empty card. The central area displays the word 'SORCERY' in a stylized font.

Earth Elemental	3	
Minion	20	1
4	4	

**SORCERY**

Air Elemental	0	
Minion	3	3
Dark Ritual	0	
Ritual	1	4

- Since we play the 4<sup>th</sup> card on the hand, which is a **spell** card, the minion was died and move to the graveyard for target player.

- keep playing...

end  
hand

Air Elemental	0	Dark Ritual	0	Fire elemental	2	Giant Strength	1	Bomb	2
Minion		Ritual		Minion		Enchantment		Minion	
		1 At the start of your turn, gain 1 magic		Whenever an opponent's minion enters play, deal 1 damage to it				Deals damage to all the opponent minions equal to its attack value when it dies	
1	1			2	2	+2	+2	1	2

play 1  
play 1  
play 1

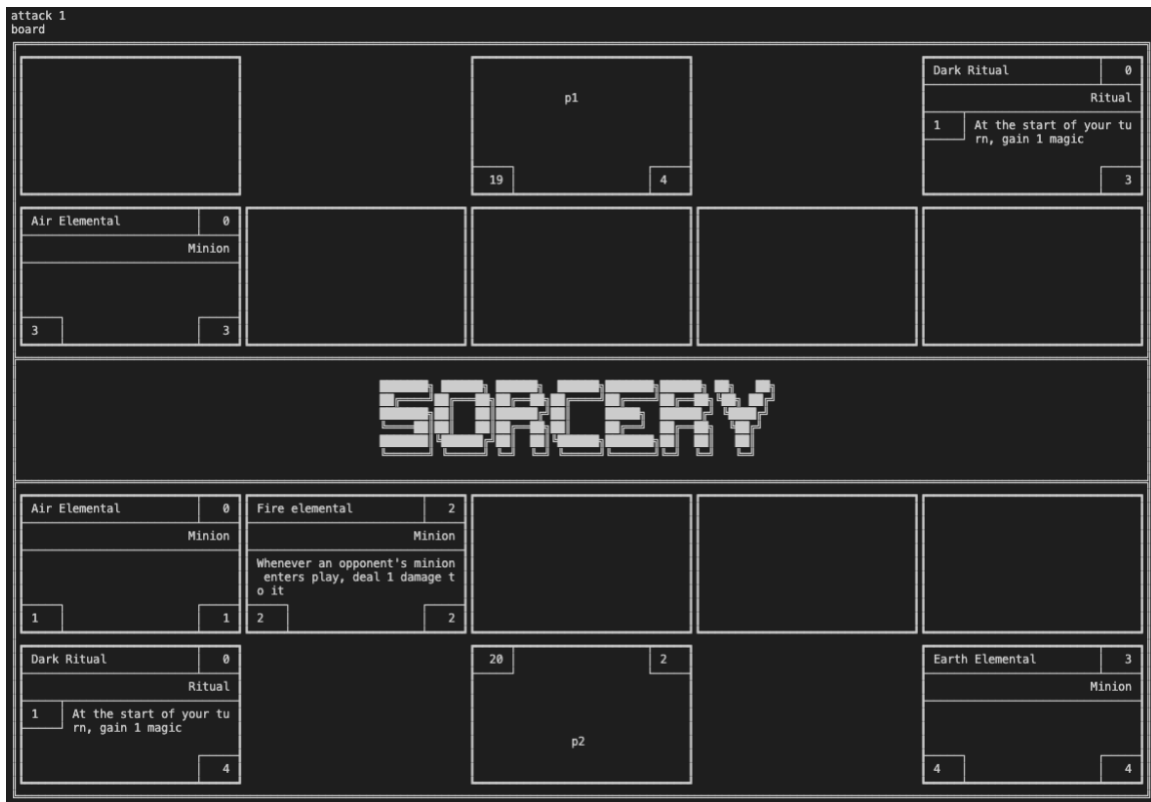
board

		p1		Dark Ritual		0	
				Ritual			
		20		1		At the start of your turn, gain 1 magic	
		2				4	
Air Elemental	0						
Minion							
3	3						
SORCERY							
Air Elemental	0	Fire elemental	2				
Minion		Minion					
		Whenever an opponent's minion enters play, deal 1 damage to it					
1	1	2	2				
Dark Ritual	0	20		0		Earth Elemental	3
Ritual						Minion	
1	At the start of your turn, gain 1 magic	p2					
						4	4

end  
end

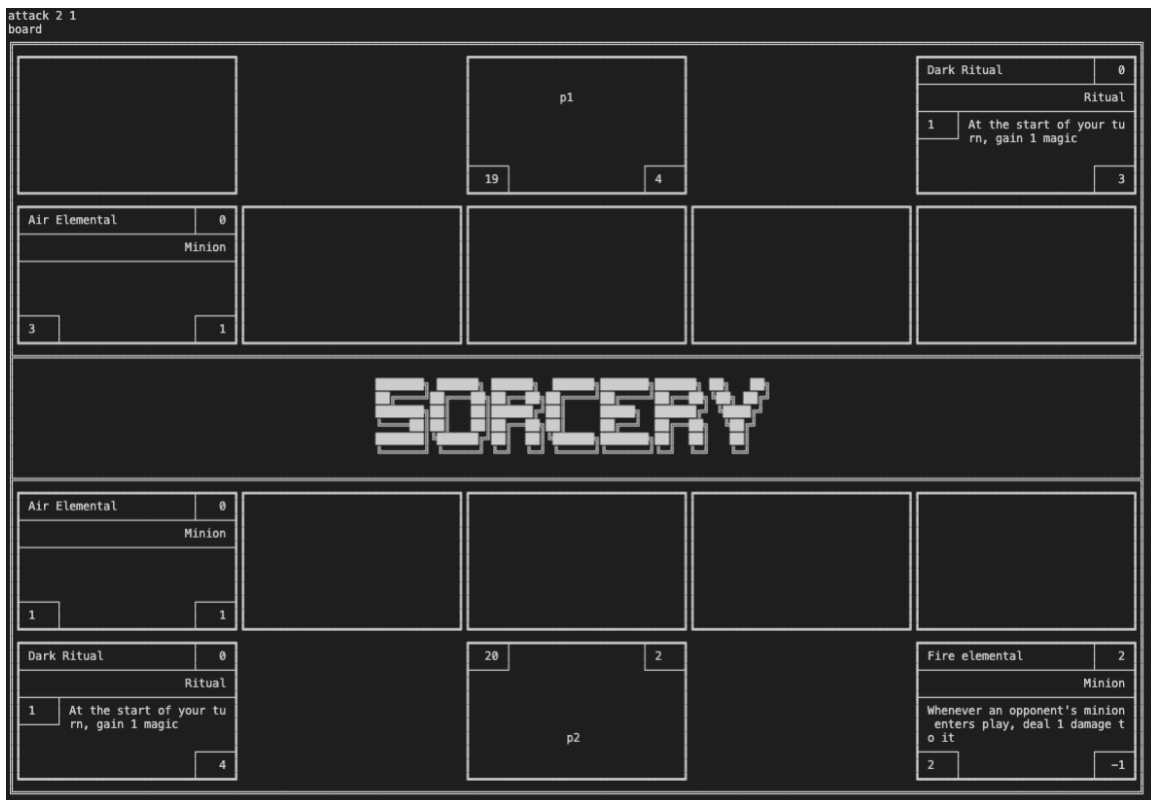
6. Command “attack”

- Enter “attack 1” will directly attack the opponent.



- we can see p1's life decrease by 1 because the first minion of p2 has 1 attack.

- Enter “attack 2 1”, which use the second minion on the board to attack the first minion on opponent’s board.



- similar both minion will deduce the defence base the attack, and if the defence small or equal to 0, it will move to the graveyard.

- Enter “attack 1”

```
attack 1
Your minion does not have action point left.
```

- it will throw an error message, since each minion have one action point each turn, and the first minion already attack once.

- keep playing...

end  
hand

Earth Elemental	3	Fire elemental	2	Bomb	2	Blizzard	3	Potion Seller	2
Minion		Minion		Minion		Spell		Minion	
		Whenever an opponent's minion enters play, deal 1 damage to it		Deals damage to all the opponent minions equal to its attack value when it dies		Deal 2 damage to all minions		At the end of your turn, all your minions gain +0/+1	
4	4	2	2	1	2			1	3

play 1  
play 4

board

Fire elemental	2	20	3	Dark Ritual	0
Minion				Ritual	
Whenever an opponent's minion enters play, deal 1 damage to it		p2		1	At the start of your turn, gain 1 magic
2	-1				4
Air Elemental	0				
Minion					
1	1				
SORCERY					
Air Elemental	0	Earth Elemental	3	Potion Seller	2
Minion		Minion		Minion	
				At the end of your turn, all your minions gain +0/+1	
3	1	4	4	1	3
Dark Ritual	0				
Ritual					
1	At the start of your turn, gain 1 magic				
	2				
		p1			
		19	1		

draw  
hand

Fire elemental	2	Bomb	2	Blizzard	3	Master Summoner	3
Minion		Minion		Spell		Minion	
Whenever an opponent's minion enters play, deal 1 damage to it		Deals damage to all the opponent minions equal to its attack value when it dies		Deal 2 damage to all minions		2	Summon up to three 1/1 air elementals
2	2	1	2			2	3

play 4

end  
end

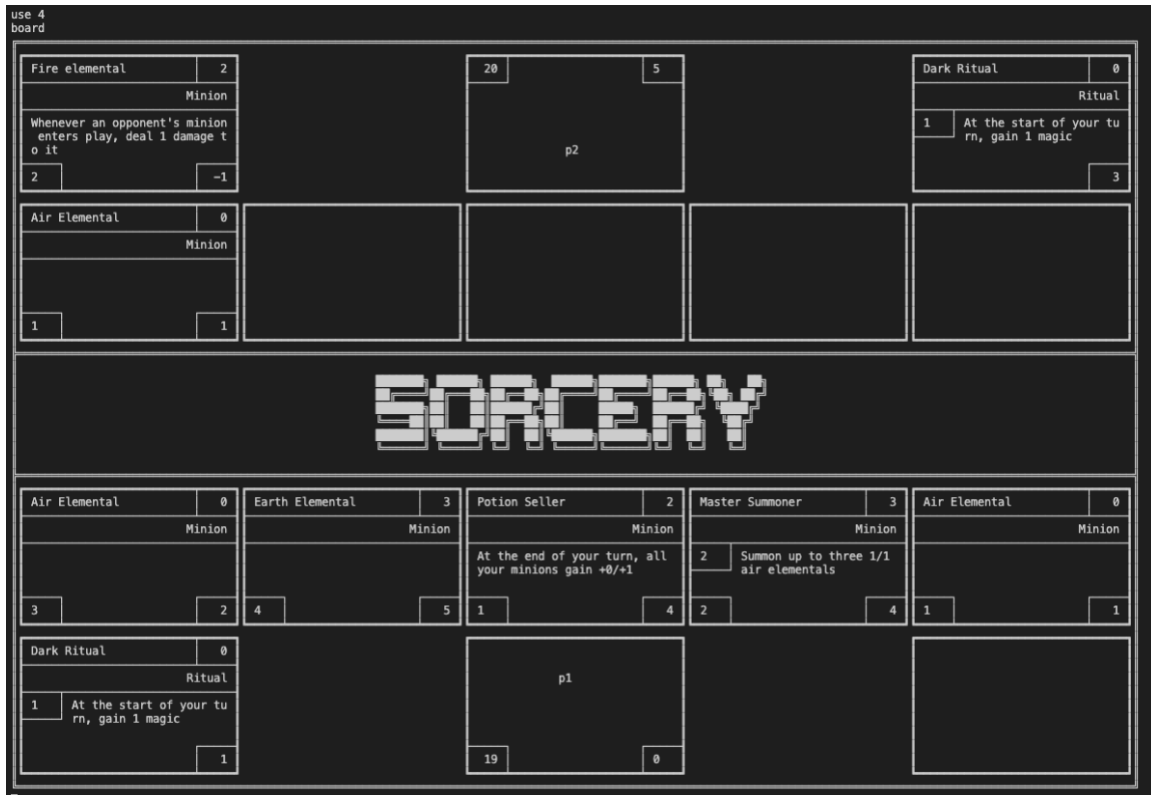
7. Command “use”

- Similar with “play” we have two ways to use command “use”.

\* “use minion”, if the minion does not exist on the board, it will throw an error message.

\* “use minion target-player target-card”, if any of those three does not exist, it will throw an error message.

- Enter “use 4”, it will use the activated ability of the minion.



- We can see we use the ability of the minion and reduced the magic of player.

- Since we have only one space left, so it only summon up one 1/1 air elemental.

- And we cannot attack or use this minion at this turn anymore, since no action point, it will throw an error message if you use/attack again.

## 8. Command “inspect”

- Enter “inspect 1”

inspect 1	
Air Elemental	0
Minion	
1	0
Giant Strength	
1	
Enchantment	
+2	+2

- We can see all the enchantment put on the minion.

## 9. Command “discard”

- Enter “discard 1”

- This command only available under “-testing” mode.

hand

Fire elemental	2	Bomb	2	Blizzard	3	Unsummon	1
Minion		Minion		Spell		Spell	
Whenever an opponent's minion enters play, deal 1 damage to it		Deals damage to all the opponent minions equal to its attack value when it dies		Deal 2 damage to all minions		Return target minion to its owner's hand	
2	2	1	2				

discard 1

hand

Bomb	2	Blizzard	3	Unsummon	1
Minion		Spell		Spell	
Deals damage to all the opponent minions equal to its attack value when it dies		Deal 2 damage to all minions		Return target minion to its owner's hand	
1	2				

## 10. Command “help”

- Enter “help” to see what command can be use to play this game.
- It includes all the commands shows above.

```
help
Commands: help — Display this message.
          end — End the current player's turn.
          quit — End the game.
          attack minion other-minion — Orders minion to attack other-minion.
          attack minion — Orders minion to attack the opponent.
          play card [target-player target-card] — Play card, optionally targeting target-card owned by target-player.
          use minion [target-player target-card] — Use minion's special ability, optionally targeting target-card owned by target-player.
          inspect minion — View a minion's card and all enchantments on that minion.
          hand — Describe all cards in your hand.
          board — Describe all cards on the board.
```

- any time user enter a command that not on this list, it will throw an error message and show this message to help user to find a correct command.

```
wrong
your command is not valid. please consider the following:
Commands: help — Display this message.
          end — End the current player's turn.
          quit — End the game.
          attack minion other-minion — Orders minion to attack other-minion.
          attack minion — Orders minion to attack the opponent.
          play card [target-player target-card] — Play card, optionally targeting target-card owned by target-player.
          use minion [target-player target-card] — Use minion's special ability, optionally targeting target-card owned by target-player.
          inspect minion — View a minion's card and all enchantments on that minion.
          hand — Describe all cards in your hand.
          board — Describe all cards on the board.
```

## 11. Command “quit”

- Anytime enter “quit” will directly end the game.

```
quit
Gloria@liweideAir sorcery %
```



## Command -init

(Test file provide “show\_init.txt”)

- “-init <filename>”, we can also include the command above in the file.

```
sorcery > ≡ show_init.txt
1    p1
2    p2
3    hand
4    play 1
5    board
6    quit
7
```

- it will show the same display as we use stdin.

```
Gloria@liweideAir sorcery % ./sorcery -init show_init.txt -testing
```

Air Elemental		0	Earth Elemental		3	Fire elemental		2	Bomb		2	Potion Seller		2
Minion			Minion			Minion			Minion			Minion		
						Whenever an opponent's minion enters play, deal 1 damage to it			Deals damage to all the opponent minions equal to its attack value when it dies			At the end of your turn, all your minions gain +0/+1		
1		1	4		4	2		2	1		2	1		3

A screenshot of a game interface, likely a card game, showing a 3x3 grid of cards. The top row contains three cards: 'Air Elemental' (Minion, 0 cost), 'p2' (20/3), and an empty card. The middle row contains three empty cards. The bottom row contains three cards: 'p1' (20/3), an empty card, and an empty card. The word 'SORCERY' is displayed in a stylized font in the center of the grid.

## Special Card

(Test file provide “deck2.txt”)

```
Gloria@liweideAir sorcery % ./sorcery -deck1 deck2.txt -deck2 deck2.txt -testing
Player1 name:
p1
Player2 name:
p2
hand



|                 |   |                                                                    |   |                                                                                                                       |   |                                                                                                                       |   |                |    |
|-----------------|---|--------------------------------------------------------------------|---|-----------------------------------------------------------------------------------------------------------------------|---|-----------------------------------------------------------------------------------------------------------------------|---|----------------|----|
| Earth Elemental | 3 | Aura of Power                                                      | 1 | Delay                                                                                                                 | 1 | Delay                                                                                                                 | 1 | Giant Strength | 1  |
| Minion          |   | Ritual                                                             |   | Enchantment                                                                                                           |   | Enchantment                                                                                                           |   | Enchantment    |    |
|                 |   | 1 Whenever a minion enters play under your control, it gains +1/+1 |   | Enchanted minion does not gain an action on their next turn. This enchantment is automatically destroyed after 1 turn |   | Enchanted minion does not gain an action on their next turn. This enchantment is automatically destroyed after 1 turn |   |                |    |
| 4               | 4 |                                                                    |   |                                                                                                                       |   |                                                                                                                       |   | +2             | +2 |



play 1
play 1
```

### 1. Delay (Enchantment Card)

\* play “Delay” card on own minion.

- then enter “inspect 1” will see this enchantment acts on Earth Elemental, but not work yet, since we need to wait for the next turn.

```
play 1 1 1
inspect 1



|                 |   |
|-----------------|---|
| Earth Elemental | 3 |
| Minion          |   |
|                 |   |
| 4               | 4 |



|                                                                                                                       |   |
|-----------------------------------------------------------------------------------------------------------------------|---|
| Delay                                                                                                                 | 1 |
| Enchantment                                                                                                           |   |
| Enchanted minion does not gain an action on their next turn. This enchantment is automatically destroyed after 1 turn |   |


```

- If player try to use “Earth Elemental” next turn, it will throw an error message that this card has no action point.

```
end
hand



|                 |   |                                                                    |   |                                                                                                                       |   |                                                                                                                       |   |                |    |
|-----------------|---|--------------------------------------------------------------------|---|-----------------------------------------------------------------------------------------------------------------------|---|-----------------------------------------------------------------------------------------------------------------------|---|----------------|----|
| Earth Elemental | 3 | Aura of Power                                                      | 1 | Delay                                                                                                                 | 1 | Delay                                                                                                                 | 1 | Giant Strength | 1  |
| Minion          |   | Ritual                                                             |   | Enchantment                                                                                                           |   | Enchantment                                                                                                           |   | Enchantment    |    |
|                 |   | 1 Whenever a minion enters play under your control, it gains +1/+1 |   | Enchanted minion does not gain an action on their next turn. This enchantment is automatically destroyed after 1 turn |   | Enchanted minion does not gain an action on their next turn. This enchantment is automatically destroyed after 1 turn |   |                |    |
| 4               | 4 |                                                                    |   |                                                                                                                       |   |                                                                                                                       |   | +2             | +2 |



play 1
end
attack 1
Your minion does not have action point left.
```

\* play “Delay” on opponent’s minion

Diagram illustrating the state of the game after the first turn:

- Hand:** Delay (1), Giant Strength (1), Unsummon (1).
- Battlefield:** Enchantment (1), Spell (1).
- Spell Text:** Return target minion to its owner's hand.
- Minion Text:** Enchanted minion does not gain an action on their next turn. This enchantment is automatically destroyed after 1 turn.

- We cannot attack use this card, because the Delay card already work.
- And we enter “inspect 1” can see no Delay card in the list.

```

attack 1
Your minion does not have action point left.
inspect 1

```

Earth Elemental	3
Minion	
4	4

## 2. Unsummon (Spell Card)

\* play card with “Unsummon”

hand														
Aura of Power		1	Delay		1	Delay		1	Giant Strength		1	Unsummon		1
Ritual			Enchantment			Enchantment			Enchantment			Spell		
1	Whenever a minion enters play under your control, it gains +1/+1		Enchanted minion does not gain an action on their next turn. This enchantment is automatically destroyed after 1 turn			Enchanted minion does not gain an action on their next turn. This enchantment is automatically destroyed after 1 turn			Enchanted minion does not gain an action on their next turn. This enchantment is automatically destroyed after 1 turn			Return target minion to its owner's hand		
	4								+2			+2		
play 4 2 1										hand				
Aura of Power		1	Delay		1	Delay		1	Unsummon		1			
Ritual			Enchantment			Enchantment			Spell					
1	Whenever a minion enters play under your control, it gains +1/+1		Enchanted minion does not gain an action on their next turn. This enchantment is automatically destroyed after 1 turn			Enchanted minion does not gain an action on their next turn. This enchantment is automatically destroyed after 1 turn			Return target minion to its owner's hand					
	4													
play 4 2 1										hand				
Aura of Power		1	Delay		1	Delay		1	Earth Elemental		3			
Ritual			Enchantment			Enchantment			Minion					
1	Whenever a minion enters play under your control, it gains +1/+1		Enchanted minion does not gain an action on their next turn. This enchantment is automatically destroyed after 1 turn			Enchanted minion does not gain an action on their next turn. This enchantment is automatically destroyed after 1 turn								
	4								4			4		

- As we can see the middle row, we have 4 cards in hand.

- After we use the Unsummon to a minion, it will return target minion to its owner's hand, and this minion will change back to its own body. For example, the Earth Elemental has 4 attack and 4 defence, we use Giant Strength on it, it change to 6 attack and 6 defence. Then we use Unsummon on it, it returns to owner's hand and change back to 4 attack and 4 defence.

- keep playing...

play 4					draw				
draw					hand				
Aura of Power	1	Delay	1	Delay	1	Recharge	1	Novice Pyromancer	1
Ritual		Enchantment		Enchantment		Spell		Minion	
1	Whenever a minion enters play under your control, it gains +1/+1	Enchanted minion does not gain an action on their next turn. This enchantment is automatically destroyed after 1 turn		Enchanted minion does not gain an action on their next turn. This enchantment is automatically destroyed after 1 turn		Your ritual gains 3 charges		1	Deal 1 damage to target minion
	4							0	1
end					hand				
Giant Strength	1	Unsummon	1	Recharge	1				
Enchantment		Spell		Spell					
		Return target minion to its owner's hand		Your ritual gains 3 charges					
+2	+2								

\* Unsummon exception

board

		20	1	
			p2	
Earth Elemental	3			
	Minion			
4			4	

SORCERY

Earth Elemental	3			
	Minion			
4			4	
Aura of Power	1			
	Ritual			
1	Whenever a minion enters play under your control, it gains +1/+1			

### 3. Recharge (Spell Card)

- Enter “end” to switch to the player 1.

- Then play with Recharge Card.

\* Recharge Card work normally.

hand

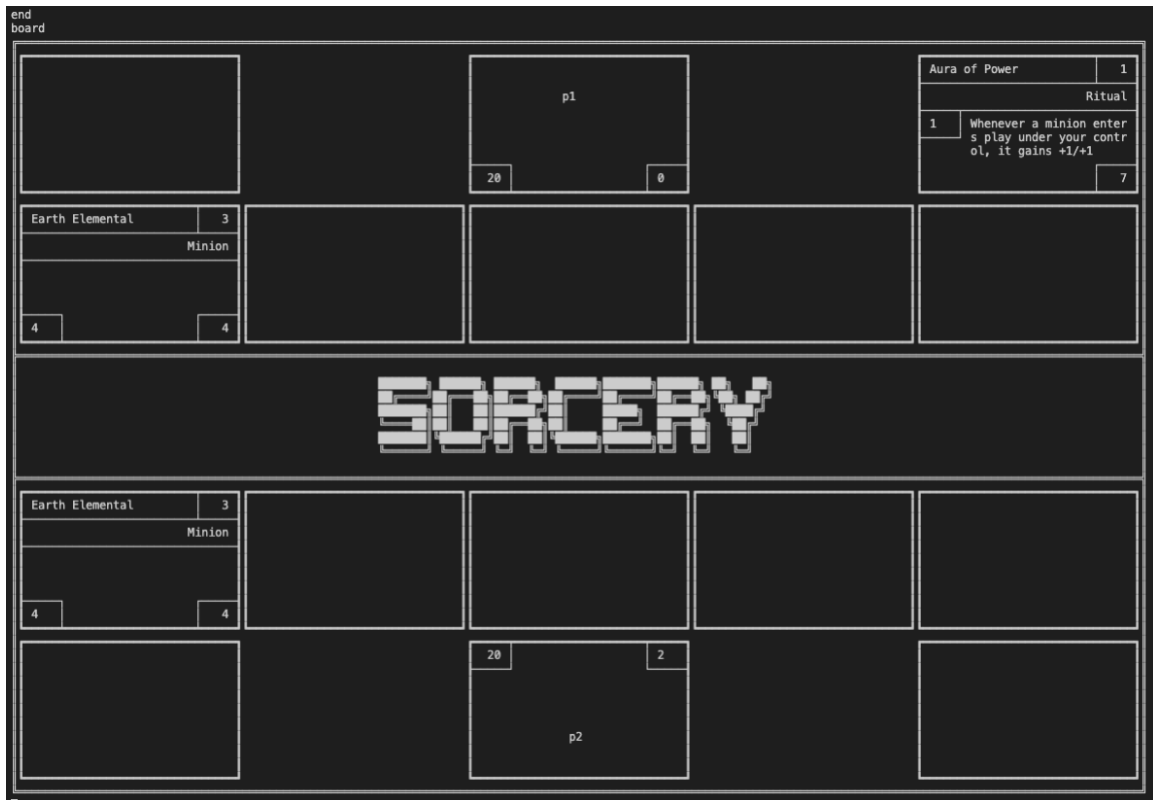
Giant Strength	1	Recharge	1	Novice Pyromancer	1
Enchantment		Spell		Minion	
		Your ritual gains 3 charges		1 Deal 1 damage to target minion	
+2	+2			0	1

play 2

board

	20	2	
	p2		
Earth Elemental	3		
Minion			
4	4		
<b>SORCERY</b>			
Earth Elemental	3		
Minion			
4	4		
Aura of Power	1		
Ritual			
1	Whenever a minion enters play under your control, it gains +1/+1		
7	20	0	
	p1		

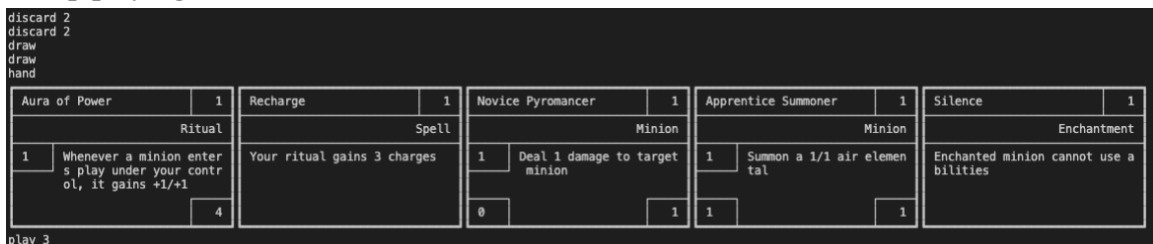
\* Recharge Card exception



- Since player 2 has no ritual, then if we use Recharge, it will throw an error message and have no change on player 2' hand.



- keep playing



#### 4. Silence (Enchantment Card)

end  
hand

Giant Strength	1	Novice Pyromancer	1	Apprentice Summoner	1
Enchantment		Minion		Minion	
		1	Deal 1 damage to target minion	1	Summon a 1/1 air elemental
+2	+2	0	1	1	1

draw  
draw  
hand

Giant Strength	1	Novice Pyromancer	1	Apprentice Summoner	1	Silence	1	Raise Dead	1
Enchantment		Minion		Minion		Enchantment		Spell	
		1	Deal 1 damage to target minion	1	Summon a 1/1 air elemental	Enchanted minion cannot use abilities		Resurrect the top minion in your graveyard and set its defence to 1	
+2	+2	0	1	1	1				

- Use “Silence” card to enchanted minion cannot use ability.

play 4 2 2  
end  
inspect 2

Novice Pyromancer	1
Minion	
1	Deal 1 damage to target minion
0	1

Silence	1
Enchantment	
Enchanted minion cannot use abilities	

use 2 1 1  
This minion is silenced, so it cannot be activated.

- We can see Novice Pyromancer has been silenced, if we try to use it ability, it will throw and error message.

- keep playing...

play 3  
end  
attack 1 3



## 5. Raise Dead(Spell Card)

\* play Raise Dead Card

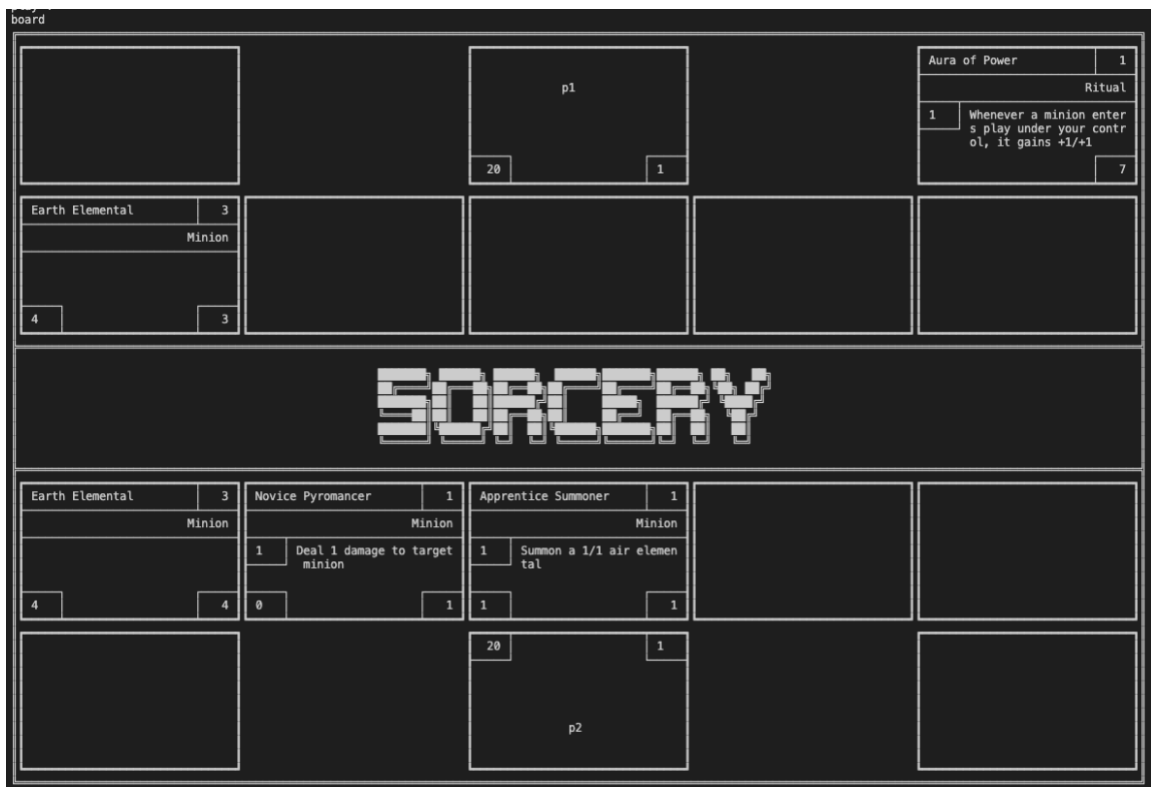
end board

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

- We can see the player 2's graveyard is not empty.

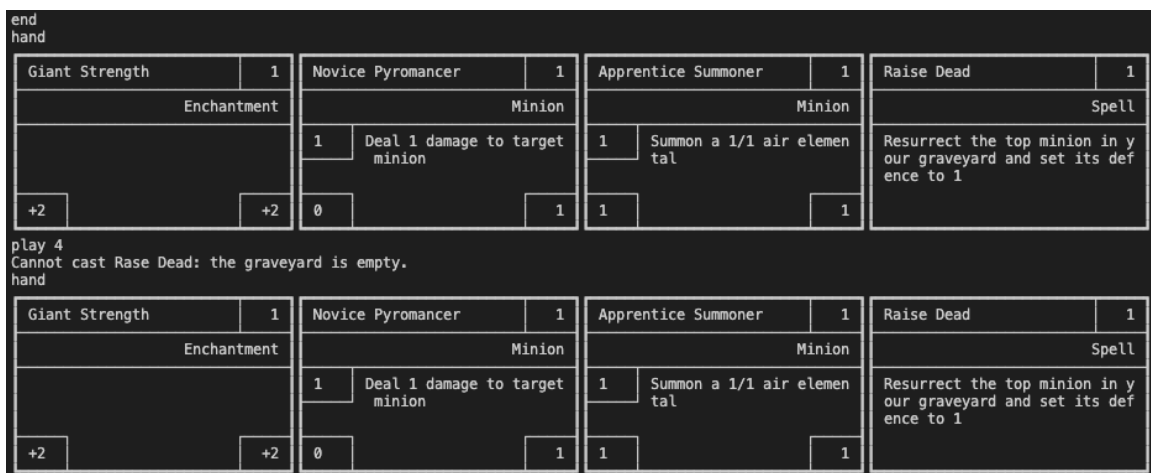
- Play Raise Dead Card

hand																			
Aura of Power			1	Recharge			1	Silence			1	Raise Dead			1				
Ritual				Spell				Enchantment				Spell							
1	Whenever a minion enters play under your control, it gains +1/+1					Your ritual gains 3 charges				Enchanted minion cannot use abilities				Resurrect the top minion in your graveyard and set its defence to 1					
			4																
play 4																			



- We can see the minion remove from graveyard and back to the board. And the defence is set to be 1.
- if the board is full, it will throw an error message and the minion will not remove from the graveyard.

\* Raise Dead exception



- It will throw an error message and no change on other things if we try to play Raise Dead with empty graveyard.

## Game End with Winner

(Test file provide “winner.txt”)

```
Gloria@liweideAir sorcery % ./sorcery -deck1 winner.txt -deck2 winner.txt -testing
Player1 name:
p1
Player2 name:
p2
```

- if the player's life equal or smaller than 0, the game will immediately end will a winner.

```
hand


|                 |   |                 |   |                |    |                |    |             |    |
|-----------------|---|-----------------|---|----------------|----|----------------|----|-------------|----|
| Earth Elemental | 3 | Earth Elemental | 3 | Giant Strength | 1  | Giant Strength | 1  | Enrage      | 2  |
| Minion          |   | Minion          |   | Enchantment    |    | Enchantment    |    | Enchantment |    |
| 4               | 4 | 4               | 4 | +2             | +2 | +2             | +2 | +2          | -2 |


play 1
play 1
play 1 1 1
play 1 1 2
play 1 1 1
draw
play 1 1 2
end
end
```

```
board


|                 |   |    |   |                 |  |   |  |
|-----------------|---|----|---|-----------------|--|---|--|
|                 |   | 20 |   | 4               |  |   |  |
|                 |   | p2 |   |                 |  |   |  |
|                 |   |    |   |                 |  |   |  |
|                 |   |    |   |                 |  |   |  |
|                 |   |    |   |                 |  |   |  |
| SORCERY         |   |    |   |                 |  |   |  |
| Earth Elemental |   | 3  |   | Earth Elemental |  | 3 |  |
| Minion          |   |    |   | Minion          |  |   |  |
| 12              | 4 | 12 | 4 |                 |  |   |  |
|                 |   |    |   | p1              |  |   |  |
|                 |   |    |   | 20              |  | 1 |  |


```

```
attack 1
attack 2
p1 win!
```

- Since  $12+12 > 20$ , p2's life is smaller than 0, the game end will a message “p1 win!”.