CSEN 401: Computer Programming Lab

Yu Gi Oh! Game Rules

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Project: Yu – Gi – Oh! Duel Monsters

- **Strategic card game:** Try to win by attacking your opponent using monsters !

- **Turn-based board game:**
  - Each player uses his/her turn to do a set of allowed actions
  - Afterwards, the opponent is allowed to play

> You will develop a simplified version inspired by the original game

Origin of the Game

o Known in Japan as ***Yu-Gi-Oh! Duel Monsters*** (遊☆戯☆王デュエルモンスターズ)

o Television anime series based on the original Yu Gi Oh! Manga

o The series is about a boy named **Yugi Moto** who faces his opponents in a lot of games, one of which is **Duel Monsters**.

o Yugi is trying to save his grandfather and an inherited Pharaoh soul by collecting 3 Egyptian God cards and millennium items.

Milestones

- **M1 – Inheritance & Encapsulation**
  - Build the data structures of the game

- **M2 – Abstraction & Polymorphism**
  - Build the game engine

- **M3 - Exceptions**
  - Handle the special cases

- **M4 - GUI**
  - Build an interface for the game & connect the engine

Types of Cards

o **There are 2 types of cards:**

    o **Monsters**: Main cards for playing

    o **Spells**: Extra actions and twists for the rules

o **There are 40 cards in the game**

    o 30 cards are monsters

    o 10 cards are spells

Types of Cards: Monster

o There are **30** monsters in the game

o Each monster has a **name** and a **description**

o Each monster has a **mode:** ATTACK or DEFENSE

o The strength (**power**) of the monster is specified based on the mode

o **Level** indicates if the monster needs any sacrifices. It is a value between 1-8

Card name

Level 2 monster

Description

Attacking power

Defensing power

Type of Cards: Monster Terminology

○ **Summon**: Add monster to the field in ATTACK mode

○ **Set**: Add monster to the field in DEFENSE mode

○ **Sacrifice**: Discard a monster by sending it to the graveyard

Types of Cards: Spell

o There are **10** spells in the game.

o Spells add more **actions** to the game

o **Possible actions include**:

    o Discarding all your cards

    o Adding more power to the monsters
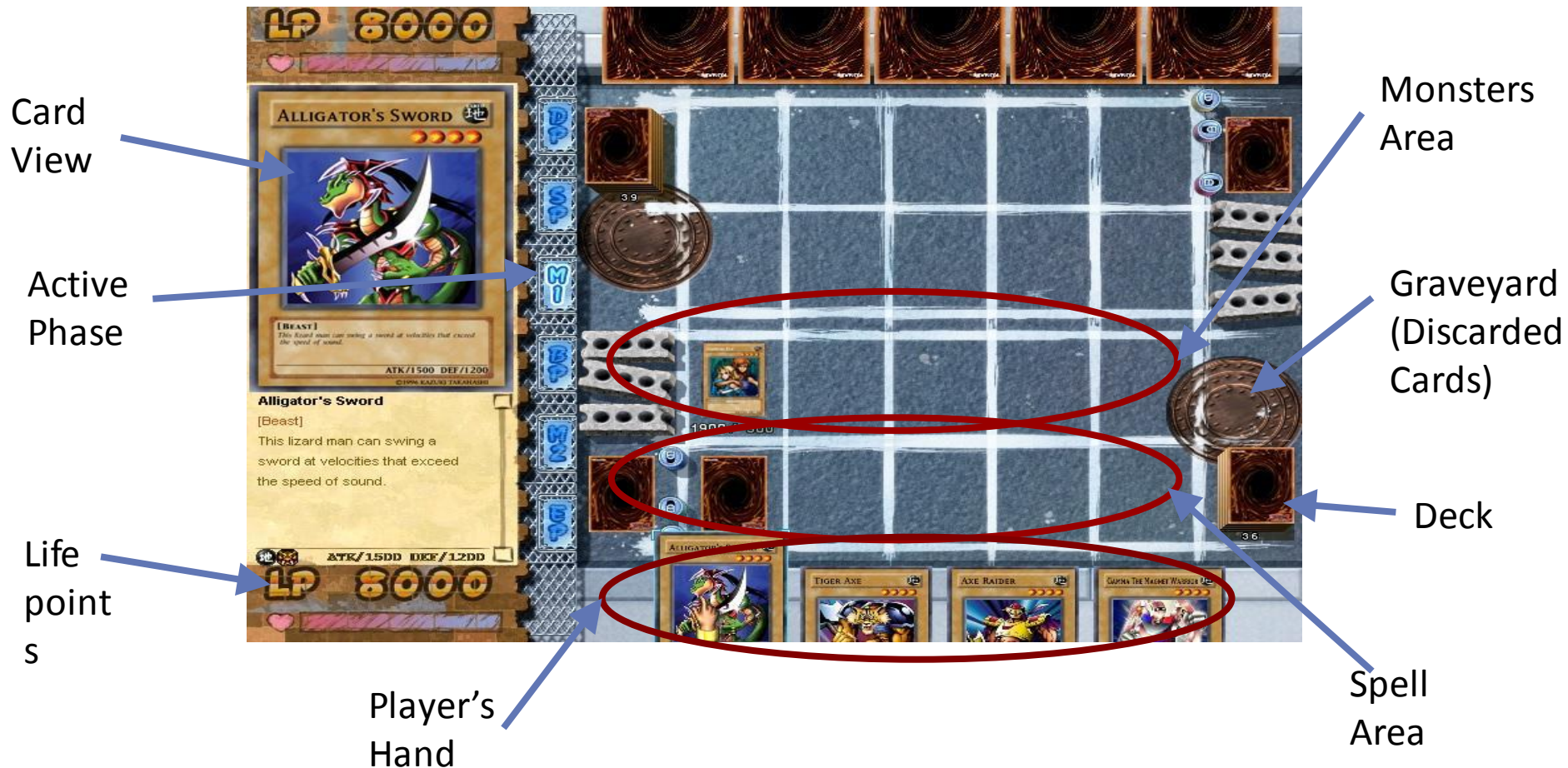
    o Drawing more cards

Card name

Description

Type of Cards: Spells
Terminology

o **Set**: Add spell to the field without activating it. You will activate it later when you need it.

o **Activate**: Use the spell now and then discard it to the graveyard.

Board Structure

Card View

Active Phase

Life points

Player's Hand

Monsters Area

Graveyard (Discarded Cards)

Deck

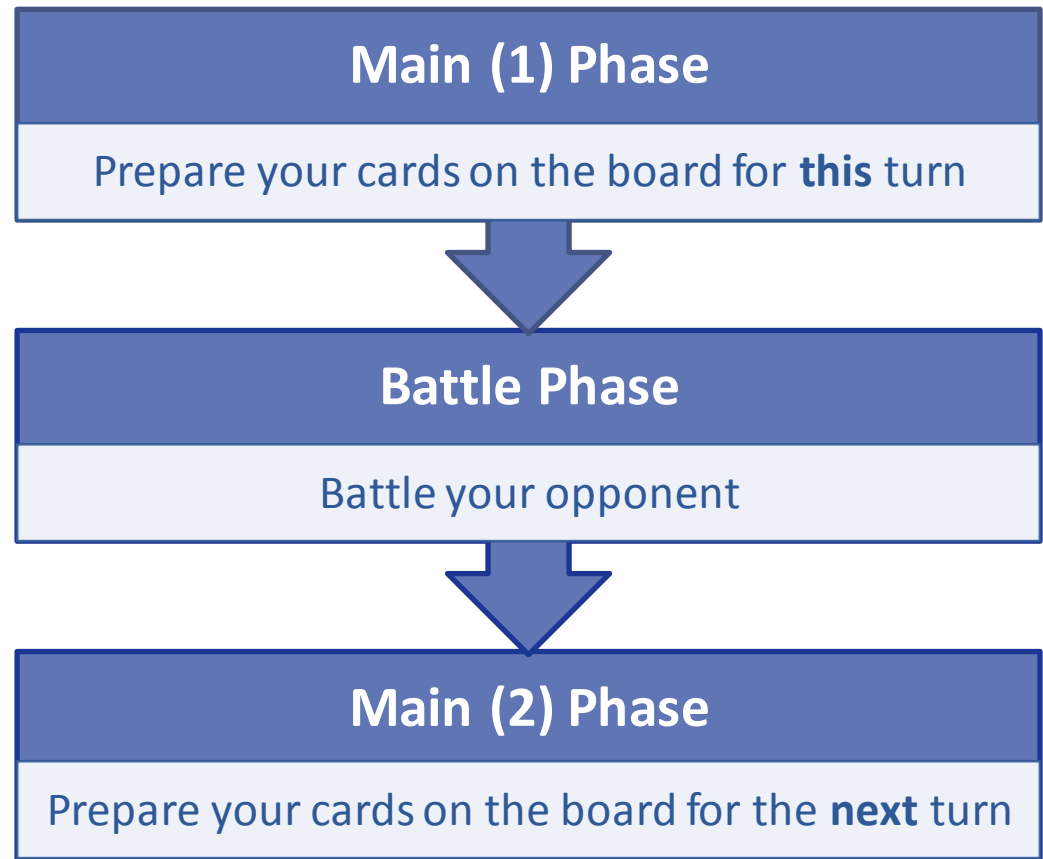Spell Area

How Can I Win?

You win in either cases

1. **Life points:** When your opponent's life points reaches **zero** either by attacking him using your monsters or by spell card effect.

2. **Deck:** When your opponent attempts to draw a card from an **empty deck** (his cards are finished).

How does the Game Start?

1. Each player draws **5 cards** from his deck to his hand.

2. Each player gets **8000 life points** by default.

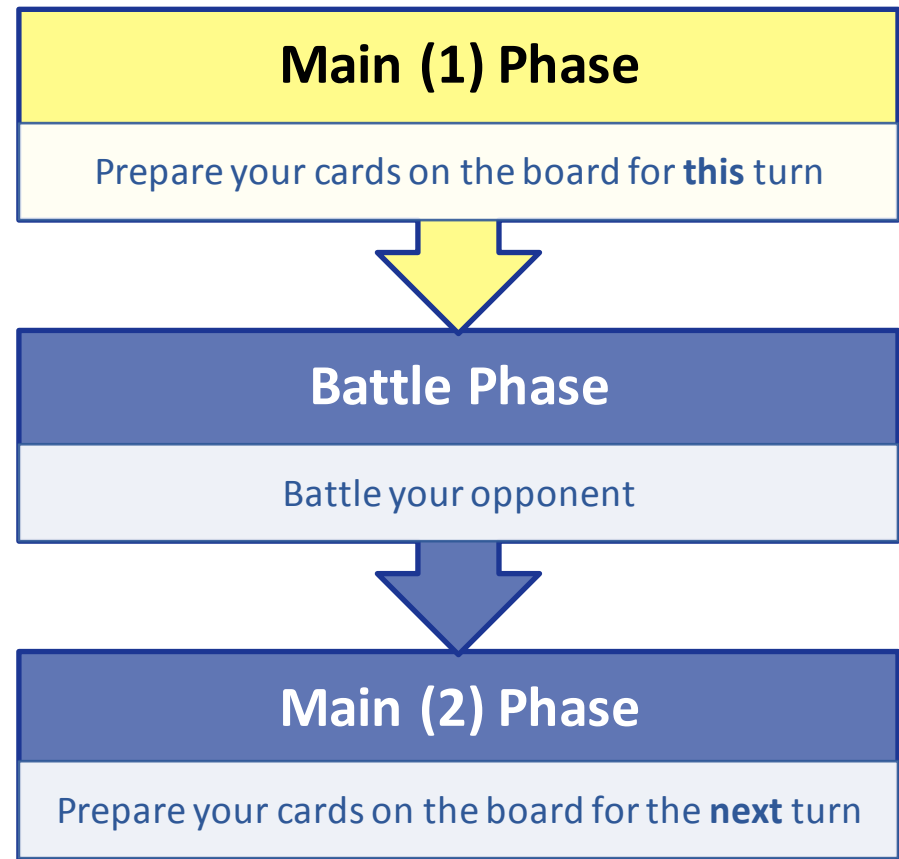3. A player is chosen **randomly** to start the first turn of the duel.

Playing the Turn

- A player starts each turn by drawing **one** card from deck to hand.

- Each turn has **three phases**.

Main (1) Phase

Prepare your cards on the board for **this** turn

↓

Battle Phase

Battle your opponent

↓

Main (2) Phase

Prepare your cards on the board for the **next** turn

Stage (1): Main (1) Phase

- **Objective**: Prepare the needed cards in the Battle phase for this turn

- **Overview**: In this phase you are allowed to:
  - Add monsters to the field from your hand
  - Add/Play spells to the field from your hand
  - Change the mode of the existing monsters in the field

Main (1) Phase
Prepare your cards on the board for **this** turn

↓

Battle Phase
Battle your opponent

↓

Main (2) Phase
Prepare your cards on the board for the **next** turn

Main (1) Phase: Rules for Monsters

Mode: ATTACK

- A player is allowed to play a monster from his hand to the field only **once per turn**.

- Some spell cards allow the player to play a monster from their graveyard (which is not counted in the one monster per turn rule).

Mode: DEFENSE

- You can add monsters to the field only if there are **empty monster slots** in the field
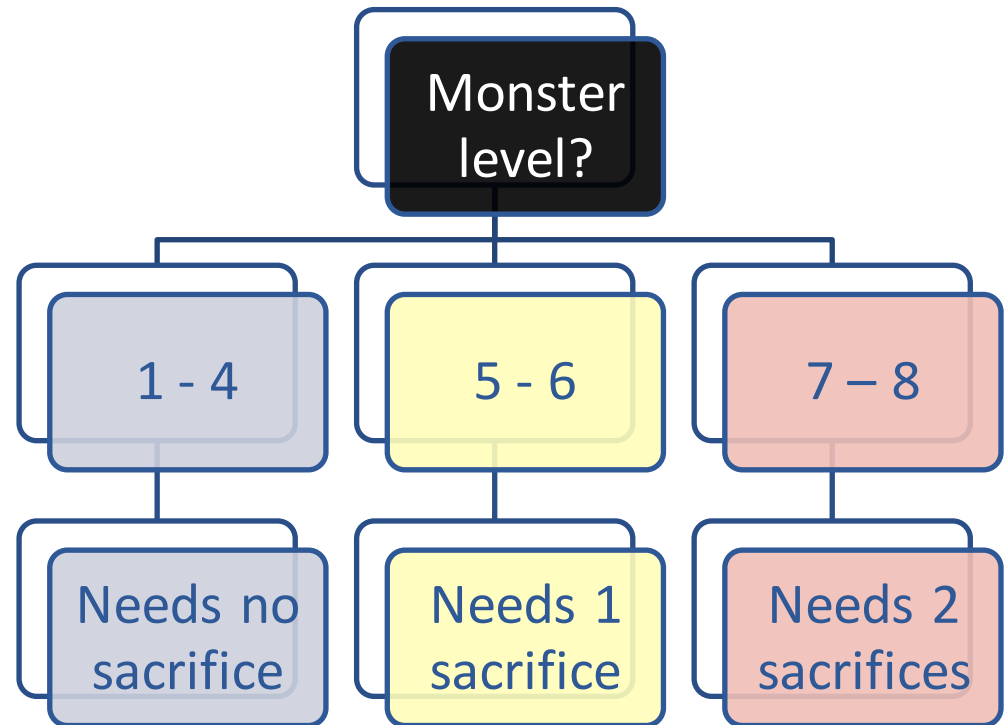
- You should **specify the mode** of a monster (ATTACK or DEFENSE).

Main (1) Phase: Rules for Monsters

- You can **switch** the mode of any monster in the field **only once per turn**.

- The **level** of the monster specifies whether you can play it directly or need to **sacrifice** other monsters from the field.

Monster level?		
1 - 4	5 - 6	7 – 8
Needs no sacrifice	Needs 1 sacrifice	Needs 2 sacrifices

Main (1) Phase: Rules for Spells

- A player can **add as many spells per turn** as possible as long as there is **available slots** in the spell area.

- The spell card could be either **activated** or **set**.

Mode: Activated
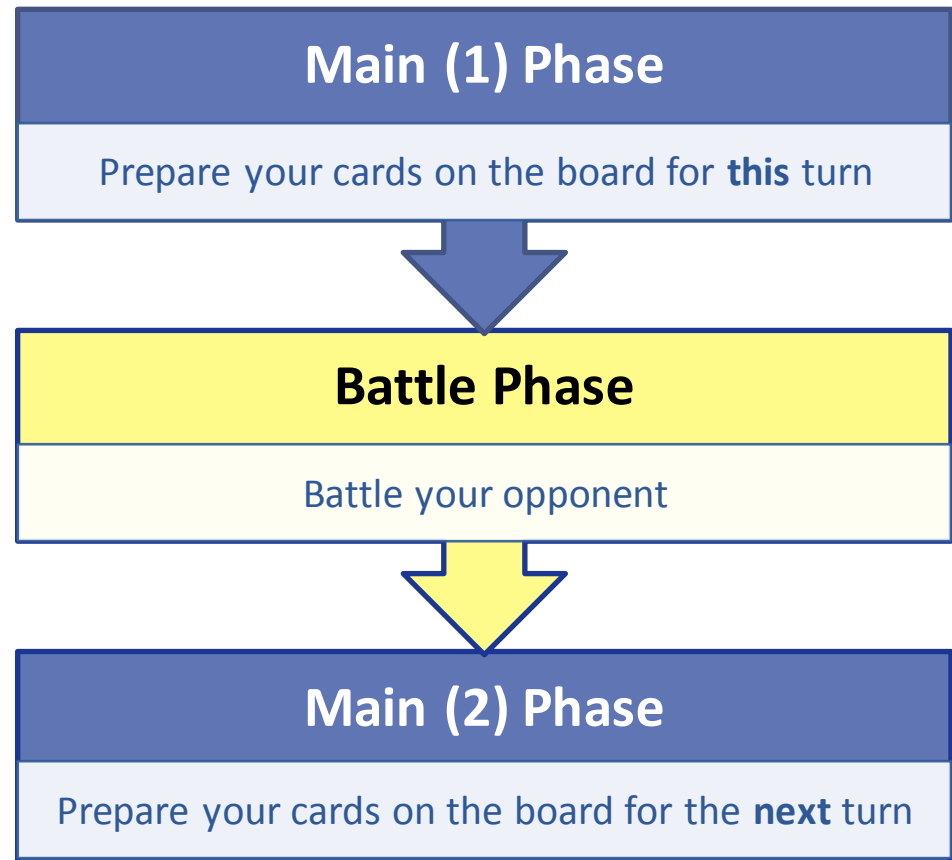

Apply the effect then discard in the graveyard

Mode: Set

The card will be activated in later turns
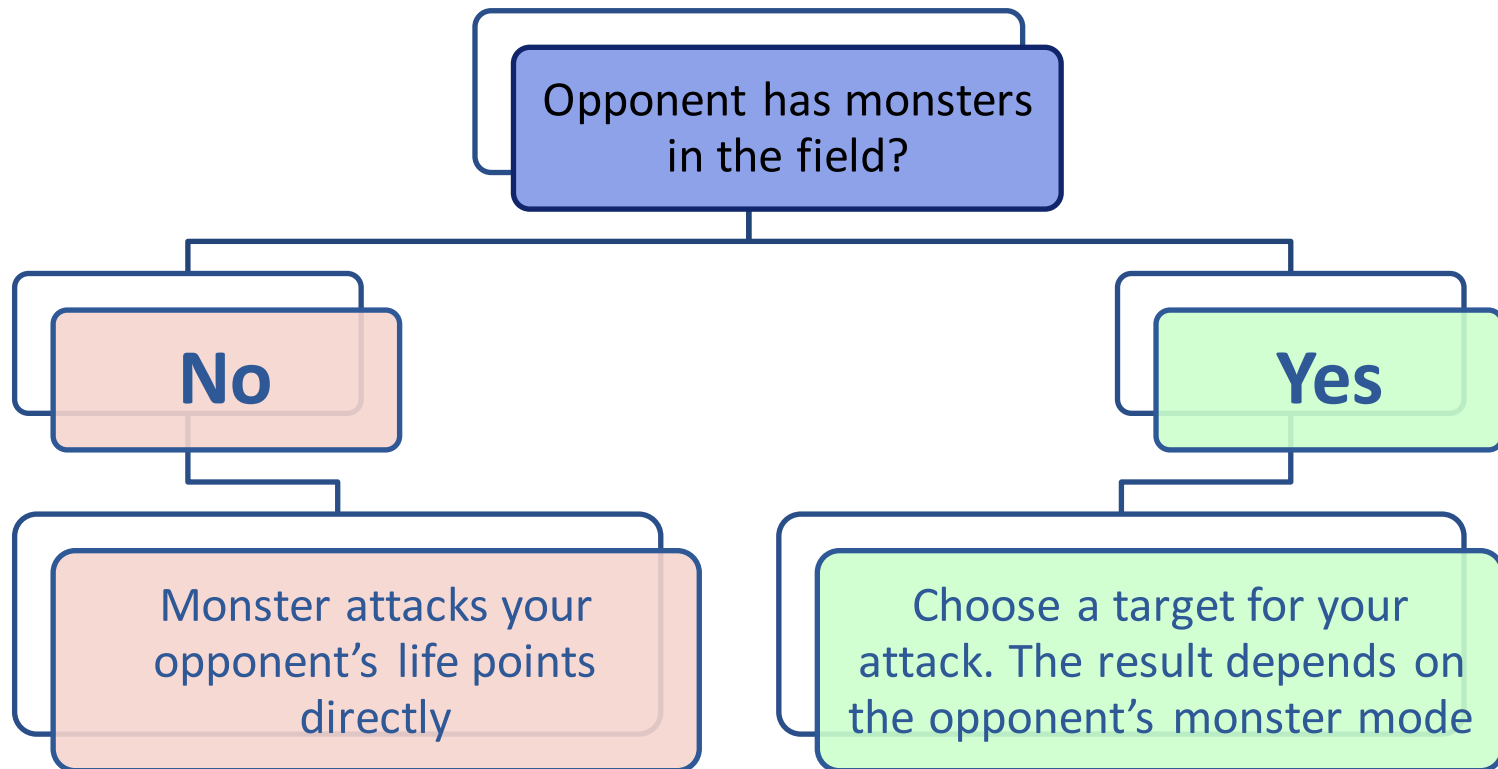
Stage (2): Battle Phase

- **Objective**: A player may attack with his monsters to inflict damage to his opponent's life points and/or destroy his opponent's monsters.

- A player is allowed to attack with all of his monsters that are in attack mode once per monster and each monster attacks separately.

Main (1) Phase
Prepare your cards on the board for **this** turn

↓

Battle Phase
Battle your opponent

↓

Main (2) Phase
Prepare your cards on the board for the **next** turn

Upon attacking your opponent, there are 2 scenarios

Opponent has monsters in the field?

No

Yes

Monster attacks your opponent's life points directly

Choose a target for your attack. The result depends on the opponent's monster mode

Stage (2): Battle Phase
Attack Scenarios: Opponent has monsters

	Case / Effect	Damage to life points	Damage to the monsters
Opponent : ATTACK P(Opp)= ATK power	P(Me) > P(Opp) Your monster is stronger	Deduct difference from Opp	Opp destroyed & sent to graveyard
	P(Me) = P(Opp) Both monsters are strong	--	Opp destroyed Me destroyed
	P(Me) < P(Opp) Your monster is weaker	Deduct difference from Me	Me destroyed & sent to graveyard
Opponent : DEFENSE P(Opp)= DEF power	P(Me) > P(Opp) Your monster is stronger	--	Opp destroyed & sent to graveyard
	P(Me) = P(Opp) Both monsters are strong	--	--
	P(Me) < P(Opp) Your monster is weaker	Deduct difference from Me	--

Stage (3): Main (2) Phase

- **Objective**: Get ready for your opponent's turn

- **Overview**: same actions as main phase 1

  o Playing monsters if the player hasn't already
  o Playing spell cards

Main (1) Phase
Prepare your cards on the board for **this** turn

↓

Battle Phase
Battle your opponent

↓

Main (2) Phase
Prepare your cards on the board for the **next** turn
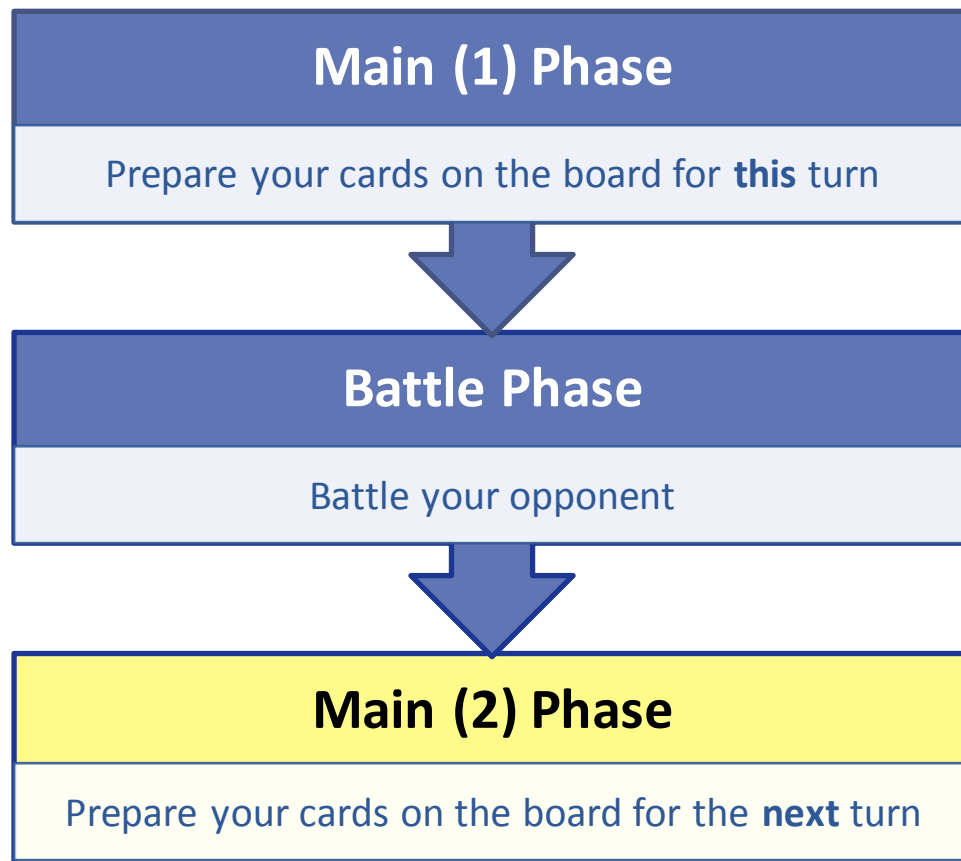
Switching Turns

- A player may choose to **end his turn during any phase** he wishes to, once that is done his opponent's turn starts automatically.

- The opponent **starts by drawing one card** from his deck and going to main phase 1 and so on till a winner is declared.

Game Demo

Watch the video on

http://youtu.be/881FA788yvU

How can I Calculate my Grade ?

- You will have **one grade per milestone**.

- The final grade is calculated from the quiz and the project grade

- A ratio is calculated between the project & milestone grade
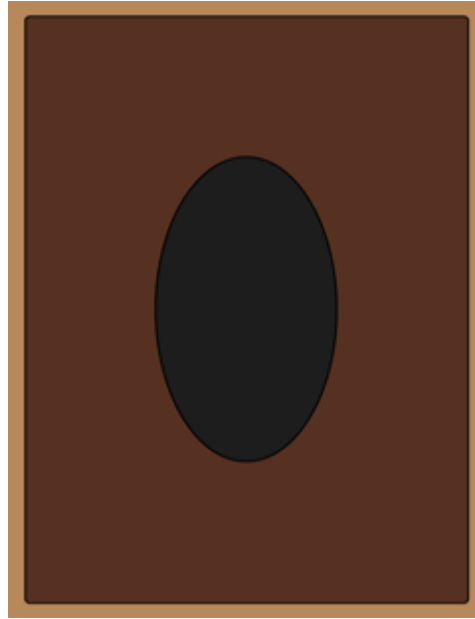
How can I Calculate my Grade ?

```
double ratio= quiz/milestone*100;
double finalGrade=0;



if(ratio>=85)
        finalGrade= milestone;
else if(ratio<85 && ratio>=70)
        finalGrade= (2.0/3)*milestone + (1.0/3)*(quiz/100)*milestone;
else if(ratio<70 && ratio>=60)
        finalGrade= 0.5*milestone + 0.5*(quiz/100)*milestone;
else if (ratio<60 && ratio>=50)
        finalGrade= (1.0/3)*milestone + (2.0/3)*(quiz/100)*milestone;
else
        finalGrade= quiz;
```

How can I Calculate my Grade ?
Examples

Milestone	Quiz	Ratio	Final Grade
100	100	100	100
100	80	80	93.33
100	65	65	82.5
100	55	55	70
100	35	35	35
70	40	57.14	42

Yu-Gi-Oh Rules

Have Fun Dueling ;)

Thank you