CARDS OF WILD

CSC 631/831 Multiplayer Game Development

Team

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Revision History

Revision Number	Name	Date
1.0	Design Documentation	3/12/2016
1.1	Formatted and added some changes	3/13/2016

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1. Executive Summary and Concept

Cards of Wild is an online collectible card game where two users play against each other in order to win credits to build their ecosystem and play other games in the World of Balance universe.

All players start out with a basic deck comprised of 30-50 cards of the species (from the World of Balance universe). The cards are divided into various categories; herbivores, carnivores, omnivores, food and weather/disaster - each having their own traits. Herbivores, carnivores and omnivores, from this point forward referred to as animal cards, shall have an Attack and Health value, which are unique to each. All cards have a cost represented by Mana. To win, player needs to kill opponent's Tree of Life.

At the start of a match, the players are given a deck of cards, from which they are dealt 3 cards into their hand. Each player is represented by a Tree of Life which they must protect in order to win. The player needs to attack the opposing player's tree until the opposing player's tree has a health value of 0 or less. Players need to drag their cards into their own field/gaming area to start playing during their turn. They have to drag the card on top of opponent's card to attack.

Cards of Wild is turn based, each player will take turns summoning cards into the playing field and using previously summoned cards to attack the opposing player. At the start of each turn, players are dealt a single card into their hand and is given 1 added point of Mana. Players shall summon cards into the playing field based on their available Mana. Summoned cards shall have to wait until the next turn to be used by the player, unless it is a food card or Environment Card which is applied to either a single card or the playing field, respectively.

These are some existing set of rules for playing the game:

1. Herbivores can only attack the Tree of Life.
2. Carnivores can only attack other animal cards and protect the tree of life if it's Health is greater than the attacking Herbivore.
3. Omnivores can attack both Tree of Life and other Animal cards.
4. Attack is only possible when our chosen card has sufficient Mana and the card is already drawn to staging area from previous turn. Mana is increased in each turn.
5. If opponent attacks our card/tree, its health value is decremented according to attack points of opponent's card.

These are some new set of rules which we are planning to add:

1. Herbivores can only attack the tree but only if their health is greater than the attack value of the strongest Carnivore previously summoned by the opposing player. If the herbivore's health is greater, it still takes damage but attacks the opposing player's tree and carnivore card. To encourage the use of all card types, carnivore now protect the tree of life if it is capable enough.
2. Food Cards apply a passive buff to the animal that eats that category of food. It will enhance our cards' (which are already in field) health and attack values. They can be either meat card or plant based.
3. Environment/weather/disaster Cards cause a game wide passive effect that affects both players forcing players to change strategies.
4. If we attack opponent's animal according to prey-predator relationship of World of Balance, we will get bonus plant card (as a result of decaying material). This will encourage players to learn the ecosystem.

2. Specs

Functional Specs

1. Players shall be able to choose from his/her bought decks.
2. Player shall enter battle scene after deck selection scene.
3. Cards are randomly dealt to players.
4. Players shall have a tree of life.
5. Players shall be able to drag and drop cards into the playing field.
6. Players shall be able to drag and drop cards onto either the opposing player's summoned cards or tree of life.
7. Players shall be able to press and hold to enlarge cards in their hands.
8. Players shall be able to tap on their hand to bring them forward and centered.
9. Players shall be ranked based on their Win/loss ratio.
10. Turn indication shall be clear.
11. Indication of unusable cards shall be clear.
12. Food cards shall buff the card it is used on.
13. Environment cards shall cause a game wide effect on all summoned cards.
14. Game shall end once one player's tree of life has 0 or less health or player has surrendered.
15. Each win shall increase credit scores of the winner.
16. Player shall be able to buy new decks from existing credits.

Non-Functional Specs

1. The game shall run on displays with minimum dpi of 300.
2. The game shall play on the android platform.
3. The game shall provide better user experience by improving graphics.
4. The game shall provide more intuitive experience to players by including sound and better animations.

3. Use Cases

Deck Selection:
Mark is on his android phone and wants to select the birds deck to use when he faces his friend online. He creates a game from the World of Balance Lobby and he selects his preferred deck. His friend wants to join this game but he haven't bought any decks so he is playing with default deck. When both hits 'join' button after selecting their preference, they enter in the battle scene where it is Mark's turn.

Viewing stats and descriptions:
Mark doesn't have great vision and has 4 cards in his hand, he wants to read the description of his Lion Card. By default, his hand is in the bottom right corner and the details are a little hard to see, he taps on his hand to bring them centered and larger, but Mark still can't clearly read it. He presses and holds over a card and the card enlarges even further allowing him to see the Health, Attack, Mana cost, and description text clearly.

Herbivore Attacking Tree:
Mark has a summoned herbivore card(eg rabbit) with 1 Attack and 2 health, his friend has a summon carnivore card with 3 attack and 2 health(eg eagle). Mark didn't read the game rules and tries to attack his friend's tree of life. His friend's eagle blocks the rabbit and "kills it" because the carnivore has more attack than the herbivores health.

Playing a Food Card:
Mark has a Food card in his hand and a summoned Lion card. He drags his food card onto the lion. His Lion card now has increased attack.

Playing according to food chain:
Mark has a 'cat' card on his field and he notices his friend has 'rat' card. He knew that cat eats rat, so he tries to attack rat and as a result he gets bonus plant card.

Hiding the Back to Lobby and Surrender Buttons:
Mark is on the 18 bus and is nearing the StoneStown stop, he is in the middle of a match and doesn't like to rage quit, so he must surrender. The battle scene doesn't have a "surrender" button, but he notices a button with a gear on it. He taps that button and is prompted with 2 buttons, Back to Lobby and Surrender, he taps surrender and both players are prompted with a Victory or defeat image with a back to lobby button.

4. Team Requirements

Priority 1:

1. Content/UI
    a. New card designs
        i. Food cards
        ii. Environment cards
    b. New designs for turn indications
        i. Clearly define before and during turn
    c. New Mana crystal design
        i. Numerical and Visual
        ii. Update number of visual cues based on mana count
    d. New Background for game board
    e. Particle effects for suggestion and indicators
        i. Useable cards
    f. Center Tree design
        i. Move tree of life to center
        ii. Move hand to bottom right
        iii. Tapping hand centers and enlarges
        iv. Press and Hold enlarge further
    g. Port from click-based actions to drag and drop
2. Client
    a. Herbivores can only attack tree if Strongest Carnivore doesn't "kill it"
        i. If health > attack of Carnivore it attacks both the carnivore and tree
    b. Food cards that buff animal cards
    c. Environment cards that cause game wide effects
    d. Apply effects for attacking according to the food chain
3. Server
   Creating following requests and responses
    a. Score - adding scores when someone wins a game, calculating rank of the player at the end of each game, getting top list of players
    b. Food/weather card - Communicating effects of food cards played to other online player
4. Database
    a. Database shall have table to store the type (herbivore, carnivore or omnivore), attack, defense and health values of all animal cards.
    b. Database shall have table to store the type and description of all food and environment special cards.

c. Database shall have table to store all animals that can benefit from each food card and the buff value for each animal
d. Database shall have table to store the benefit or cost values of each environment card and the type of animals or plant it applies to.
e. Database shall have table to store each completed games information, including the game id, player ids, start time, end time, winner id and score.
f. DAO classes shall be created for each table to facilitate SQL queries. DAO classes shall provide all functionalities necessary for the game, including create, read, update and delete operations.

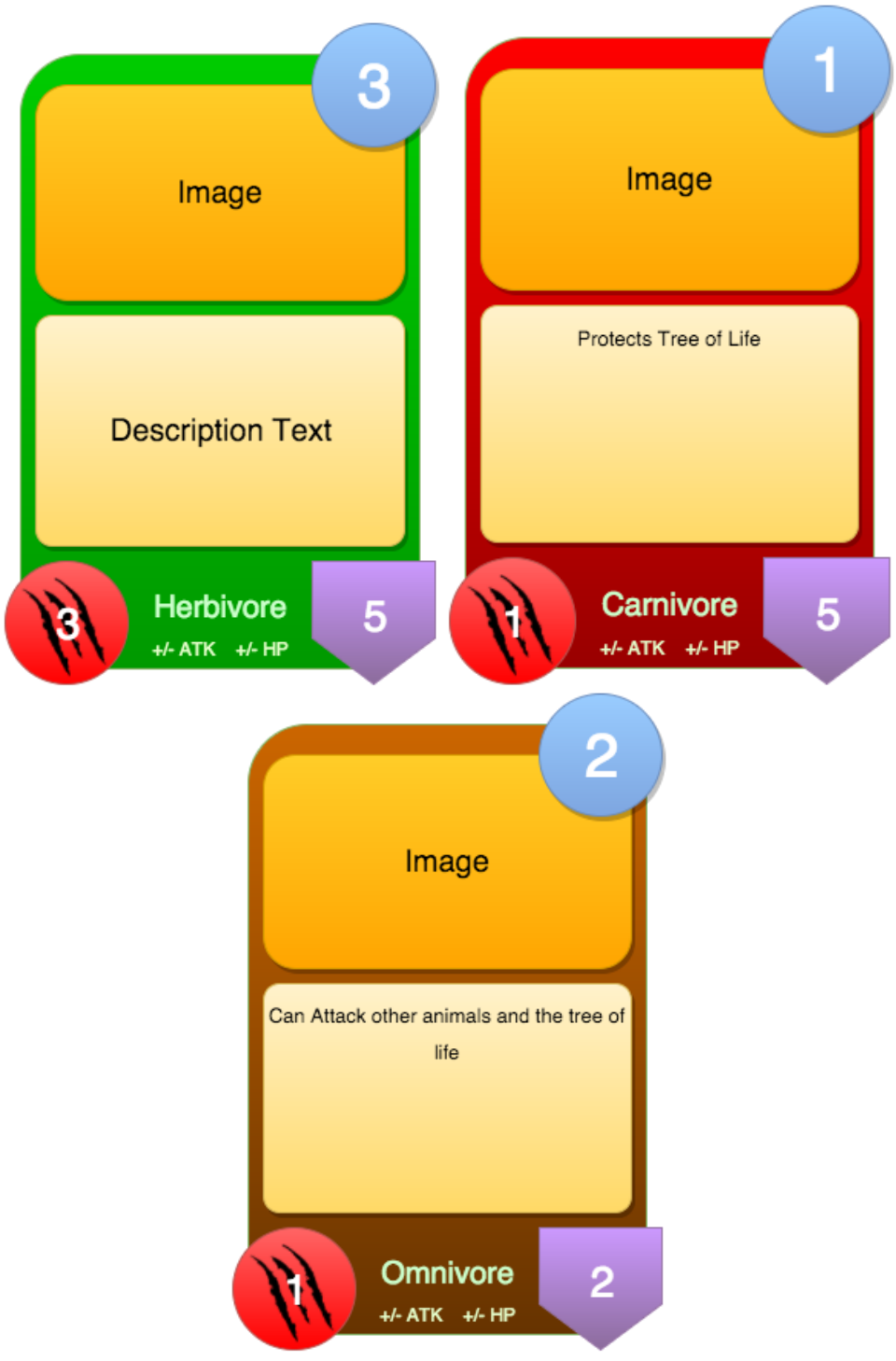
5. Integration
    a. Organization of Code.
    b. Setting up coding standards.
    c. Maintain VCS for World of Balance Game.

Priority 2:

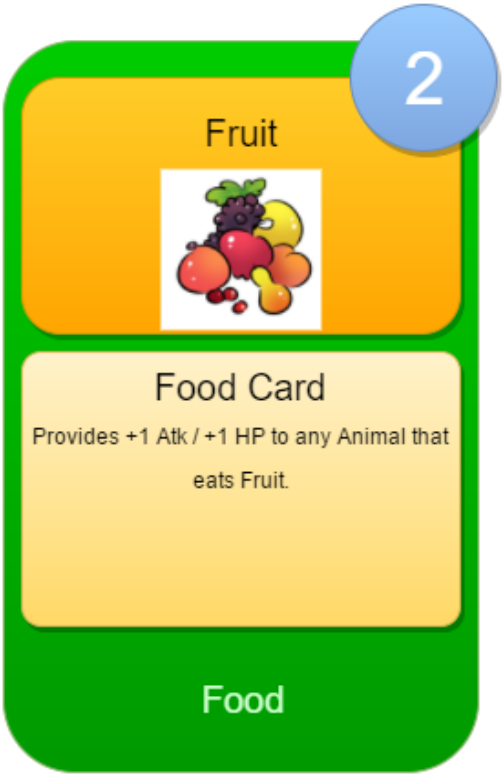
1. Content/UI
    a. Deck Selection Scene
    b. Splash screens
    c. Loading screens
    d. Particle effects for suggestion and indicators
        i. Hints for Food Chain
2. Client
    a. Time Limit per turn, force end turn if passed
    b. End game if any user disconnects
    c. Players start at Splash screen then deck selection instead of battle scene
3. Server
    a. Deck buying - Creating new type of decks, building protocol for buying new deck from existing credit and loading cards from chosen deck
4. Database
    a. Optimize database tables and create appropriate indexes to speed up access
    b. Preserve integrity of database even when player drops out or game session ends prematurely.
5. Integration
    a. Integrate Clash of Species and Cards of Wild Rank System.

5. UI Mockups

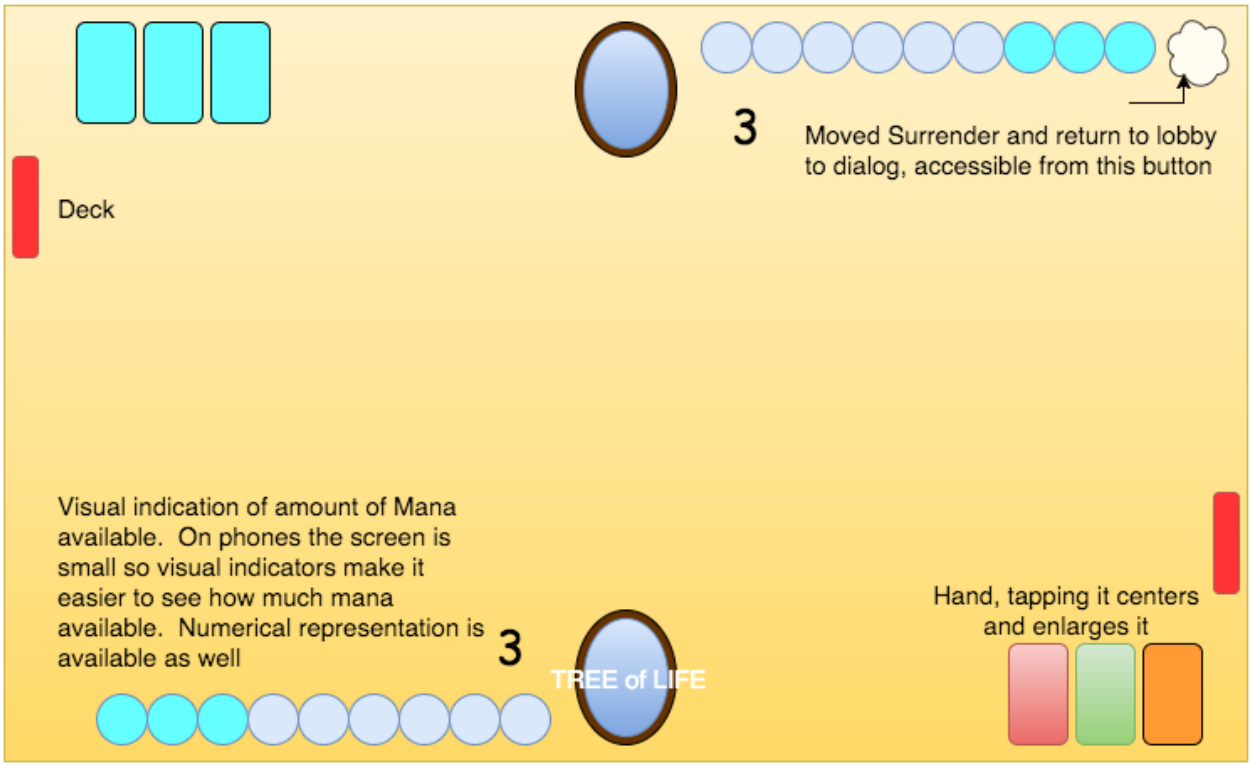
Animal Cards:

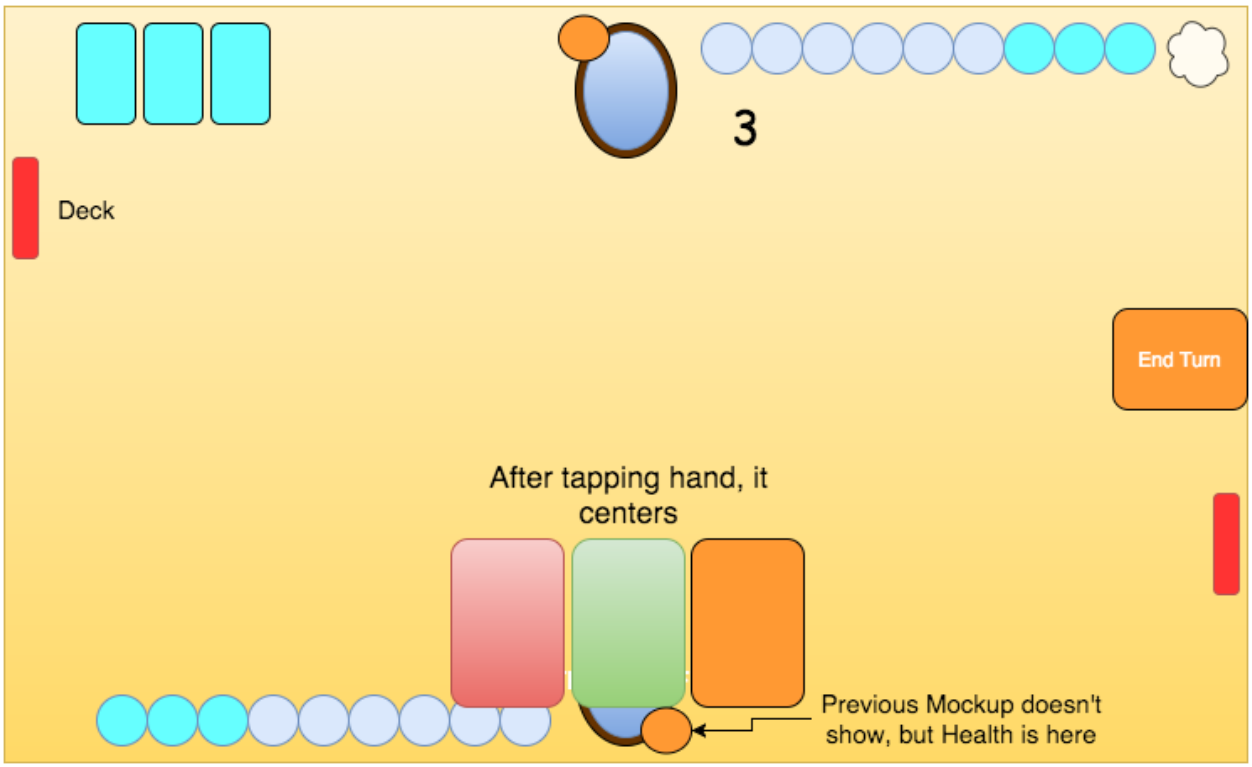


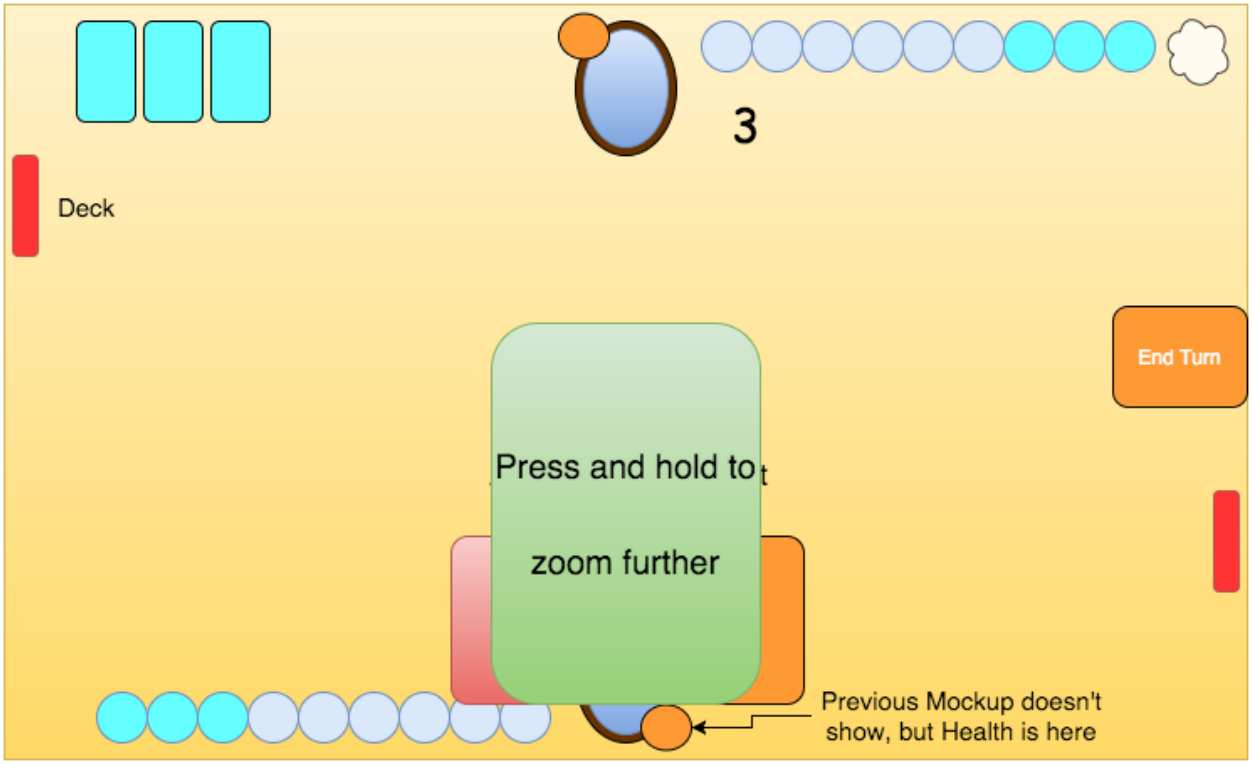
Food Card:


2
Fruit
Food Card
Provides +1 Atk / +1 HP to any Animal that eats Fruit.
Food

Game Board:


Deck
3
Moved Surrender and return to lobby to dialog, accessible from this button
Visual indication of amount of Mana available. On phones the screen is small so visual indicators make it easier to see how much mana available. Numerical representation is available as well
3
TREE of LIFE
Hand, tapping it centers and enlarges it


Deck
3
End Turn
After tapping hand, it centers
Previous Mockup doesn't show, but Health is here


3
Deck
End Turn
Press and hold to
zoom further
Previous Mockup doesn't
show, but Health is here

6. Milestones

Details	Date/time
Concept presentation	3/10/2016
Milestone 1: Design document	3/13/2016
Understanding of existing code structure Making existing code work with git and localhost	3/22/2016
Adding following components: Server/client/db: Adding new protocol for food and weather cards and adding relevant DAO UI: Changing existing cards and background assets and restructuring screen	4/1/2016
Adding following components: Server/client/db: Adding new protocol for scorecard and deck buying & adding relevant DAO UI: Adding glow and turn indicator, new mana indicator, tap to zoom, drag & drop cards	4/15/2016
Milestone 2: Working game with added features and changed UI	5/1/2016
Adding features of food chain Testing and porting to Android Fixing bugs Integration with overall team	5/15/2016
Milestone 3: Working game on mobile	5/16/2016
Milestone 4: Final presentation, documentation and submission	5/17/2016

7. Glossary:

World of Balance: The main gaming environment where users come and login to play different games. Users will get some credits initially when they login and they can earn more by playing different games.

Herbivorous: Animals that feeds on plants.

Carnivorous: Animals that feeds or animals

Omnivorous: Animals that feeds on plants or animals.

Buff: Something that affects strength of game player

Mana: Term associated with cards' cost indicating how many and which cards can a player play in his/her turn.

Tree of Life: A tree image representing player.

Deck: Limited number of random cards assigned to a player.