

Vietnamese National University HCMC  
**International University**



**PROJECT REPORT**

**Pokemon Game**

**Group 22**

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**Course:** NetCentric Programming - IT096IU

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## I. Introduction

The project's goal is to provide practical experience in network application development by creating, building, testing, and evaluating a text-based Pokémon game called "PokeCat n PokeBat." This project focuses on the practical application of networking and communication protocols, notably TCP, at the programming level with Go Lang.

## II. Architecture

### 1. Server

The architecture of the "PokeCat n PokeBat" game is intended to supply multiplayer experience by efficiently handling connections, game state, and data persistence. Each component and module is meticulously designed to provide smooth interactions between players and the game environment, resulting in a captivating and active experience while playing the game.

#### 1.1 Key Components

##### 1.1.1 Server

- **Network Listener:** Listens for incoming connections via TCP on a certain port to facilitate client connections.
- **Connection Handler:** Manages new client connections and keeps track of active connections.
- **Message Channels:** Uses a variety of channels to handle asynchronous network communication, game events, and player interactions.
- **Game Logic:** Handles key game elements including combat logic, Pokémon choosing, experience computations, and player updates.
- **Data Management:** Loads and stores game data from JSON files, including the Pokédex and player profiles.

##### 1.1.2 Player

- **The Connection Interface:** players connect to the server, provide their player identity, and receive messages from the server.
- **Input/Output Handler:** Handles user inputs as well as outputs, making it easier to choose Pokémon and battle them.

#### 1.2 Functional module

Connection Management	<b>Network Listener:</b> Listens for new connections.
	<b>Connection Handler:</b> Receives new connections and updates them to the current connections list.
Player and Pokémon Initialization	<b>Load Pokedex:</b> Loads Pokemon data

	from JSON files.
	<b>Create Player:</b> Initializes new player profiles with starter Pokemon.
Battle System	<b>Battle Execution:</b> Manages turn-based battles between players.
	<b>Damage Calculation:</b> Determines damage depending on attack category and Pokemon behaviors.
Catching System	Manage the world, broadcast updates, control mobility, and capture Pokémon.
Message Handling	<b>Broadcast Messages:</b> Sends notifications to all or particular players.
	<b>Read and Write Messages:</b> Handles interaction between the server and players
Data Persistence	<b>Load and Save Players:</b> Manages the process of loading and storing of player profiles as JSON files.
	<b>Catching System:</b> Check the details; if the gamer is new, set up an account for them with empty pokemonlist. The player's Pokélist may hold up to 200 collected Pokémon. Avoid duplicating player
	<b>Battle System:</b> Check the details; if the gamer is new, set up an account for them with three basic Pokémon. Avoid duplicating player

### 1.3 Data Structure

- **Pokemon:** Individual Pokémon are represented by their name, point value, HP, attack, protection, special threat, special defense, speed, category, and rank.
- **Player:** Displays a player's name and a list of caught Pokémon.
- **Participant:** A player taking part in a combat, including their current Pokémon, turn count, and network connection.

- **Message:** Contains messages sent amongst the server and the players.
- **World:** Shows the game world, recording player movements on the map using a string (key) as positions and the player as the value.

## 2. Player

The player serves as a straightforward client program for the multiplayer Pokémon combat game. Its architecture is focused on maintaining a reliable network connection, controlling player inputs, and facilitating real-time communication with the server. A combination of goroutines as well as synchronization techniques guarantees that the client can manage several concurrent activities, resulting in a smooth and dynamic gaming experience.

### 2.1 Key Components

#### 2.1.1 Network connection

- **Connection Establishment:** Sets up a TCP connection to the game server.
- **Message Sending:** Sends player inputs (such as names and game instructions) to the server.
- **Message Receiving:** Listens for and analyzes messages sent from the server.

#### 2.1.2 Concurrency management

- **Goroutines:** Uses goroutines to manage concurrent reading from and sending to the server.
- **Synchronization:** Uses a mutex (`consoleLock`) to ensure that console output is thread-safe and does not overlap between reading and writing operations.

### 2.2 Functional module

Connection Management	<p><b>Establish Connection:</b> Uses <code>net.Dial</code> to connect to the server on a specified port (<code>localhost:3012</code>).</p> <p><b>Connection Handling:</b> Manages the sending of the player's name and subsequent messages to the server.</p>
Relationship between Message and Players	<p><b>Read Player Name:</b> Prompts the player to enter their name and sends it to the server.</p> <p><b>Send Player Inputs:</b> Continuously reads player inputs from the</p>

	console and sends them to the server.
Message Handling	<p><b>Receive Messages:</b> Uses a separate goroutine to listen for messages from the server.</p> <p><b>Display Messages:</b> Prints messages to the console in a thread-safe manner using a mutex (<code>consoleLock</code>).</p>

## 2.3 Data structure

- **Pokemon:** Represents the framework of a Pokémon, including properties like name, experience points, stats, type, and level. Although specified, it is not used by the `player.go` but is necessary for the whole game architecture.
- **Player:** Shows a player's name and a list of Pokémon. Similar to `Pokemon`, it is specified but not used directly by the `player.go`.

## 3. Crawler

### 3.1 Main Dependencies

- **chromedp:** Used for navigating web pages and fetching HTML content.
- **goquery:** Used for parsing HTML documents and extracting data.
- **net/http:** Used for making HTTP requests.
- **encoding/json:** Used for encoding the collected data into JSON format.

**Pokemon Struct:** Defines the structure of the Pokémon data.

```
type Pokemon struct {
    Index    string `json:"index"`
    Name     string `json:"name"`
    Exp      int    `json:"exp"`
    HP       int    `json:"hp"`
    Attack   int    `json:"attack"`
    Defense  int    `json:"defense"`
    SpAttack int    `json:"sp_attack"`
    SpDefense int   `json:"sp_defense"`
    Speed    int    `json:"speed"`
    TotalEVs int    `json:"total_evs"`
}
```

```

Type      []string `json:"type"`
Description string  `json:"description"`
Height    string  `json:"height"`
Weight    string  `json:"weight"`
ImageURL  string  `json:"image_url"`
}

```

### 3.2 Main Functions:

- **fetchMainPageHTML**: Fetches the HTML content of the main page.
- **fetchPokemonPageHTML**: Fetches the HTML content of individual Pokémon pages.
- **parseMainPage**: Extracts Pokémon names and URLs from the main page HTML.
- **parsePokemonPage**: Extracts detailed information about a Pokémon from its page HTML.
- **fetchExpAndImage**: Retrieves EXP values and image URLs from Bulbapedia.
- **fetchPokemons**: Orchestrates the fetching and parsing of all Pokémon data.

### 3.3 Main Workflow:

- Set up a headless Chrome instance using chromedp.
- Fetch and parse the main page to get the list of Pokémon.
- Iterate through each Pokémon URL, fetch and parse the Pokémon details.
- Fetch additional data (EXP and images) from Bulbapedia.
- Write the collected data to a JSON file.

## III. Format JSON file

### 1. Player.json

- Comprising a collection of player objects, each representing a participant in the game. Each player object contains the player's name and a list of the Pokémon they own.
- Player includes:

Field	Type	Description
name	string	Name of the player
pokemon_list	[]Pokemon	List of Pokemon owned by the player

- In pokemon list

Field	Type	Description
index	string	Identifier for each Pokemon uniquely
name	string	Name of the Pokemon
exp	int	Experience points of the Pokemon
hp	int	Hit points
attack	int	Attack stat
defense	int	Defense stat
sp_attack	int	Special attack
sp_defense	int	Special defense
speed	int	Speed stat
total_evs	int	Total effort values (EVs)
type	[]string	Types of the Pokemon (ex: "fire")
description	string	Description of the Pokemon
height	string	Height of the Pokemon
weight	string	Weight of the Pokemon
image_url	string	URL to the image of the Pokemon
level	int	Level of the Pokemon
accum_exp	int	Accumulated experience points
deployable	bool	Indicates if the Pokemon can be deployed in battle
EVPoints	int	Effort value points of the Pokemon

## 2. Pokedex.json

- Includes a list of all accessible Pokémon in the game, each displayed as a Pokémon object. This is a reference for all Pokémon traits.

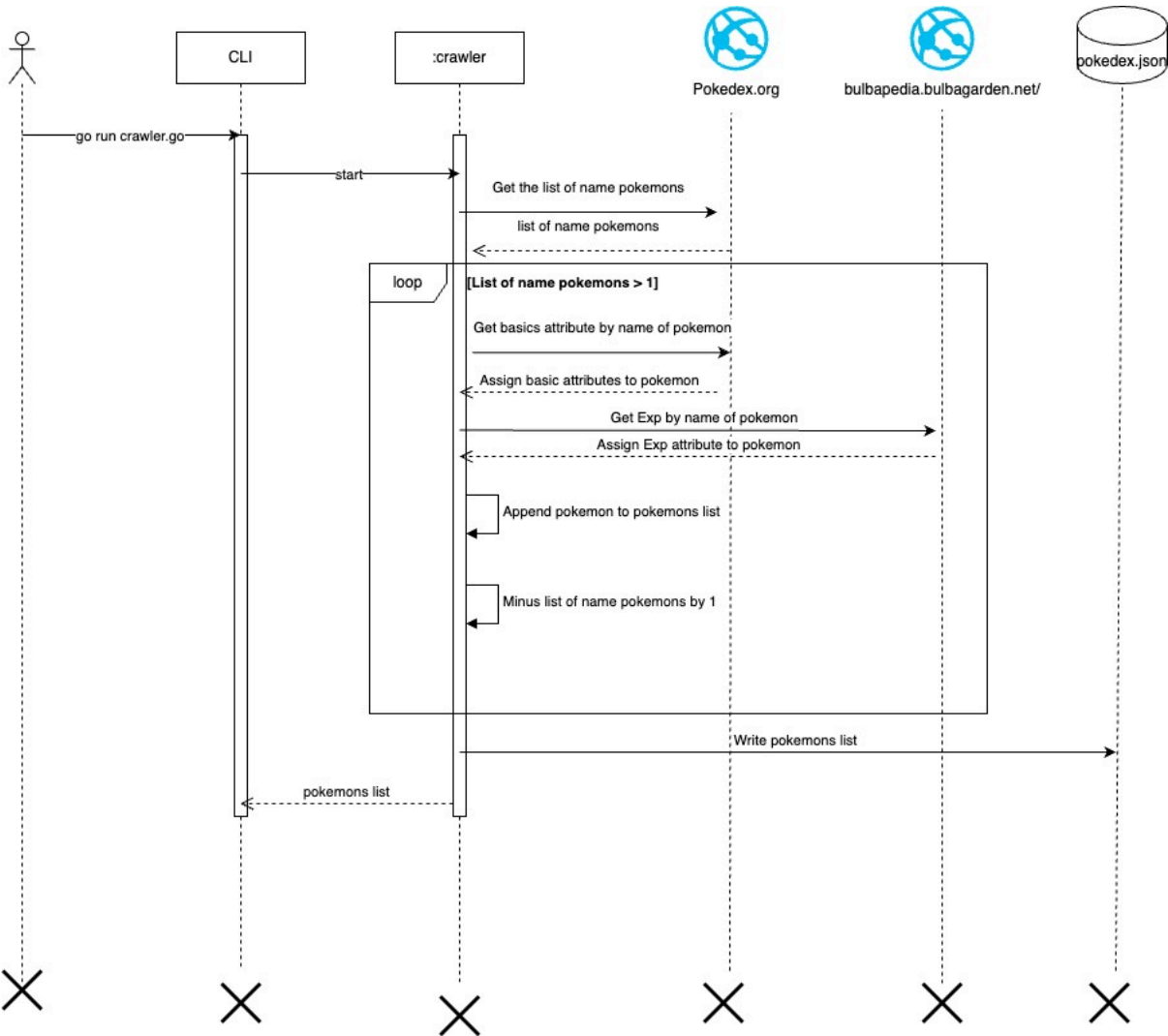
-

Field	Type	Description
index	string	Identifier for each Pokemon uniquely
name	string	Name of the Pokemon
exp	int	Experience points of the Pokemon
hp	int	Hit points
attack	int	Attack stat
defense	int	Defense stat
sp_attack	int	Special attack
sp_defense	int	Special defense
speed	int	Speed stat
total_evs	int	Total effort values (EVs)
type	[]string	Types of the Pokemon (ex: "fire")
description	string	Description of the Pokemon
height	string	Height of the Pokemon
weight	string	Weight of the Pokemon
image_url	string	URL to the image of the Pokemon

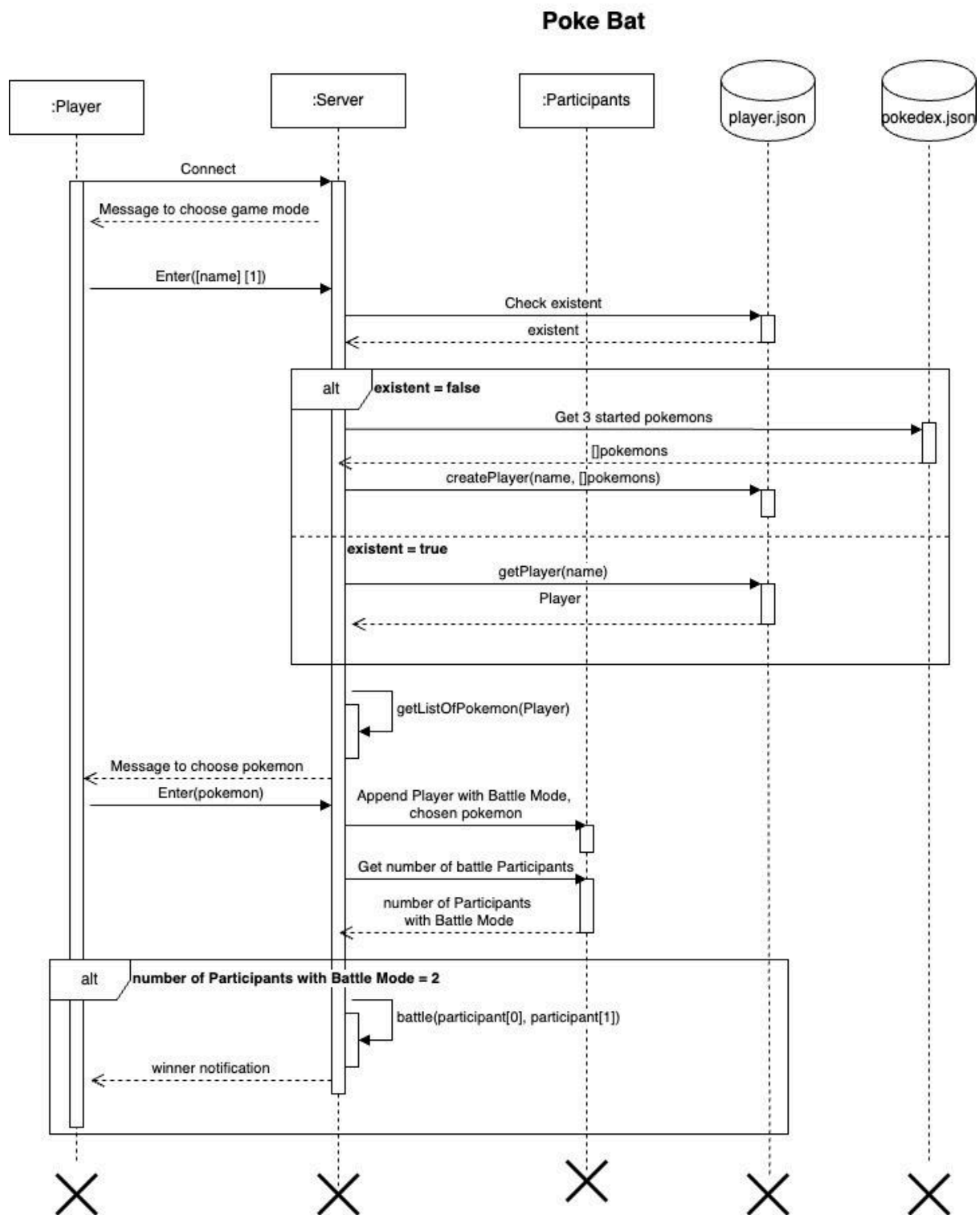


IV. Sequence Diagrams

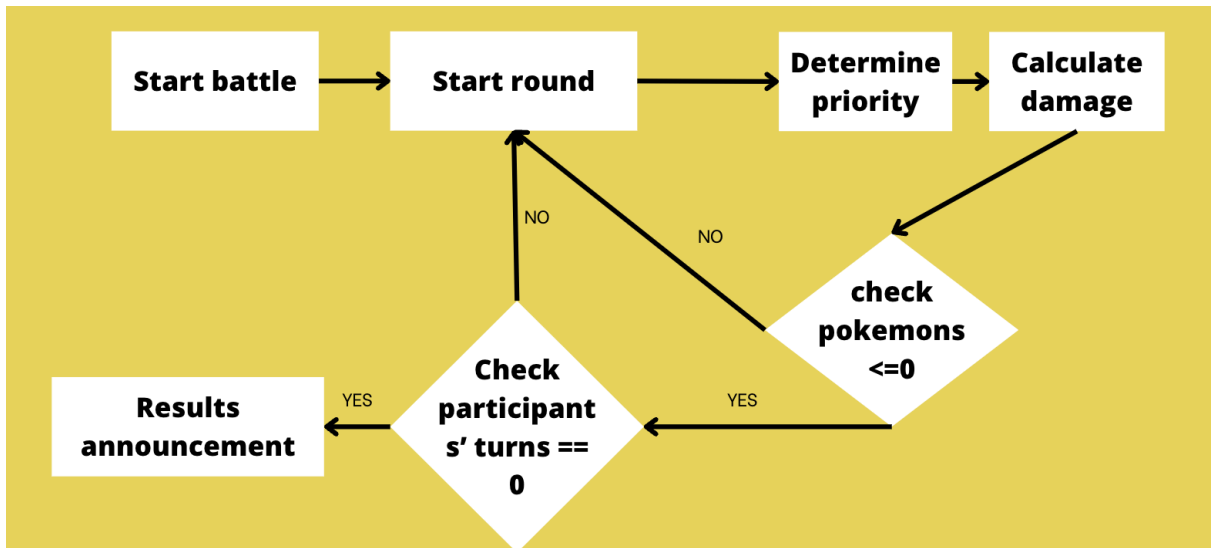
Poke dex



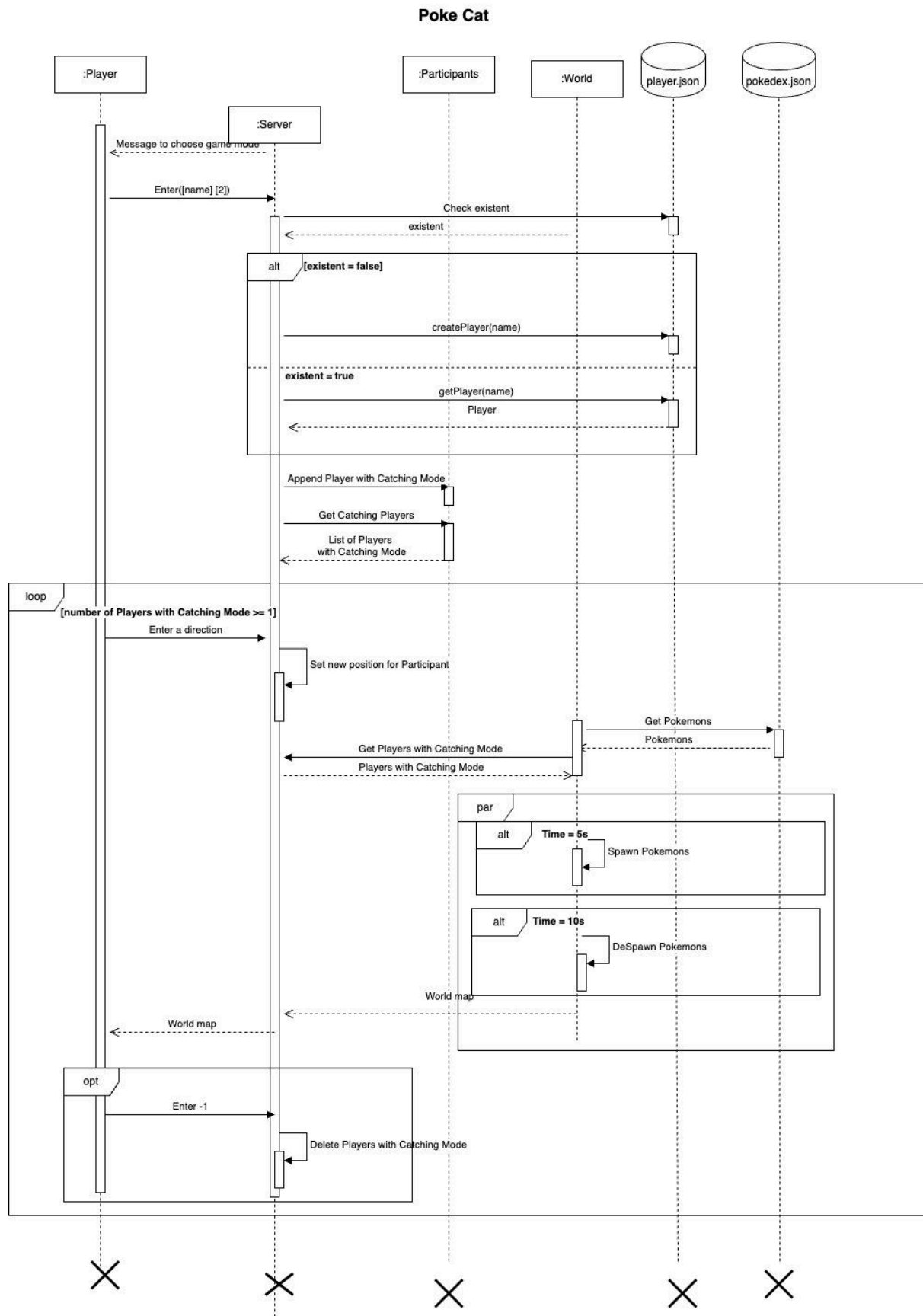
## Poke Bat:



More detail about battle function



# Poke Cat:



## V. Instruction and Result

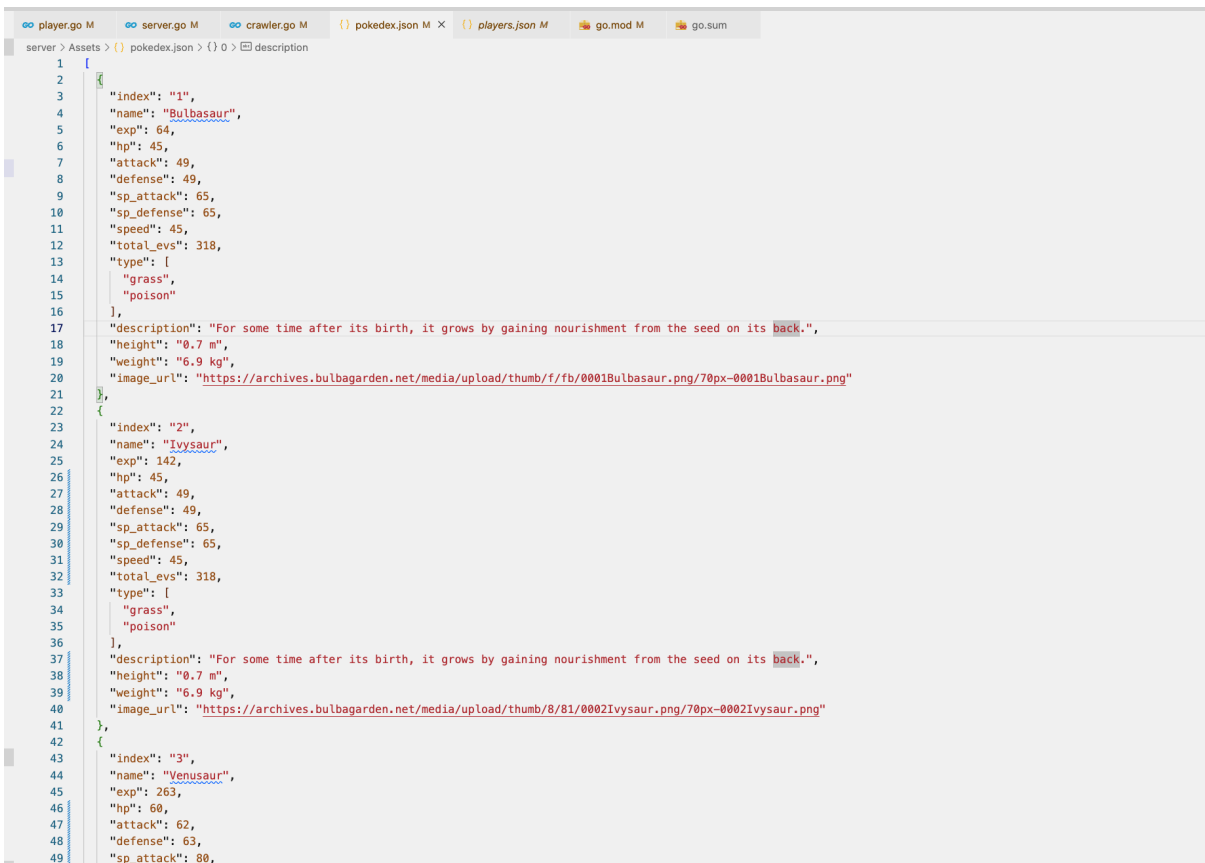
In each part, you should terminate and refresh your command line interface by pressing CTRL + C in server side, and player side.

### 1. Pokedex

- go run crawler.go

Result:

```
Found 649 Pokémon
Found 649 Pokémon
Fetching data for Bulbasaur (https://pokedex.org/#/pokemon/1)
Fetched: {Index:1 Name:Bulbasaur Exp:64 HP:45 Attack:49 Defense:49 SpAttack:65 SpDefense:65 Speed:45 TotalEVs:318 Type:[grass poison] Description:For some time after its birth, it grows by gaining nourishment from the seed on its back. Height:0.7 m Weight:6.9 kg ImageURL:https://archives.bulbagarden.net/media/upload/thumb/f/fb/0001Bulbasaur.png/70px-0001Bulbasaur.png}
Fetching data for Ivysaur (https://pokedex.org/#/pokemon/2)
Fetched: {Index:2 Name:Ivysaur Exp:142 HP:45 Attack:49 Defense:49 SpAttack:65 SpDefense:65 Speed:45 TotalEVs:318 Type:[grass poison] Description:For some time after its birth, it grows by gaining nourishment from the seed on its back. Height:0.7 m Weight:6.9 kg ImageURL:https://archives.bulbagarden.net/media/upload/thumb/8/81/0002Ivysaur.png/70px-0002Ivysaur.png}
Fetching data for Venusaur (https://pokedex.org/#/pokemon/3)
Fetched: {Index:3 Name:Venusaur Exp:263 HP:80 Attack:82 Defense:83 SpAttack:100 SpDefense:100 Speed:80 TotalEVs:525 Type:[grass poison] Description:After a rainy day, the flower on its back smells stronger. The scent attracts other Pokémon. Height:2 m Weight:100 kg ImageURL:https://archives.bulbagarden.net/media/upload/thumb/6/6b/0003Venusaur.png/70px-0003Venusaur.png}
Fetching data for Charmander (https://pokedex.org/#/pokemon/4)
Fetched: {Index:4 Name:Charmander Exp:62 HP:39 Attack:52 Defense:43 SpAttack:60 SpDefense:50 Speed:65 TotalEVs:309 Type:[fire] Description:The fire on the tip of its tail is a measure of its life. If healthy, its tail burns intensely. Height:0.6 m Weight:8.5 kg ImageURL:https://archives.bulbagarden.net/media/upload/thumb/2/27/0004Charmander.png/70px-0004Charmander.png}
Fetching data for Charmeleon (https://pokedex.org/#/pokemon/5)
Fetched: {Index:5 Name:Charmeleon Exp:142 HP:58 Attack:64 Defense:58 SpAttack:80 SpDefense:65 Speed:80 TotalEVs:405 Type:[fire] Description:In the rocky mountains where Charmeleon live, their fiery tails shine at night like stars. Height:1.1 m Weight:19 kg ImageURL:https://archives.bulbagarden.net/media/upload/thumb/0/05/0005Charmeleon.png/70px-0005Charmeleon.png}
```



```
server > Assets > {} pokedex.json > {} 0 > description
1  [
2
3      {
4          "index": "1",
5          "name": "Bulbasaur",
6          "exp": 64,
7          "hp": 45,
8          "attack": 49,
9          "defense": 49,
10         "sp_attack": 65,
11         "sp_defense": 65,
12         "speed": 45,
13         "total_levs": 318,
14         "type": [
15             "grass",
16             "poison"
17         ],
18         "description": "For some time after its birth, it grows by gaining nourishment from the seed on its back.",
19         "height": "0.7 m",
20         "weight": "6.9 kg",
21         "image_url": "https://archives.bulbagarden.net/media/upload/thumb/f/fb/0001Bulbasaur.png/70px-0001Bulbasaur.png"
22     },
23     {
24         "index": "2",
25         "name": "Ivysaur",
26         "exp": 142,
27         "hp": 45,
28         "attack": 49,
29         "defense": 49,
30         "sp_attack": 65,
31         "sp_defense": 65,
32         "speed": 45,
33         "total_levs": 318,
34         "type": [
35             "grass",
36             "poison"
37         ],
38         "description": "For some time after its birth, it grows by gaining nourishment from the seed on its back.",
39         "height": "0.7 m",
40         "weight": "6.9 kg",
41         "image_url": "https://archives.bulbagarden.net/media/upload/thumb/8/81/0002Ivysaur.png/70px-0002Ivysaur.png"
42     },
43     {
44         "index": "3",
45         "name": "Venusaur",
46         "exp": 263,
47         "hp": 60,
48         "attack": 62,
49         "defense": 63,
50         "sp_attack": 80,
```

### 2. PokeBat

- go run Server.go
- go run player.go

```

(base) nguyenhaiharry@192 server % go run server.go
server started
Pokedex loaded
A client connected
[]

(base) nguyenhaiharry@192 player % go run player.go
MODE: 1. POKEBAT      2. POKECAT
Type following syntax: [Name] [Mode]
Your Input: []

```

- Input name and mode following syntax: [name] [1], example “ly 1”, “newplayer 1”
  - ly is available in player.json
  - newplayer is new player, so server automatically create that player with 3 basic pokemons and save into player.json

```

main.main.func2()
/Users/nguyenhaiharry/Desktop/S
em2_2023-2024/NetCentric/Pokemon-game/s
erver/server.go:136 +0x16c
created by main.main in goroutine 1
/Users/nguyenhaiharry/Desktop/S
em2_2023-2024/NetCentric/Pokemon-game/s
erver/server.go:134 +0x1e8
exit status 2
(base) nguyenhaiharry@192 server % go r
un server.go
server started
Pokedex loaded
A client connected
ly
1. Beedrill
2. Nidorino
3. Machop
4. Farfetch'd
5. Golbat
6. Graveler
7. Electrike
8. Combee
9. Rattata
10. Makuhita
11. Archen
Choose a pokemon: #A client connected
newplayer
Player newplayer created
1. Charmander
2. Bulbasaur
3. Squirtle
Choose a pokemon: #

(base) nguyenhaiharry@192 player % go run
player.go
MODE: 1. POKEBAT      2. POKECAT
Type following syntax: [Name] [Mode]
Your Input: ly 1
***** Entered Game *****
1. Beedrill
2. Nidorino
3. Machop
4. Farfetch'd
5. Golbat
6. Graveler
7. Electrike
8. Combee
9. Rattata
10. Makuhita
11. Archen
Choose a pokemon:

(base) nguyenhaiharry@192 player % go run player.go
MODE: 1. POKEBAT      2. POKECAT
Type following syntax: [Name] [Mode]
Your Input: newplayer 1
***** Entered Game *****
Player does not exist. Created a new player.
1. Charmander
2. Bulbasaur
3. Squirtle
Choose a pokemon:

```

- Choose pokemon for the first round for both of participants

```

(base) nguyenhaiharry@192 player % go run
player.go
MODE: 1. POKEBAT      2. POKECAT
Type following syntax: [Name] [Mode]
Your Input: ly 1
***** Entered Game *****
1. Beedrill
2. Nidorino
3. Machop
4. Farfetch'd
5. Golbat
6. Graveler
7. Electrike
8. Combee
9. Rattata
10. Makuhita
11. Archen
Choose a pokemon: 3

(base) nguyenhaiharry@192 player % go run player.go
MODE: 1. POKEBAT      2. POKECAT
Type following syntax: [Name] [Mode]
Your Input: newplayer 1
***** Entered Game *****
Player does not exist. Created a new player.
1. Charmander
2. Bulbasaur
3. Squirtle
Choose a pokemon: 1

```

- Server will create a battle

```

(base) nguyenhaiharry@192 player % go run player.go
MODE: 1. POKEBAT      2. POKECAT
Type following syntax: [Name] [Mode]
Your Input: ly 1
***** Entered Game *****
1. Beedrill
2. Nidorino
3. Machamp
4. Farfetch'd
5. Golbat
6. Graveler
7. Electrike
8. Combee
9. Rattata
10. Makuhita
11. Archen
Choose a pokemon: 3
---ly chose Machamp

```

Machamp has faster,  
so newplayer take the first turn

```

newplayer chose Charmander
-----BATTLE REPORT-----
newplayer will attack first.
Charmander attacked Machamp with ⚡special attack dealing 80 damage.
Machamp attacked Charmander with ⚡special attack dealing 28 damage.
Charmander attacked Machamp with ⚡special attack dealing 80 damage.
→ Machamp fainted.
→ Charmander still has 11 HP left.
↳ ly has 2 turns left.
↳ newplayer has 3 turns left.
-----END BATTLE REPORT-----
👉 newplayer wins the round - ly lost. Let's ly choose an other pokemon!

```

```

You lost the round, Let's choose another Pokemon
1. Beedrill
2. Nidorino
3. Machamp
4. Farfetch'd
5. Golbat
6. Graveler
7. Electrike
8. Combee
9. Rattata
10. Makuhita
11. Archen
PRESS -1 to surrender - Your choice: 

```

```

(base) nguyenhaiharry@192 player % go run player.go
MODE: 1. POKEBAT      2. POKECAT
Type following syntax: [Name] [Mode]
Your Input: newplayer 1
***** Entered Game *****
Player does not exist. Created a new player.
1. Charmander
2. Bulbasaur
3. Squirtle
Choose a pokemon: 1
---ly chose Machamp

```

```

newplayer chose Charmander
-----BATTLE REPORT-----
newplayer will attack first.
Charmander attacked Machamp with ⚡special attack dealing 80 damage.
Machamp attacked Charmander with ⚡special attack dealing 28 damage.
Charmander attacked Machamp with ⚡special attack dealing 80 damage.
→ Machamp fainted.
→ Charmander still has 11 HP left.
↳ ly has 2 turns left.
↳ newplayer has 3 turns left.
-----END BATTLE REPORT-----
👉 newplayer wins the round - ly lost. Let's ly choose an other pokemon!

```

Battle round report

Loser choose another pokemon

- Repeat choosing pokemon for loser until the battle is determined. Result: the final winner is ly, and and final loser is newplayer

```

Beedrill attacked Bulbasaur with ⚡special attack dealing 13 damage.
→ Bulbasaur fainted.
→ Beedrill still has 32 HP left.
↳ ly has 2 turns left.
↳ newplayer has 1 turns left.
-----END BATTLE REPORT-----
👉 ly wins the round - newplayer lost. Let's newplayer choose another pokemon!
---ly chose Beedrill
newplayer chose Squirtle
-----BATTLE REPORT-----
ly will attack first.
Beedrill attacked Squirtle with 😊normal attack dealing 25 damage.
Squirtle attacked Beedrill with ⚡special attack dealing 7 damage.
Beedrill attacked Squirtle with ⚡special attack dealing 14 damage.
Squirtle attacked Beedrill with 😊normal attack dealing 8 damage.
Beedrill attacked Squirtle with 😊normal attack dealing 25 damage.
→ Squirtle fainted.
→ Beedrill still has 17 HP left.
↳ ly has 2 turns left.
↳ newplayer has 0 turns left.
-----END BATTLE REPORT-----
👉 ly wins the round - newplayer lost. Let's newplayer choose another pokemon!
BATTLE END!!!
newplayer has no turns left. ly wins!
🔴 ly wins the battle - newplayer lost

```

```

Beedrill attacked Bulbasaur with ⚡special attack dealing 13 damage.
→ Bulbasaur fainted.
→ Beedrill still has 32 HP left.
↳ ly has 2 turns left.
↳ newplayer has 1 turns left.
-----END BATTLE REPORT-----
👉 ly wins the round - newplayer lost. Let's newplayer choose another pokemon!
You lost the round, Let's choose another Pokemon
1. Charmander
2. Bulbasaur
3. Squirtle
PRESS -1 to surrender - Your choice: 3
---ly chose Beedrill
newplayer chose Squirtle
-----BATTLE REPORT-----
ly will attack first.
Beedrill attacked Squirtle with 😊normal attack dealing 25 damage.
Squirtle attacked Beedrill with ⚡special attack dealing 7 damage.
Beedrill attacked Squirtle with ⚡special attack dealing 14 damage.
Squirtle attacked Beedrill with 😊normal attack dealing 8 damage.
Beedrill attacked Squirtle with 😊normal attack dealing 25 damage.
→ Squirtle fainted.
→ Beedrill still has 17 HP left.
↳ ly has 2 turns left.
↳ newplayer has 0 turns left.
-----END BATTLE REPORT-----
👉 ly wins the round - newplayer lost. Let's newplayer choose another pokemon!
BATTLE END!!!
newplayer has no turns left. ly wins!
🔴 ly wins the battle - newplayer lost

```

If one of participants has  
0 turn left, battle will end

Winner Annoucement

- When ly wins, his pokemons accumulated exp will be increase

## Original

```
"name": "ly",
"pokemon_list": [
  {
    "index": "15",
    "name": "Beedrill",
    "exp": 198,
    "hp": 65,
    "attack": 90,
    "defense": 40,
    "sp_attack": 45,
    "sp_defense": 80,
    "speed": 75,
    "total_evs": 395,
    "type": [
      "bug",
      "poison"
    ],
    "description": "Its best attack involves flying around at high speed, striking with poison needles, then flying off.",
    "height": "1 m",
    "weight": "29.5 kg",
    "image_url": "https://archives.bulbagarden.net/media/upload/thumb/f/f7/0015Beedrill.png/70px-0015Beedrill.png",
    "level": 0,
    "accum_exp": 0,
    "deployable": false,
    "EVPoints": 0.53
  },
  {
    "index": "33",
    "name": "Nidorino",
    "exp": 128,
    "hp": 61,
    "attack": 72,
    "defense": 57,
    "sp_attack": 55,
    "sp_defense": 55,
    "speed": 65,
    "total_evs": 365,
    "type": [
      "poison"
    ],
    "description": "It has a violent disposition and stabs foes with its horn, which oozes poison upon impact.",
    "height": "0.9 m",
    "weight": "19.5 kg",
    "image_url": "https://archives.bulbagarden.net/media/upload/thumb/1/1e/0033Nidorino.png/70px-0033Nidorino.png",
    "level": 0,
    "accum_exp": 0,
    "deployable": false,
    "EVPoints": 0.81
  }
]
```

## After win



```

"name": "ly",
"pokemon_list": [
  {
    "index": "15",
    "name": "Beedrill",
    "exp": 198,
    "hp": 65,
    "attack": 90,
    "defense": 40,
    "sp_attack": 45,
    "sp_defense": 80,
    "speed": 75,
    "total_evs": 395,
    "type": [
      "bug",
      "poison"
    ],
    "description": "Its best attack involves flying around at high speed, striking with poison needles, then flying off.",
    "height": "1 m",
    "weight": "29.5 kg",
    "image_url": "https://archives.bulbagarden.net/media/upload/thumb/f/f7/0015Beedrill.png/70px-0015Beedrill.png",
    "level": 0,
    "accum_exp": 63,
    "deployable": true,
    "EVPoints": 0.53
  },
  {
    "index": "33",
    "name": "Nidorino",
    "exp": 128,
    "hp": 61,
    "attack": 72,
    "defense": 57,
    "sp_attack": 55,
    "sp_defense": 55,
    "speed": 65,
    "total_evs": 365,
    "type": [
      "poison"
    ],
    "description": "It has a violent disposition and stabs foes with its horn, which oozes poison upon impact.",
    "height": "0.9 m",
    "weight": "19.5 kg",
    "image_url": "https://archives.bulbagarden.net/media/upload/thumb/1/1e/0033Nidorino.png/70px-0033Nidorino.png",
    "level": 0,
    "accum_exp": 63,
    "deployable": true,
    "EVPoints": 0.81
  }
]

```

- If you want to surrender, press -1

```

(base) nguyenhaiharry@192 player % go run
player.go
MODE: 1. POKEBAT      2. POKECAT
Type following syntax: [Name] [Mode]
Your Input: ly 1
***** Entered Game *****
1. Beedrill
2. Nidorino
3. Machomp
4. Farfetch'd
5. Golbat
6. Graveler
7. Electrike
8. Combee
9. Rattata
10. Makuhita
11. Archen
Choose a pokemon: 1
---ly chose Beedrill
newplayer chose Charmander
-----BATTLE REPORT-----
🐞 ly will attack first.
Beedrill attacked Charmander with 🔥special attack dealing 28 damage.
Charmander attacked Beedrill with 😊normal attack dealing 12 damage.
Beedrill attacked Charmander with 🔥special attack dealing 28 damage.
→ Charmander fainted.
→ Beedrill still has 41 HP left.
🕒 ly has 3 turns left.
🕒 newplayer has 2 turns left.
-----END BATTLE REPORT-----
👉 ly wins the round - newplayer lost. Let's newplayer choose another pokemon!
🔴 ly wins the battle - newplayer lost

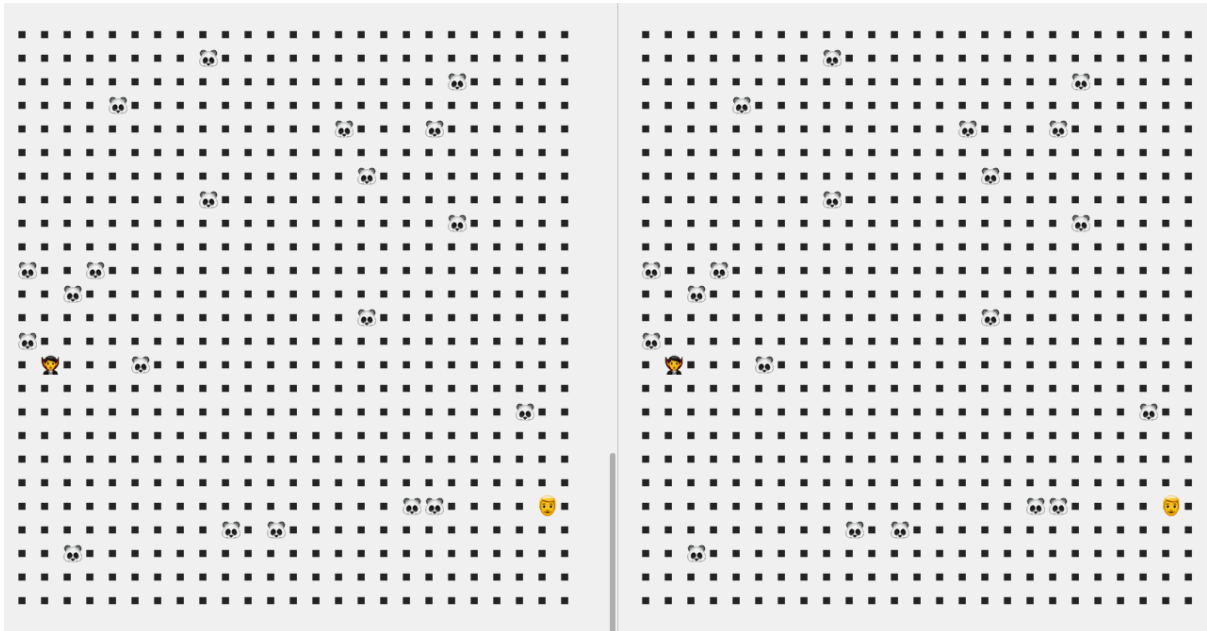
/Users/nguyenhaiharry/Desktop/Sem2_2023-2024/NetCentric/Pokemon-ga
me/player/player.go:25 +0x278
created by main.main in goroutine 1
/Users/nguyenhaiharry/Desktop/Sem2_2023-2024/NetCentric/Pokemon-ga
me/player/player.go:43 +0x220
exit status 2
(base) nguyenhaiharry@192 player % go run player.go
MODE: 1. POKEBAT      2. POKECAT
Type following syntax: [Name] [Mode]
Your Input: newplayer 1
***** Entered Game *****
1. Charmander
2. Bulbasaur
3. Squirtle
Choose a pokemon: 1
---ly chose Beedrill
newplayer chose Charmander
-----BATTLE REPORT-----
🐞 ly will attack first.
Beedrill attacked Charmander with 🔥special attack dealing 28 damage.
Charmander attacked Beedrill with 😊normal attack dealing 12 damage.
Beedrill attacked Charmander with 🔥special attack dealing 28 damage.
→ Charmander fainted.
→ Beedrill still has 41 HP left.
🕒 ly has 3 turns left.
🕒 newplayer has 2 turns left.
-----END BATTLE REPORT-----
👉 ly wins the round - newplayer lost. Let's newplayer choose another pokemon!
You lost the round, Let's choose another Pokemon
1. Charmander
2. Bulbasaur
3. Squirtle
PRESS -1 to surrender - Your choice: -1
🔴 ly wins the battle - newplayer lost

```

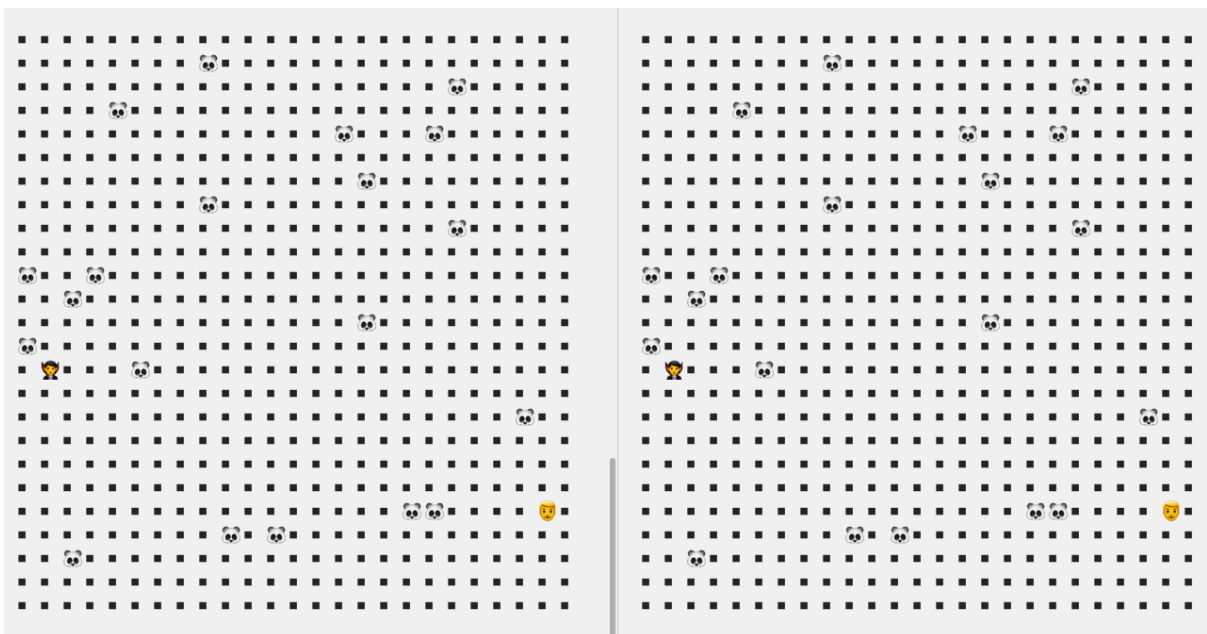
### 3. PokeCat

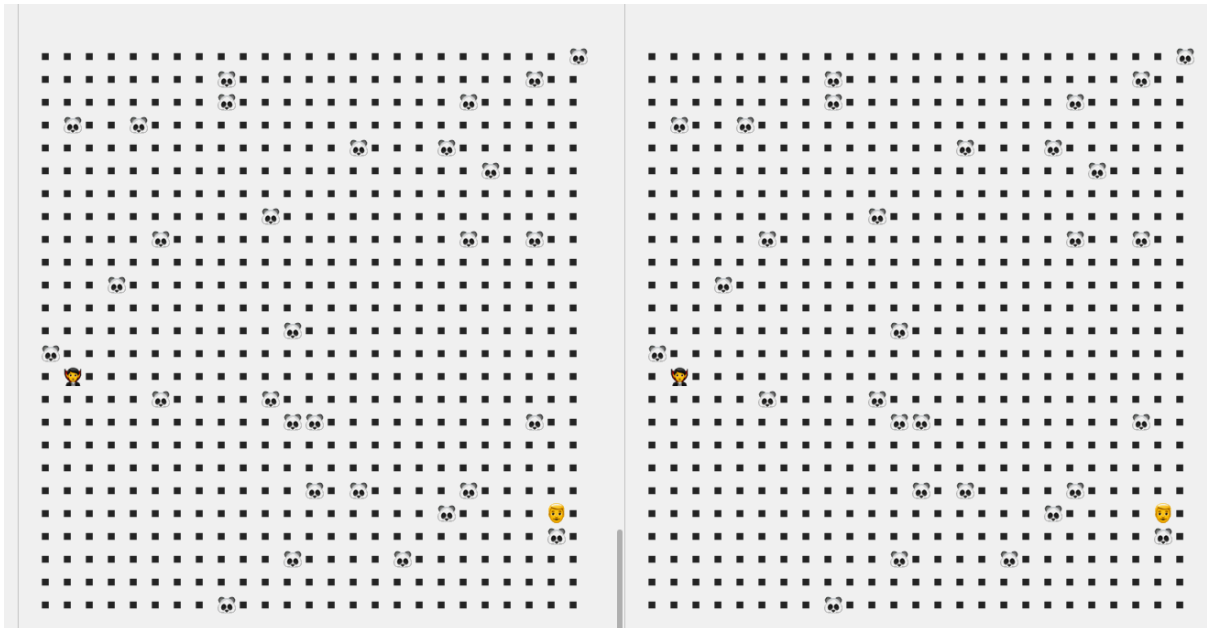
- go run Server.go first

- go run player.go
- Input name and mode following syntax: [name] [2], example “vy 2”, “ly 2”

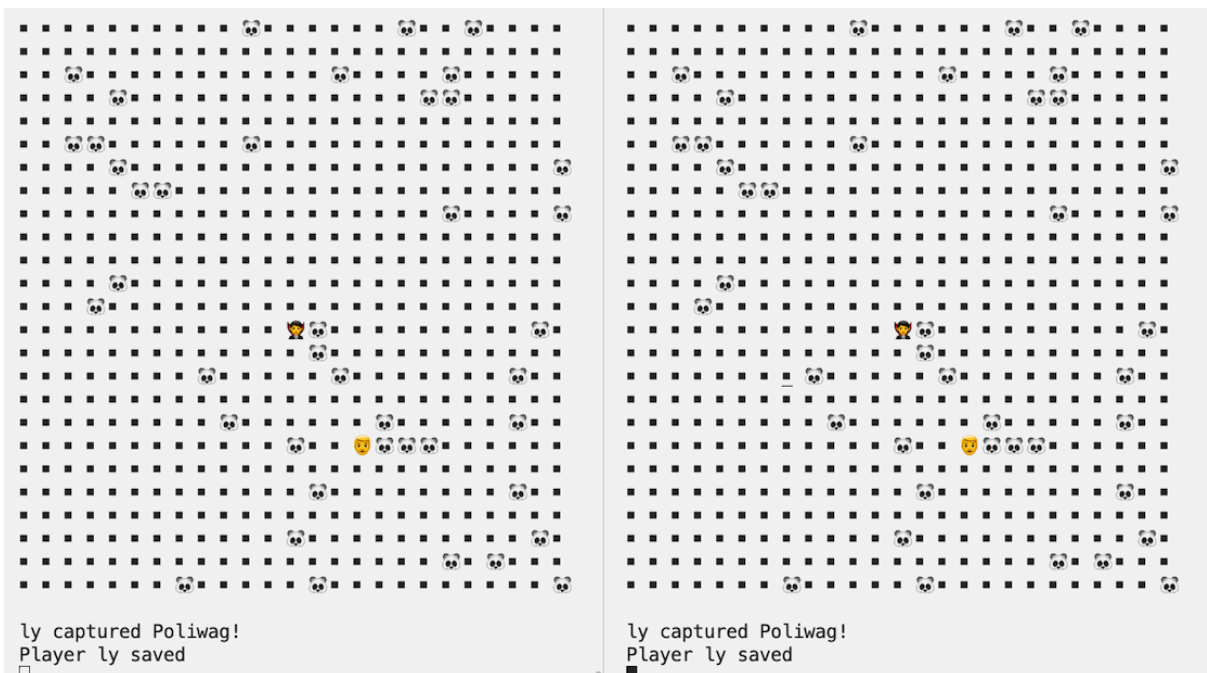


- the world automatically spawn pokemon every 5s and de spawn pokemon every 10s. Each spawn wave contains 10 pokemons.





- Press one of 4 directions in your keyboard (up, down, left, right). If player in a cell that contains a pokemon, it will be captured by that player

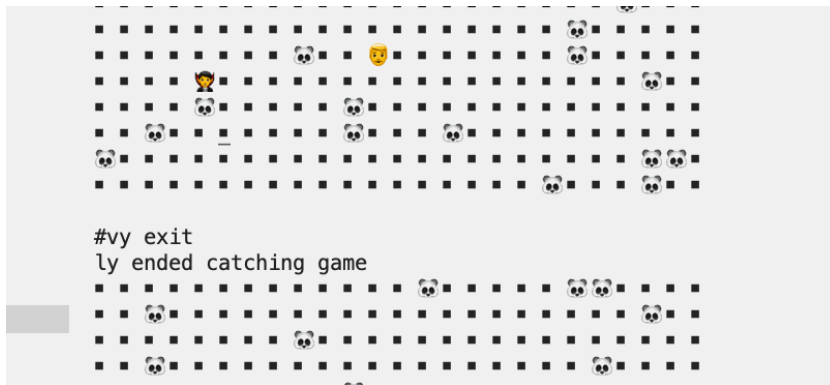


- You can not captured exceed 11 pokemon each time.



- Press ESC to escape the world





- Check whether data is saved or not:

```

"name": "Geodude",
"pokemon_list": [
  {
    "index": "74",
    "name": "Geodude",
    "exp": 60,
    "hp": 115,
    "attack": 45,
    "defense": 20,
    "sp_attack": 45,
    "sp_defense": 25,
    "speed": 20,
    "total_evs": 270,
    "type": [
      "fairy",
      "normal"
    ],
    "description": "Looking into its cute, round eyes makes it start singing a song so pleasant listeners cant help but fall asleep.",
    "height": "0.5 m",
    "weight": "5.5 kg",
    "image_url": "https://archives.bulbagarden.net/media/upload/thumb/9/97/0074Geodude.png/70px-0074Geodude.png",
    "level": 0,
    "accum_exp": 0,
    "deployable": false,
    "EVPoints": 0.51
  },
  {
    "index": "574",
    "name": "Gothita",
    "exp": 58,
    "hp": 115,
    "attack": 45,
    "defense": 20,
    "sp_attack": 45,
    "sp_defense": 25,
    "speed": 20,
    "total_evs": 270,
    "type": [
      "fairy",
      "normal"
    ],
    "description": "Looking into its cute, round eyes makes it start singing a song so pleasant listeners cant help but fall asleep.",
    "height": "0.5 m",
    "weight": "5.5 kg",
    "image_url": "https://archives.bulbagarden.net/media/upload/thumb/a/ab/0574Gothita.png/70px-0574Gothita.png",
    "level": 0,
    "accum_exp": 0,
    "deployable": false,
    "EVPoints": 0.81
  }
]

```

```

{
  "name": "ly",
  "pokemon_list": [
    {
      "index": "429",
      "name": "Mismagius",
      "exp": 173,
      "hp": 115,
      "attack": 45,
      "defense": 20,
      "sp_attack": 45,
      "sp_defense": 25,
      "speed": 20,
      "total_evs": 270,
      "type": [
        "fairy",
        "normal"
      ],
      "description": "Looking into its cute, round eyes makes it start singing a song so pleasant listeners cant help but fall asleep.",
      "height": "0.5 m",
      "weight": "5.5 kg",
      "image_url": "https://archives.bulbagarden.net/media/upload/thumb/a/a5/0429Mismagius.png/70px-0429Mismagius.png",
      "level": 0,
      "accum_exp": 0,
      "deployable": false,
      "EVPoints": 0.97
    },
    {
      "index": "60",
      "name": "Poliwag",
      "exp": 60,
      "hp": 115,
      "attack": 45,
      "defense": 20,
      "sp_attack": 45,
      "sp_defense": 25,
      "speed": 20,
      "total_evs": 270,
      "type": [
        "fairy",
        "normal"
      ],
      "description": "Looking into its cute, round eyes makes it start singing a song so pleasant listeners cant help but fall asleep.",
      "height": "0.5 m",
      "weight": "5.5 kg",
      "image_url": "https://archives.bulbagarden.net/media/upload/thumb/e/e4/0060Poliwag.png/70px-0060Poliwag.png",
      "level": 0,
      "accum_exp": 0,
      "deployable": false,
      "EVPoints": 0.86
    }
  ]
}

```

- It work properly when start a pokebat with vy and ly

<pre> (base) nguyenhaiharry@192 player % go run player.go MODE: 1. POKEBAT      2. POKECAT Type following syntax: [Name] [Mode] Your Input: ly 1 ***** Entered Game ***** 1. Mismagius 2. Poliwag 3. Larvitar 4. Dusknoir 5. DeoxysSpeed Forme 6. Luvdisc Choose a pokemon:  </pre>	<pre> (base) nguyenhaiharry@192 player % go run player.go MODE: 1. POKEBAT      2. POKECAT Type following syntax: [Name] [Mode] Your Input: vy 1 ***** Entered Game ***** 1. Geodude 2. Gothita 3. Cyndaquil 4. Magnezone 5. Finneon 6. Gloom 7. Stunfisk 8. Magmar 9. Cincinno 10. Krabby 11. Mandibuzz Choose a pokemon:  </pre>
---	--