

# Pokédex Project Report

## Purpose of the Pokédex Program:

- The Pokédex is an electronic device that gives information about Pokémons. This specific Pokédex is programmed to inform the user about a Pokémons name and their type based on their specific number between 1 and 151.

## How it was programmed:

- Dictionary
  - This is where all the Pokémons data is stored. All 151 Pokémons have a specific key number assigned to them. This database includes every Pokémons name and type.
- List
  - The list in this specific code lists out all of the Pokémons types: Normal, Fire, Water, Grass, Flying, Fighting, Poison, Electric, Ground, Rock, Psychic, Ice, Bug, Ghost, Steel, Dragon, Dark, and Fairy.
- Loops
  - Client Side:
    - The loop on the client side talks to the user asking them to type in a number, whether or not they want to continue looking for Pokémons, or if they want to end the connection.
  - Server Side:
    - The loop on the server side waits for the client to connect.
- Function
  - The function allowed for the client to be served by the server. The server receives a number typed in from the client and sends a Pokémons information from the dictionary.
- Socket
  - The socket allows for the server and client to actually connect by being assigned to the same address.

## Problem Statements:

- Problem: The client or user is unaware of the first generation of Pokémons (1-151).
- Solution: The Pokédex program feeds the client Pokémons knowledge.

## Machine: 2019 MacBook Pro 13-inch

- Hardware
  - Processor: 2.4 GHz Quad-Core Intel Core i5
  - Graphics: Intel Iris Plus Graphics 655 1536 MB
  - Memory: 8 GB 2133 MHz LPDDR3

- Ports: Four Thunderbolt 3 ports
- Software
  - macOS: Sonoma Version 14.1.2
  - Python IDLE
  - Visual Studio Code

## Server Code:

```

import socket

#Create the database for the 151 Pok  mon
pokedex_database = {
 1:{"Name": "Bulbasaur", "Type": "Grass/Poison"}, 
 2:{"Name": "Ivysaur", "Type": "Grass/Poison"}, 
 3:{"Name": "Venusaur", "Type": "Grass/Poison"}, 
 4:{"Name": "Charmander", "Type": "Fire"}, 
 5:{"Name": "Charmeleon", "Type": "Fire"}, 
 6:{"Name": "Charizard", "Type": "Fire/Flying"}, 
 7:{"Name": "Squirtle", "Type": "Water"}, 
 8:{"Name": "Wartortle", "Type": "Water"}, 
 9:{"Name": "Blastoise", "Type": "Water"}, 
10:{"Name": "Caterpie", "Type": "Bug"}, 
11:{"Name": "Metapod", "Type": "Bug"}, 
12:{"Name": "Butterfree", "Type": "Bug/Flying"}, 
13:{"Name": "Weedle", "Type": "Bug/Poison"}, 
14:{"Name": "Kakuna", "Type": "Bug/Poison"}, 
15:{"Name": "Beedrill", "Type": "Bug/Poison"}, 
16:{"Name": "Pidgey", "Type": "Normal/Flying"}, 
17:{"Name": "Pidegotto", "Type": "Normal/Flying"}, 
18:{"Name": "Pidgeot", "Type": "Normal/Flying"}, 
19:{"Name": "Rattata", "Type": "Normal"}, 
20:{"Name": "Raticate", "Type": "Normal"}, 
21:{"Name": "Spearow", "Type": "Normal/Flying"}, 
22:{"Name": "Fearow", "Type": "Normal/Flying"}, 
23:{"Name": "Ekans", "Type": "Poison"}, 
24:{"Name": "Arbok", "Type": "Poison"}, 
25:{"Name": "Pikachu", "Type": "Electric"}, 
26:{"Name": "Raichu", "Type": "Electric"}, 
27:{"Name": "Sandshrew", "Type": "Ground"}, 
28:{"Name": "Sandslash", "Type": "Ground"}, 
29:{"Name": "Nidoran (Female)", "Type": "Poison"}, 
30:{"Name": "Nidorina", "Type": "Poison"}, 
31:{"Name": "Nidoqueen", "Type": "Poison/Ground"}, 
32:{"Name": "Nidoran (Male)", "Type": "Poison"}, 
33:{"Name": "Nidorino", "Type": "Poison"}, 
34:{"Name": "Nidoking", "Type": "Poison/Ground"}, 
35:{"Name": "Clefairy", "Type": "Fairy"}, 
36:{"Name": "Cleable", "Type": "Fairy"}, 
37:{"Name": "Vulpix", "Type": "Fire"}, 
38:{"Name": "Ninetales", "Type": "Fire"}, 
39:{"Name": "Jigglypuff", "Type": "Normal/Fairy"}, 
40:{"Name": "Wigglytuff", "Type": "Normal/Fairy"}, 
41:{"Name": "Zubat", "Type": "Poison/Flying"}, 
42:{"Name": "Golbat", "Type": "Poison/Flying"}, 
43:{"Name": "Oddish", "Type": "Grass/Poison"}, 
44:{"Name": "Gloom", "Type": "Grass/Poison"}, 
45:{"Name": "Vileplume", "Type": "Grass/Poison"}, 
46:{"Name": "Paras", "Type": "Bug/Grass"}, 
47:{"Name": "Parasect", "Type": "Bug/Grass"}, 
48:{"Name": "Venonat", "Type": "Bug/Poison"}, 
49:{"Name": "Venomoth", "Type": "Bug/Poison"}, 
50:{"Name": "Diglett", "Type": "Ground"}, 
51:{"Name": "Dugtrio", "Type": "Ground"}, 
52:{"Name": "Meowth", "Type": "Normal"}, 
53:{"Name": "Persian", "Type": "Normal"}, 
54:{"Name": "Psyduck", "Type": "Water"}, 
55:{"Name": "Golduck", "Type": "Water"}, 
56:{"Name": "Mankey", "Type": "Fighting"}, 
57:{"Name": "Primeape", "Type": "Fighting"}, 
58:{"Name": "Growlithe", "Type": "Fire"}, 
59:{"Name": "Arcanine", "Type": "Fire"}, 
60:{"Name": "Poliwag", "Type": "Water"}, 
61:{"Name": "Poliwhirl", "Type": "Water"}, 
62:{"Name": "Poliwrath", "Type": "Water/Fighting"}, 
63:{"Name": "Abra", "Type": "Psychic"}, 
64:{"Name": "Kadabra", "Type": "Psychic"}.
}

```

```
62:{"Name": "Poliwrath", "Type": "Water/Fighting"},  
63:{"Name": "Abra", "Type": "Psychic"},  
64:{"Name": "Kadabra", "Type": "Psychic"},  
65:{"Name": "Alakazam", "Type": "Psychic"},  
66:{"Name": "Machop", "Type": "Fighting"},  
67:{"Name": "Machoke", "Type": "Fighting"},  
68:{"Name": "Machamp", "Type": "Fighting"},  
69:{"Name": "Bellsprout", "Type": "Grass/Poison"},  
70:{"Name": "Weepinbell", "Type": "Grass/Poison"},  
71:{"Name": "Victreebel", "Type": "Grass/Poison"},  
72:{"Name": "Tentacool", "Type": "Water/Poison"},  
73:{"Name": "Tentacruel", "Type": "Water/Poison"},  
74:{"Name": "Geodude", "Type": "Rock/Ground"},  
75:{"Name": "Graveler", "Type": "Rock/Ground"},  
76:{"Name": "Golem", "Type": "Rock/Ground"},  
77:{"Name": "Ponty", "Type": "Fire"},  
78:{"Name": "Rapidash", "Type": "Fire"},  
79:{"Name": "Slowpoke", "Type": "Water/Psychic"},  
80:{"Name": "Slowbro", "Type": "Water/Psychic"},  
81:{"Name": "Magnemite", "Type": "Electric/Steel"},  
82:{"Name": "Magneton", "Type": "Electric/Steel"},  
83:{"Name": "Farfetch'd", "Type": "Normal/Flying"},  
84:{"Name": "Duduo", "Type": "Normal/Flying"},  
85:{"Name": "Dodrio", "Type": "Normal/Flying"},  
86:{"Name": "Seel", "Type": "Water"},  
87:{"Name": "Dewgong", "Type": "Water"},  
88:{"Name": "Grimer", "Type": "Poison"},  
89:{"Name": "Muk", "Type": "Poison"},  
90:{"Name": "Shellder", "Type": "Water"},  
91:{"Name": "Cloyster", "Type": "Water/Ice"},  
92:{"Name": "Gastly", "Type": "Ghost/Poison"},  
93:{"Name": "Haunter", "Type": "Ghost/Poison"},  
94:{"Name": "Gengar", "Type": "Ghost/Poison"},  
95:{"Name": "Onix", "Type": "Rock/Ground"},  
96:{"Name": "Drowzee", "Type": "Psychic"},  
97:{"Name": "Hypno", "Type": "Psychic"},  
98:{"Name": "Krabby", "Type": "Water"},  
99:{"Name": "Kingler", "Type": "Water"},  
100:{"Name": "Voltorb", "Type": "Electric"},  
101:{"Name": "Electrode", "Type": "Electric"},  
102:{"Name": "Exeggcute", "Type": "Grass/Psychic"},  
103:{"Name": "Exegutor", "Type": "Grass/Psychic"},  
104:{"Name": "Cubone", "Type": "Ground"},  
105:{"Name": "Marowak", "Type": "Ground"},  
106:{"Name": "Hitmonlee", "Type": "Fighting"},  
107:{"Name": "Hitmonchan", "Type": "Fighting"},  
108:{"Name": "Lickitung", "Type": "Normal"},  
109:{"Name": "Koffing", "Type": "Poison"},  
110:{"Name": "Weezing", "Type": "Poison"},  
111:{"Name": "Rhyhorn", "Type": "Ground/Rock"},  
112:{"Name": "Rhydon", "Type": "Ground/Rock"},  
113:{"Name": "Chansey", "Type": "Normal"},  
114:{"Name": "Tangela", "Type": "Grass"},  
115:{"Name": "Kangaskhan", "Type": "Normal"},  
116:{"Name": "Horsea", "Type": "Water"},  
117:{"Name": "Seadra", "Type": "Water"},  
118:{"Name": "Goldeen", "Type": "Water"},  
119:{"Name": "Seaking", "Type": "Water"},  
120:{"Name": "Staryu", "Type": "Water"},  
121:{"Name": "Starmie", "Type": "Water"},  
122:{"Name": "Mr. Mime", "Type": "Psychic/Fairy"},  
123:{"Name": "Scyther", "Type": "Bug/Flying"},  
124:{"Name": "Jynx", "Type": "Ice/Psychic"},  
125:{"Name": "Electabuzz", "Type": "Electric"},  
126:{"Name": "Magmar", "Type": "Fire"},  
127:{"Name": "Pinsir", "Type": "Bug"},  
128:{"Name": "Tauros", "Type": "Normal"},  
129:{"Name": "Maoikardo", "Type": "Water"}.
```

```
124:{"Name": "Jynx", "Type": "Ice/Psychic"},  
125:{"Name": "Electabuzz", "Type": "Electric"},  
126:{"Name": "Magmar", "Type": "Fire"},  
127:{"Name": "Pinsir", "Type": "Bug"},  
128:{"Name": "Tauros", "Type": "Normal"},  
129:{"Name": "Magikarp", "Type": "Water"},  
130:{"Name": "Gyarados", "Type": "Water/Flying"},  
131:{"Name": "Lapras", "Type": "Water/Ice"},  
132:{"Name": "Ditto", "Type": "Normal"},  
133:{"Name": "Eevee", "Type": "Normal"},  
134:{"Name": "Vaporeon", "Type": "Water"},  
135:{"Name": "Jolteon", "Type": "Electric"},  
136:{"Name": "Flareon", "Type": "Fire"},  
137:{"Name": "Porygon", "Type": "Normal"},  
138:{"Name": "Omanyte", "Type": "Rock/Water"},  
139:{"Name": "Omastar", "Type": "Rock/Water"},  
140:{"Name": "Kabuto", "Type": "Rock/Water"},  
141:{"Name": "Kabutops", "Type": "Rock/Water"},  
142:{"Name": "Aerodactyl", "Type": "Rock/Flying"},  
143:{"Name": "Snorlax", "Type": "Normal"},  
144:{"Name": "Articuno", "Type": "Ice/Flying"},  
145:{"Name": "Zapdos", "Type": "Electric/Flying"},  
146:{"Name": "Moltres", "Type": "Fire/Flying"},  
147:{"Name": "Dratini", "Type": "Dragon"},  
148:{"Name": "Dragonair", "Type": "Dragon"},  
149:{"Name": "Dragonite", "Type": "Dragon/Flying"},  
150:{"Name": "Mewtwo", "Type": "Psychic"},  
151:{"Name": "Mew", "Type": "Psychic"},}  
  
#List all the types of Pokémons  
all_types = ["Normal", "Fire", "Water", "Grass", "Electric", "Ice", "Fighting", "Poison", "Ground", "Flying", "  
"  
#Create a function to communicate with the Client, Send a response based off of the Client's input  
def serve_client(client_socket):  
    while True:  
        data = client_socket.recv(1024)  
        if not data:  
            break  
  
        poke_num = int(data.decode())  
        details = pokedex_database.get(poke_num)  
  
        if details:  
            response = f"Name: {details['Name']}\nType: {details['Type']}"  
        else:  
            response = "Pokemon not found in the Pokédex"  
  
        client_socket.sendall(response.encode())  
  
#Create the socket  
HOST="localhost"  
PORT=6780  
ADDRESS=(HOST,PORT)  
server=socket.socket()  
server.bind(ADDRESS)  
server.listen(3)  
while True:  
    print("Waiting for connection...")  
    (client_socket,address)=server.accept()  
    print("...connecting to", address)  
    client_socket.send("Welcome to Your Personal Pokédex!".encode())  
  
    #Close the connection or continue serving the Client  
    try:  
        serve_client(client_socket)  
    finally:  
        client_socket.close()
```

## Client Code:

```
import socket

#Create the socket
HOST="localhost"
PORT=6780
ADDRESS=(HOST,PORT)
client=socket.socket()
client.connect(ADDRESS)
print(client.recv(1024).decode())

#Prompt the client to enter a Pokémon number (1-151)
while True:
    try:
        poke_num = int(input("To find a Pokémon in the Pokédex, Enter a Pokémon Number (1-151): "))
        if 1 <= poke_num <= 151:
            client.sendall(str(poke_num).encode())

        data = client.recv(1024)
        print("Pokémon Information:\n", data.decode())

        #Prompt the client to look for more Pokémon
        while True:
            find_poke = input("Do you want to know about other Pokémon? (yes/no)").lower()
            if find_poke in ["yes", "no"]:
                break
            else:
                print("Invalid input. Try again, please reply with a yes or no.")

        if find_poke != "yes":
            print("Okay, See you soon!")
            break

        else:
            print("Please enter a number between 1 and 151.")
    except ValueError:
        print("Invalid input. Please enter a number between 1-151.")

#Close the connection with the server
client.close()
```

## Inputs & Outputs:

```
>>> Python 3.11.7 (v3.11.7:fa7a6f2303, Dec  4 2023, 15:22:56) [Clang 13.0.0 (clang-1300.0.29.30)] on darwin
Type "help", "copyright", "credits" or "license()" for more information.
>>> ===== RESTART: /Users/carlooblenas/Documents/CYSE 250/PokédexServer.py =====
Waiting for connection...
...connecting to ('127.0.0.1', 49466)
Waiting for connection...
|
```

```
>>> Python 3.11.7 (v3.11.7:fa7a6f2303, Dec  4 2023, 15:22:56) [Clang 13.0.0 (clang-1300.0.29.30)] on darwin
Type "help", "copyright", "credits" or "license()" for more information.
>>> ===== RESTART: /Users/carlooblenas/Documents/CYSE 250/PokédexClient.py =====
Welcome to Your Personal Pokédex!
To find a Pokémon in the Pokédex, Enter a Pokémon Number (1-151): 151
Pokémon Information:
  Name: Mew
  Type: Psychic
Do you want to know about other Pokémon? (yes/no)yes
To find a Pokémon in the Pokédex, Enter a Pokémon Number (1-151): 200
Please enter a number between 1 and 151.
To find a Pokémon in the Pokédex, Enter a Pokémon Number (1-151): 23
Pokémon Information:
  Name: Ekans
  Type: Poison
Do you want to know about other Pokémon? (yes/no)maybe
Invalid input. Try again, please reply with a yes or no.
Do you want to know about other Pokémon? (yes/no)no
Okay, See you soon!
>>> |
```