**JSON File Processing Techniques**

**Distinguishing JSON Object and JSON Array**

JSON consists of two primary data structures:

**JSON Object**: A key-value pair structure enclosed in curly braces {}.

{

"name": "Alice",

"age": 25,

"city": "New York"

}

**JSON Array**: An ordered list of values enclosed in square brackets [].

[

{"name": "Alice", "age": 25},

{"name": "Bob", "age": 30}

]

**Classes and Functions Used**

Various programming languages provide built-in libraries for JSON processing:

* **Python**: json module (json.loads(), json.dumps(), json.load(), json.dump())
* **Java**: org.json, Jackson, Gson
* **JavaScript**: JSON.parse(), JSON.stringify()
* **C#**: System.Text.Json, Newtonsoft.Json

**How to Write and Read JSON**

**Writing JSON (Python example):**

import json

data = {"name": "Alice", "age": 25}

with open("data.json", "w") as file:

json.dump(data, file, indent=4)

**Reading JSON:**

with open("data.json", "r") as file:

data = json.load(file)

print(data["name"]) # Output: Alice

**How to Analyze JSON Objects and Arrays**

To extract data from JSON structures:

json\_data = '{"employees": [{"name": "Alice"}, {"name": "Bob"}]}'

data = json.loads(json\_data)

for employee in data["employees"]:

print(employee["name"])

**Processing Unicode Data**

JSON supports Unicode, allowing special characters and multilingual content:

unicode\_json = '{"message": "Việt Nam sẽ chiến thắng"}’

data = json.loads(unicode\_json)

print(data["message"]) # Output: Việt Nam sẽ chiến thắng

**Reading Data from Web API**

Many APIs return JSON data, which can be accessed using HTTP requests.

import requests

response = requests.get("https://api.example.com/data")

data = response.json()

print(data)

**Converting Data Between XML and JSON**

To convert XML to JSON and vice versa:

import xmltodict, json

xml\_data = """<person><name>Alice</name></person>"""

json\_data = json.dumps(xmltodict.parse(xml\_data), indent=4)

print(json\_data)