JSON (JavaScript Object Notation) is a lightweight data interchange format that is easy for humans to read and write and easy for machines to parse and generate. Python provides a built-in module called `json` to work with JSON data. This module can be used to convert Python objects to JSON strings and vice versa.

Key Functions in the `json` Module

1. `json.dumps()` : Converts a Python object into a JSON string.
2. `json.loads()` : Converts a JSON string into a Python object.
3. `json.dump()` : Writes a Python object as a JSON string to a file.
4. `json.load()` : Reads a JSON string from a file and converts it into a Python object.

Convert Python Object to JSON String

```python
import json

# Python dictionary
person = {
    "name": "John",
    "age": 30,
    "city": "New York",
    "hasChildren": False,
    "titles": ["engineer", "programmer"]
}

# Convert Python dictionary to JSON string
person_json = json.dumps(person)
print(person_json)
```

Convert JSON String to Python Object

```python
import json

# JSON string
person_json = '{"name": "John", "age": 30, "city": "New York", "hasChildren": false, "titles": ["engineer", "programmer"]}'

# Convert JSON string to Python dictionary
person = json.loads(person_json)
print(person)
```

Write JSON String to a File

```python
import json

# Python dictionary
person = {
    "name": "John",
    "age": 30,
    "city": "New York",
    "hasChildren": False,
    "titles": ["engineer", "programmer"]
}

# Write JSON string to a file
with open('person.json', 'w') as json_file:
    json.dump(person, json_file)
```

Read JSON String from a File

```python
import json

# Read JSON string from a file
with open('person.json', 'r') as json_file:
    person = json.load(json_file)

print(person)
```

Pretty Printing JSON

```python
import json

# Python dictionary
person = {
    "name": "John",
    "age": 30,
    "city": "New York",
    "hasChildren": False,
    "titles": ["engineer", "programmer"]
}

# Convert Python dictionary to JSON string with pretty printing
person_json = json.dumps(person, indent=4)
```

```
print(person_json)
```