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Chapter 6

1. Which Python module is used for reading and writing CSV files?

a) json

b) csv

c) pandas

d) openpyxl

2. What does csv.DictReader() return when reading a CSV file?

a) List of lists

b) Dictionary for each row with column names as keys

c) Tuple for each row

d) String

3. Which function is used to convert a Python object into a JSON string?

a) json.load()
b) json.loads()
c) json.dumps()
d) json.dump()

4. What will the following code produce?

import pandas as pd

df = pd.read_excel("data.xlsx", sheet_name="Sheet1")

a) Reads all sheets into a dictionary of DataFrames

b) Reads only the specified sheet into a DataFrame

c) Creates a new Excel file named "data.xlsx"

d) Reads an empty DataFrame

5. Which library must be installed to read/write Excel files with pandas?

a) xlrd

b) openpyxl

c) csv

d) numpy

True / False Questions

1. The csv module automatically converts numbers in a CSV file to integers or floats.

Answer: False

2. json.dump() writes JSON data directly to a file.

Answer: True

3. pandas can read both CSV and JSON files into DataFrames.

Answer: True

4. The default file format supported by pandas.read_excel() is .xlsx.

Answer: True

5. Excel files can be written using pandas without any external library.

Answer: False

1)

```
import csv
with open("students.csv", mode="r") as file:
    reader = csv.DictReader(file)
    for row in reader:
        if int(row["Grade"]) > 80:
            print(row["Name"])
```

2)

```
import json
data = {
    "course": "Python",
    "duration": "3 months",
    "students": ["Ali", "Sara"]
}
with open("course.json", "w") as file:
    json.dump(data, file, indent=4)
with open("course.json", "r") as file:
    loaded_data = json.load(file)
print(loaded_data["students"])
```

3)

```
import pandas as pd
data = {
    "ID": [1, 2, 3],
    "Name": ["Ali", "Mona", "Omar"],
    "Salary": [5000, 6200, 4800]
}
df = pd.DataFrame(data)
df.to_excel("employees.xlsx", index=False)
loaded_df = pd.read_excel("employees.xlsx")
print(loaded_df[["Name", "Salary"]])
```

4 -

```
import csv
import json
def csv_to_json(csv_file, json_file):
    data = {"people": []}
    with open(csv_file, 'r') as f:
        reader = csv.DictReader(f)
        for row in reader:
            row["Age"] = int(row["Age"])
            data["people"].append(row)
    with open(json_file, 'w') as f:
        json.dump(data, f)
```