

Experiment No: 02

Date: 23-07-2025

EDA – Data Import and Export

Aim: To import data from various sources, handle different formats, and export a DataFrame to an Excel file using Python.

Code:

Step 1: Import libraries

```
import pandas as pd
```

```
import sqlite3
```

```
from bs4 import BeautifulSoup
```

```
import requests
```

```
from io import StringIO
```

Step 2: Importing data from CSV

```
csv_data = pd.read_csv("sample.csv")
```

```
print("CSV Data:")
```

```
print(csv_data.head())
```

Step 3: Importing data from Excel

```
excel_data = pd.read_excel("sample.xlsx")
```

```
print("\nExcel Data:")
```

```
print(excel_data.head())
```

Step 4: Importing data from SQL Database

(Creating temporary database and table for demo)

```
conn = sqlite3.connect(":memory:") # In-memory DB
```

```
csv_data.to_sql("students", conn, index=False, if_exists="replace")
```

```
sql_data = pd.read_sql("SELECT * FROM students", conn)
```

```
print("\nSQL Data:")
```

```
print(sql_data.head())
```

#web scraping

URL

url =

"https://en.wikipedia.org/wiki/List_of_countries_by_population_(United_Nations)"

Add headers to avoid blocking

```
headers = {"User-Agent": "Mozilla/5.0"}
```

```
response = requests.get(url, headers=headers)
```

Parse HTML

```
soup = BeautifulSoup(response.text, "html.parser")
```

Find all tables with 'wikitable' class

```
tables_html = soup.find_all("table", {"class": "wikitable"})
```

```
print(f"Number of tables found: {len(tables_html)}")
```

Convert the first one into DataFrame

```
if tables_html:
    tables = pd.read_html(StringIO(str(tables_html[0])))
    web_data = tables[0]
    print("Web Scraped Data:")
    print(web_data.head())
else:
    print("No tables found on the page.")

print("Web Scraped Data:")
print(web_data.head(2))

# Step 6: Export DataFrame to Excel
csv_data.to_excel("exported_data.xlsx", index=False)
print("\nData exported successfully to 'exported_data.xlsx'")
```

OUTPUT:

```

CSV Data:
ID      Name  Age  Department  Marks
0 1  Alice   23      CSE        85
1 2   Bob   25      ECE        78
2 3  Charlie 22      PE         98
3 4   David 24     CIVIL      88
4 5    Eva  23      AI         95

Excel Data:
ID      Name  Age  Department  Marks
0 1  Alice   23      CSE        85
1 2   Bob   25      ECE        78
2 3  Charlie 22      PE         98
3 4   David 24     CIVIL      88
4 5    Eva  23      AI         95

SQL Data:
ID      Name  Age  Department  Marks
0 1  Alice   23      CSE        85
1 2   Bob   25      ECE        78
2 3  Charlie 22      PE         98
3 4   David 24     CIVIL      88
4 5    Eva  23      AI         95
Number of tables found: 1

Web Scraped Data:
Country or territory  Population (1 July 2022)  Population (1 July 2023) \
0      World              8021407192              8091734930
1      India              1425423212              1438069596
2      China[a]          1425179569              1422584933
3      United States     341534046              343477335
4      Indonesia        278838529              281190667

Change (%) UN continental region[1] UN statistical subregion[1]
0 +0.88% - -
1 +0.89% Asia Southern Asia
2 -0.10% Asia Eastern Asia
3 +0.57% Americas Northern America
4 +0.85% Asia South-eastern Asia

Web Scraped Data:
Country or territory  Population (1 July 2022)  Population (1 July 2023) \
0      World              8021407192              8091734930
1      India              1425423212              1438069596

Change (%) UN continental region[1] UN statistical subregion[1]
0 +0.88% - -
1 +0.89% Asia Southern Asia

Data exported successfully to 'exported_data.xlsx'

```

Result: Successfully imported data from CSV, Excel, SQL, and web sources, handled multiple formats, and exported a DataFrame to Excel.