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Experiment No: 02
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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())
```

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```
# 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_Nati
ons)"


# 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'")
```

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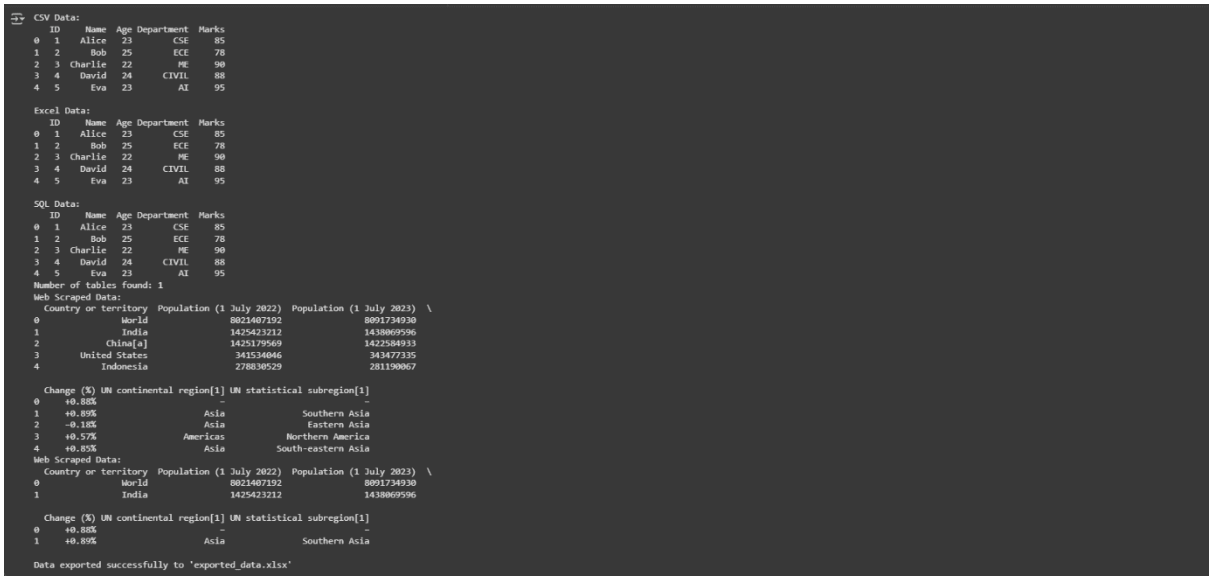
OUTPUT:



```
CSV Data:
   ID     Name  Age Department  Marks
0   1    Alice   23        CSE     85
1   2      Bob   25        ECE     78
2   3  Charlie   22         ME     90
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         ME     90
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         ME     90
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                 278830529                 281190067

  Change (%) UN continental region[1] UN statistical subregion[1]
0     +0.88%                       –                            –
1     +0.89%                    Asia                 Southern Asia
2     -0.18%                    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.