Experiment No: 02

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.

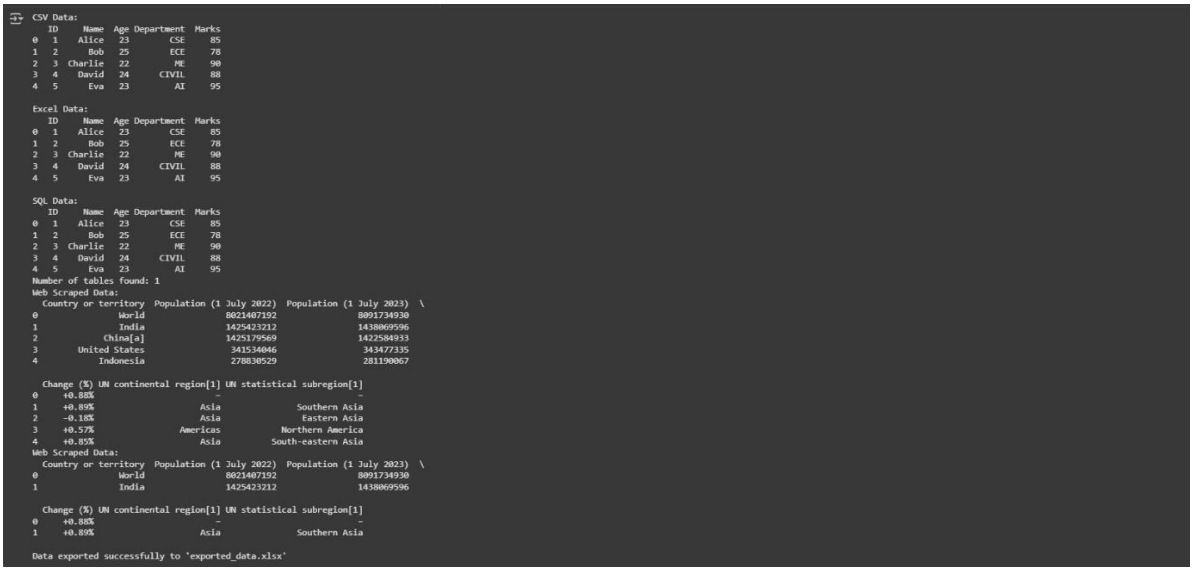
Code:

```
# 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_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'")
```

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.