Name	Hatim Sawai
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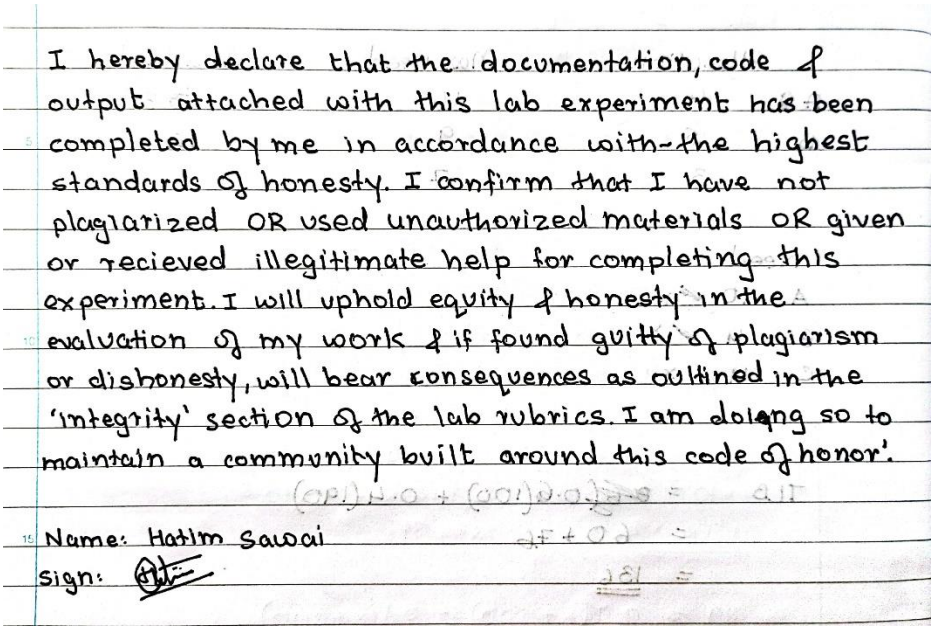
Experiment 1	
HONOUR PLEDGE	
PROBLEM STATEMENT :	Data Importing and Exporting: 1. Read a CSV file into a pandas Data Frame 2. Export a Data Frame to an Excel file. 3. Load JSON data into Data Frame
THEORY:	**1. CSV (Comma-Separated Values):** CSV is a simple and widely used file format for storing tabular data, where each line represents a row, and values within each line are separated by commas. It is a plain-text format that is easy to read and write, making it a popular choice for storing and exchanging structured data. Example: **Name, Age, City** **John, 28, New York** **Alice, 24, San Francisco** **Bob, 32, Chicago**

2. JSON (JavaScript Object Notation):
JSON is a lightweight data-interchange format that is easy for humans to read and write and easy for machines to parse and generate. It is primarily used to transmit data between a server and a web application as an alternative to XML. JSON is structured as key-value pairs and supports nested structures.

Example:

```
{
  "name": "John",
  "age": 28,
  "city": "New York"
}
```

3. Data Frames
Data Frames are two-dimensional, tabular data structures in which data is organized in rows and columns. They are a key component of data manipulation and analysis, providing a convenient way to work with structured data. In Python, the Pandas library is commonly used to create and manipulate Data Frames.

Example:

	Name	Age	City
0	John	28	New York
1	Alice	24	San Francisco
2	Bob	32	Chicago

4. Pandas Library (Python):
Pandas is a powerful open-source data manipulation and analysis library for Python. It provides data structures like Series and Data Frame, which are designed to handle and manipulate structured data efficiently. Pandas simplifies tasks such as reading and writing data, cleaning, transforming, and analyzing data.

Example:
To read csv using pandas:

```
import pandas as pd
df_csv = pd.read_csv('example.csv')
```

PROGRAM:	**Python Notebook *.ipynb file:**

Name: Hatim Sawai
UID: 2021300108

Experiment 1

Data Importing and Exporting:
- Read a CSV file into a pandas Data Frame
- Export a Data Frame to an Excel file.
- Load JSON data into DataFrame

1. Importing Python Libraries

```
import pandas as pd
import numpy as np
```

2. Reading CSV file into a pandas Data Frame

```
df = pd.read_csv('startup_funding.csv')
df.head()
```

	Sr No	Date dd/mm/yyyy	Startup Name	Industry Vertical	SubVertical	City Location	Investors Name	InvestmentnType	Amount in USD	Remarks
0	1	09/01/2020	BYJU'S	E-Tech	E-learning	Bengaluru	Tiger Global Management	Private Equity Round	20,00,00,000	NaN
1	2	13/01/2020	Shuttl	Transportation	App based shuttle service	Gurgaon	Susquehanna Growth Equity	Series C	80,48,394	NaN
2	3	09/01/2020	Mamaearth	E-commerce	Retailer of baby and toddler products	Bengaluru	Sequoia Capital India	Series B	1,83,58,860	NaN
3	4	02/01/2020	https://www.wealthbucket.in/	FinTech	Online Investment	New Delhi	Vinod Khatumal	Pre-series A	30,00,000	NaN
4	5	02/01/2020	Fashor	Fashion and Apparel	Embroiled Clothes For Women	Mumbai	Sprout Venture Partners	Seed Round	18,00,000	NaN

3. Exporting a Data Frame to an Excel file

```
# export to excel
df.to_excel('startup_funding.xlsx')
```

4. Loading JSON data into DataFrame

```
# read json
df1 = pd.read_json('islands.json')
df1.head()
```

	states
0	{'state': {'state_id': 'AN', 'state_name': 'An...
1	{'state': {'state_id': 'AP', 'state_name': 'An...
2	{'state': {'state_id': 'AR', 'state_name': 'Ar...
3	{'state': {'state_id': 'AS', 'state_name': 'As...
4	{'state': {'state_id': 'BR', 'state_name': 'Bi...

```
# normalize json
df2 = pd.json_normalize(df1['states'])
df2.head()
```

	state.state_id	state.state_name
0	AN	Andaman and Nicobar Island (UT)
1	AP	Andhra Pradesh
2	AR	Arunachal Pradesh
3	AS	Assam
4	BR	Bihar

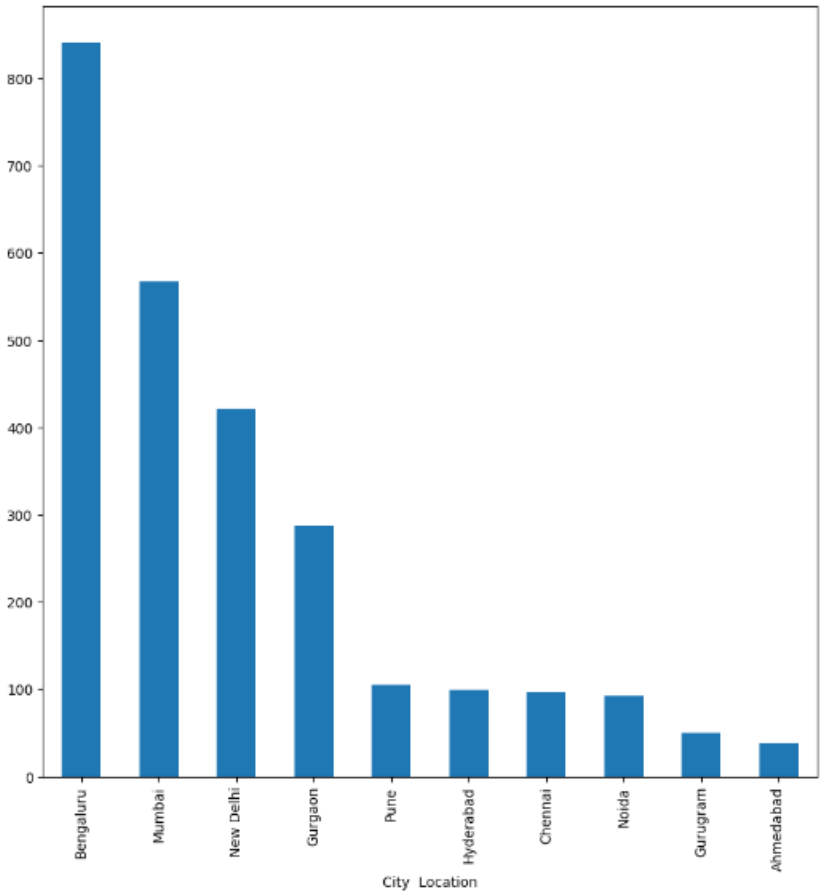
```
df2.to_excel('islands.xlsx')
```

5. Bonus: Data Analysis

Question: Which City has the most amount of Startups?

```
import matplotlib.pyplot as plt
df["City  Location"] = df["City  Location"].replace("Bangalore", "Bengaluru")
# plot a pie chart of city locations
df["City  Location"].value_counts().head(10).plot(kind="bar", figsize=(10, 10))
```

```
<Axes: xlabel='City  Location'>
```

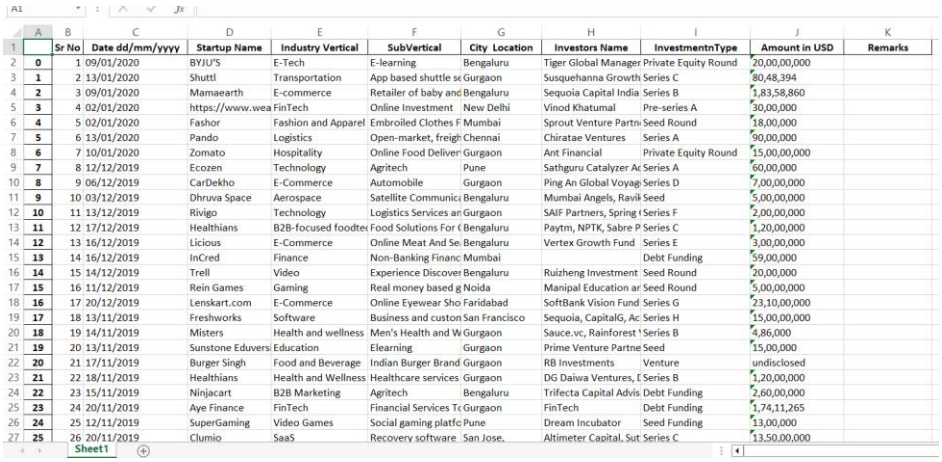


Above Graph tells us that most startups prefer to start their business in benagluru and mumbai. There are many factors that have lead to this. Some of them are:

1. Bengaluru is the IT hub of India. It is the home to many IT companies and startups. It is also known as the silicon valley of India.
2. Mumbai is the financial capital of India. It is the home to many financial institutions and banks. It is also known as the financial capital of India.

RESULT:

1. Startup_funding.xlsx:



	Sr No	Date dd/mm/yyyy	Startup Name	Industry Vertical	SubVertical	City Location	Investors Name	InvestmentnType	Amount in USD	Remarks
0	1	09/01/2020	BYJU'S	E-Tech	E-learning	Bengaluru	Tiger Global Manager	Private Equity Round	20,00,00,000	
1	2	13/01/2020	Shuttl	Transportation	App based shuttle se	Gurgaon	Susquehanna Growth	Series C	80,48,394	
2	3	09/01/2020	Mamaearth	E-commerce	Retailer of baby and	Bengaluru	Sequoia Capital India	Series B	1,83,58,860	
3	4	02/01/2020	https://www.wea	FinTech	Online Investment	New Delhi	Vinod Khatumal	Pre-series A	30,00,000	
4	5	02/01/2020	Fashor	Fashion and Apparel	Embroiled Clothes F	Mumbai	Sprout Venture Partn	Seed Round	18,00,000	
5	6	13/01/2020	Pando	Logistics	Open-market, freigh	Chennai	Chiratae Ventures	Series A	90,00,000	
6	7	10/01/2020	Zomato	Hospitality	Online Food Deliver	Gurgaon	Ant Financial	Private Equity Round	15,00,00,000	
7	8	12/12/2019	Ecozen	Technology	Agritech	Pune	Sathguru Catalyzer Ac	Series A	60,00,000	
8	9	06/12/2019	CarDekho	E-Commerce	Automobile	Gurgaon	Ping An Global Voyag	Series D	7,00,00,000	
9	10	03/12/2019	Dhruva Space	Aerospace	Satellite Communica	Bengaluru	Mumbai Angels, Ravik	Seed	5,00,00,000	
10	11	13/12/2019	Rivigo	Technology	Logistics Services ar	Gurgaon	SAIF Partners, Spring (	Series F	2,00,00,000	
11	12	17/12/2019	Healthians	B2B-focused foodte	Food Solutions For (	Bengaluru	Paytm, NPTK, Sabre P	Series C	1,20,00,000	
12	13	16/12/2019	Licious	E-Commerce	Online Meat And Se	Bengaluru	Vertex Growth Fund	Series E	3,00,00,000	
13	14	16/12/2019	InCred	Finance	Non-Banking Financ	Mumbai		Debt Funding	59,00,000	
14	15	14/12/2019	Trell	Video	Experience Discover	Bengaluru	Ruizheng Investment	Seed Round	20,00,000	
15	16	11/12/2019	Rein Games	Gaming	Real money based g	Noida	Manipal Education ar	Seed Round	5,00,00,000	
16	17	20/12/2019	Lenskart.com	E-Commerce	Online Eyewear Sho	Faridabad	SoftBank Vision Fund	Series G	23,10,00,000	
17	18	13/11/2019	Freshworks	Software	Business and custon	San Francisco	Sequoia, CapitalG, Ac	Series H	15,00,00,000	
18	19	14/11/2019	Misters	Health and wellness	Men's Health and W	Gurgaon	Sauce.vc, Rainforest '	Series B	4,86,000	
19	20	13/11/2019	Sunstone Eduvers	Education	Elearning	Gurgaon	Prime Venture Partne	Seed	15,00,000	
20	21	17/11/2019	Burger Singh	Food and Beverage	Indian Burger Brand	Gurgaon	RB Investments	Venture	undisclosed	
21	22	18/11/2019	Healthians	Health and Wellness	Healthcare services	Gurgaon	DG Daiwa Ventures, I	Series B	1,20,00,000	
22	23	15/11/2019	Ninjacart	B2B Marketing	Agritech	Bengaluru	Trifecta Capital Advis	Debt Funding	2,60,00,000	
23	24	20/11/2019	Aye Finance	FinTech	Financial Services Te	Gurgaon	FinTech	Debt Funding	1,74,11,265	
24	25	12/11/2019	SuperGaming	Video Games	Social gaming platfo	Pune	Dream Incubator	Seed Funding	13,000	
25	26	20/11/2019	Clumio	SaaS	Recovery software	San Jose,	Altimeter Capital, Sut	Series C	13,50,00,000	

Sheet1

2. islands.xlsx:

	state.state_id	state.state_name
0	AN	Andaman and Nicobar Island (UT)
1	AP	Andhra Pradesh
2	AR	Arunachal Pradesh
3	AS	Assam
4	BR	Bihar
5	CH	Chandigarh (UT)
6	CG	Chhattisgarh
7	DN	Dadra and Nagar Haveli (UT)
8	DD	Daman and Diu (UT)
9	DL	Delhi (NCT)
10	GA	Goa
11	GJ	Gujarat
12	HR	Haryana
13	HP	Himachal Pradesh
14	JK	Jammu and Kashmir (UT)
15	JH	Jharkhand
16	KA	Karnataka
17	KL	Kerala
18	LK	Ladakh(UT)
19	LD	Lakshadweep (UT)
20	MP	Madhya Pradesh
21	MH	Maharashtra
22	MN	Manipur
23	ML	Meghalaya
24	MZ	Mizoram
25	NL	Nagaland

Sheet1

CONCLUSION:

In this experiment, we learned how to use pandas library to import csv and Json data files and convert them into data frames and then export them as excel sheets. We also learned how to analyze the data by providing relevant questions and answers on the dataset given.