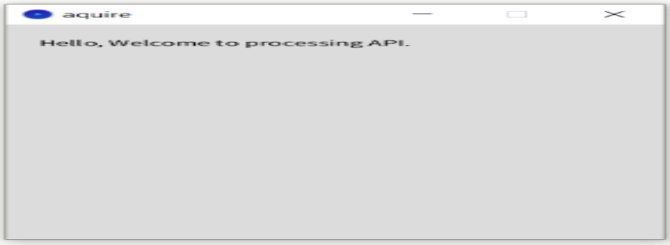
Name : Tejaswini Sunil Mahale

Practical No.1

Roll No.64 Sub:-DV

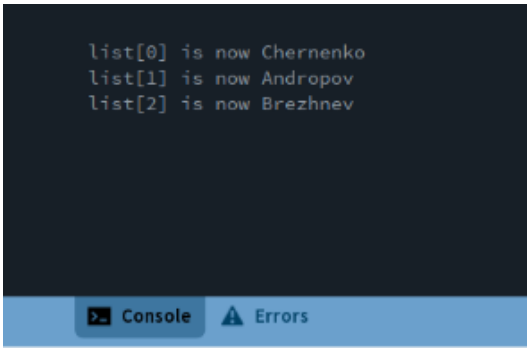
1. **Aquire**

```
//Reads the contents of a file and creates a String array of its individual lines.
//If the name of the file is used as the parameter, as in the above example,
//the file must be loaded in the sketch's "data" directory/folder.

//loadStrings(filename)

String[] lines;
void setup() {
  size(400, 400);
  lines = loadStrings("list.txt");
  println("There are " + lines.length + " lines");
}

void draw() {
  background(220);                                    // Clear the background

  // Display the lines on the canvas with black text color
  textSize(16);
  textAlign(LEFT);
  fill(0);  // Set text color to black

  for (int i = 0; i < lines.length; i++) {
    text(lines[i], 20, 40 + i * 20);                  // Adjust position as needed
  }
}
```



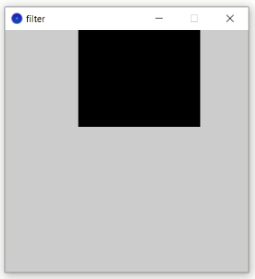
2. Parse

```
// split()
String men = "Chernenko,Andropov,Brezhnev";
String[] list = split(men, ',');

void setup() {
  for (int i = 0; i < list.length; i++) {
    println("list[" + i + "] is now " + list[i]);
  }
}
```



3. Filter

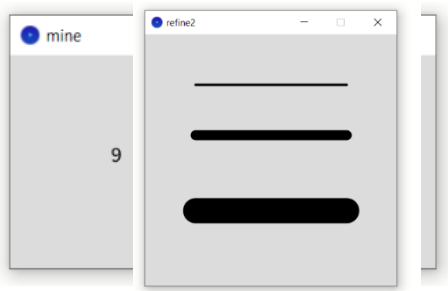
```
size(400, 400);
for (int i = 0; i < 160; i = i+1)
 {
  line(120, i, 320, i);
}
```



4. Mine

// max():-

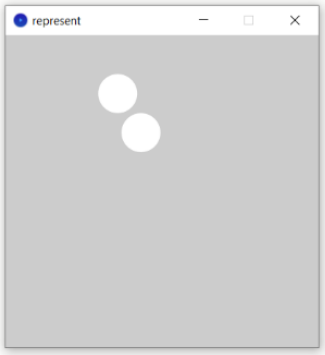
```
int a, b;
float c;

void setup() {
  size(400, 200);
  a = max(5, 9);
  b = max(-4, -12);
  c = max(12.3, 230.24);
}

void draw() {
  background(220);
  textSize(20);
  textAlign(CENTER);

  fill(0);
  text( a, width/4, height/2 );
  text( b, width/2, height/2 );
  text( c, 3 * width/4, height/2);
}
```



5. Represent

//map():-

```
void setup() {
  size(400, 400);
  noStroke();
}

void draw() {
  background(204);
  float  x1 = map(mouseX, 0, width, 100, 150);
  ellipse(x1, 75, 50, 50);
  float x2 = map(mouseX, 0, width, 0, 200);
  ellipse(x2, 125, 50, 50);
}
```



6. Refine

//stokeweight

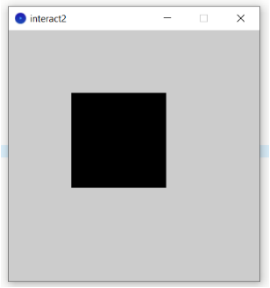
```
void setup() {
  size(400, 400);
}

void draw() {
  background(220);
  stroke(0);                          // Set stroke color to black
  strokeWeight(4);                    // Default
  line(80, 80, 320, 80);
  strokeWeight(16);                   // Thicker
  line(80, 160, 320, 160);
  strokeWeight(40); // Beastly
  line(80, 280, 320, 280);
}
```

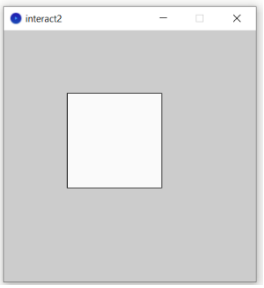
7. Interact

//mouseDragged()

```
// Drag (click and hold) your mouse across the
// image to change the value of the rectangle

int value = 0;

void setup()
{
 size(400,400);
}

void draw() {
  fill(value);
  rect(100,100, 150, 150);
}

void mouseDragged()
{
  value = value + 5;
  if (value > 255) {
    value = 0;
  }
}
```

Before **After mousedrag**



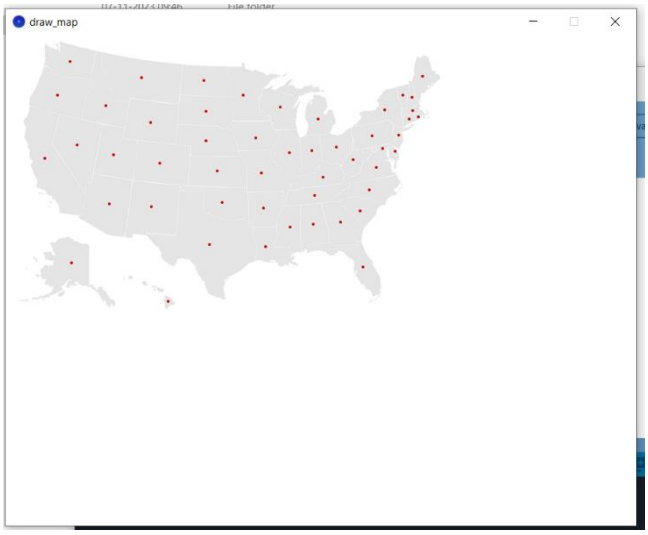


Drawing Map with locations

```
PImage mapImage;
Table locationTable;
int rowCount;
void setup()
{
size(900, 700);
mapImage = loadImage("map.png");
// Make a data table from a file that contains
// the coordinates of each state.
locationTable = new Table("locations.tsv");
// The row count will be used a lot, so store it globally.
 rowCount = locationTable.getRowCount( );
}
void draw( ) {
 background(255);
 image(mapImage, 0, 0);
 // Drawing attributes for the ellipses.
// smooth( );
 fill(192, 0, 0);
 noStroke( );
```

// Loop through the rows of the locations file and draw the points.

```
 for (int row = 0; row < rowCount; row++) {
 float x = locationTable.getFloat(row, 1); // column 1
 float y = locationTable.getFloat(row, 2); // column 2
 ellipse(x, y, 4, 4);
 }
}
```



Name : Tejaswini Sunil Mahale

Practical No.2

Roll No.26 Sub:-DV

Reading data from varied data sources into Python dataframe

Program/Notebook to read and write data from CSV File, Excel File, JSON File into Python dataframe and viceversa.

CSV FILE READING

[4]:
```
import pandas as pd
```

[5]:
```
#df=pd.read_csv("ipl.csv", names=[ "Type"])  #names[] used here to data separated by comma
df=pd.read_csv("ipl.csv")
df
```

[5]:

	id	Player Name	Type	Price Cr	Team
0	0	Ben Stokes	All-Rounder	16.25	Chennai Super Kings
1	1	Ravindra Jadeja	All-Rounder	16.00	Chennai Super Kings
2	1	Ravindra Jadeja	All-Rounder	16.00	Chennai Super Kings
3	1	MS Dhoni	Wicket-Keeper	12.00	Chennai Super Kings
4	1	Moeen Ali	All-Rounder	8.00	Chennai Super Kings
...	...	...	...	...	...
563	1	Dhruv Patel	All-Rounder	NaN	Unsold
564	1	Jack Prestwidge	All-Rounder	NaN	Unsold
565	1	Aditya Sarvate	All-Rounder	NaN	Unsold
566	1	Sagar Solanki	All-Rounder	NaN	Unsold
567	1	Prenelan Subrayen	All-Rounder	NaN	Unsold

568 rows × 5 columns

[6]:
```
print(df.to_string())  #prints all the records in the DataFrame df
```

```
     id          Player Name         Type  Price Cr            Team
0     0          Ben Stokes  All-Rounder     16.25  Chennai Super Kings
1     1      Ravindra Jadeja  All-Rounder     16.00  Chennai Super Kings
2     1      Ravindra Jadeja  All-Rounder     16.00  Chennai Super Kings
3     1           MS Dhoni  Wicket-Keeper     12.00  Chennai Super Kings
4     1           Moeen Ali  All-Rounder      8.00  Chennai Super Kings
5     1        Ambati Rayudu       Batter      6.75  Chennai Super Kings
6     1      Ruturaj Gaikwad       Batter      6.00  Chennai Super Kings
7     1         Shivam Dube  All-Rounder      4.00  Chennai Super Kings
8     1      Mitchell Santner  All-Rounder      1.90  Chennai Super Kings
9     1  Rajvardhan Hangargekar       Bowler      1.50  Chennai Super Kings
10    1       Prashant Solanki       Bowler      1.20  Chennai Super Kings
11    1           Kyle Jamieson       Bowler      1.00  Chennai Super Kings
12    1           Devon Conway       Batter      1.00  Chennai Super Kings
13    1     Maheesh Theekshana       Bowler      0.70  Chennai Super Kings
14    1          Nishant Sindhu  All-Rounder      0.60  Chennai Super Kings
15    1          Ajinkya Rahane       Batter      0.50  Chennai Super Kings
```

[7]:
```
df = pd.read_excel('ipl.xlsx', sheet_name=[0, 'ipl2'])
print(df)
```

```
{0:   a  b  c
0 11 21 31
1 12 22 32
2 31 32 33, 'ipl2':   a  b  c
0 11 21 31
1 12 22 32
2 31 32 33}
```

[8]:
```
df=pd.read_csv("ipl.csv", usecols=["Team", "Type"], index_col = 'Team')  #usecols is used to return subset of the column and also we specified here Team as Index Column
df
```

[8]:

Team	Type

READ EXCEL FILE

[10]:
```
pip install XlsxWriter
```

```
Requirement already satisfied: XlsxWriter in c:\users\hp\appdata\local\programs\python\python310\lib\site-packages (3.1.8)
Note: you may need to restart the kernel to use updated packages.
WARNING: Ignoring invalid distribution -ip (c:\users\hp\appdata\local\programs\python\python310\lib\site-packages)
WARNING: Ignoring invalid distribution -treamlit (c:\users\hp\appdata\local\programs\python\python310\lib\site-packages)
WARNING: Ignoring invalid distribution -ip (c:\users\hp\appdata\local\programs\python\python310\lib\site-packages)
WARNING: Ignoring invalid distribution -treamlit (c:\users\hp\appdata\local\programs\python\python310\lib\site-packages)
WARNING: There was an error checking the latest version of pip.
```

[10]:
```
# Replace 'your_file.xlsx' with the path to your Excel file
file_path = 'your_file.xlsx'

# Read the Excel file into a DataFrame
df = pd.read_excel('ipl.xlsx')

# You can now work with the DataFrame 'df'
# For example, you can print the first few rows:
print(df.head())
```

```
   a  b  c
0 11 21 31
1 12 22 32
2 31 32 33
```

[ ]:
```
```

Write Excel FIle

[11]:
```
df = pd.read_excel("Fees_Data.xlsx")
df
```

[11]:

	Sr. No	EN	Name of the student	Branch	Total Fees	Fees Paid	Date of payment	Mode of Payment	Time	Status
0	1	EN23204195	SHINDE GAURAV PRAKASH	CIVIL	10056.0	10056	27/7/23	UPI	2.45 pm	Yes
1	2	EN23146043	Chaudhari Prasad mahesh	IT	NaN	NaN	2023-04-08 00:00:00	UPI	11.40 am	Yes
2	3	EN23135942	Borse Gunwant Ashok	NaN	53778.0	28778	2023-04-08 00:00:00	Credit Card	11.50 am	No
3	4	EN23135942	Borse Gunwant Ashok	Computer	NaN	25000	2023-04-08 00:00:00	Credit Card	12:00:00	No
4	5	EN23119584	Hire Tejas Ravindra	Computer	53778.0	53778	2023-04-08 00:00:00	UPI	12:10:00	Yes
...	...	...	...	...	...	...	...	...	...	...
66	67	EN23273933	Ahirrao Leeleshwar Subhash	Civil	53778.0	40000	16/8/2015	UPI	17:00:00	No
67	68	EN23200937	Gujar Mohit Yatin	Civil	53778.0	25000	17/8/2015	UPI	11.58 am	No
68	69	EN23117836	Yadav Divya Dadabhai	Electrical	53778.0	40000	17/8/2015	UPI	11.40 am	Yes
69	70	EN23247685	Malik Amaan Anwar	Civil	53778.0	35000	17/8/2015	UPI	11.46 am	No
70	71	EN23237346	Pandey Anjali Anand	Civil	53778.0	43778+10000	17/8/2015	UPI	12.00 pm	Yes

71 rows × 10 columns

[15]:
```
# Step 1: Read the Excel file
df = pd.read_excel("Fees_Data.xlsx")

# Step 2: Create a writer using openpyxl engine
writer = pd.ExcelWriter("newdata.xlsx", engine="openpyxl")

# Step 3: Write the DataFrame to the new Excel file
df.to_excel(writer, sheet_name="Sheet1", index=False)


print("Data has been written to 'new.xlsx'.")
```

```
Data has been written to 'new.xlsx'.
```

[8]:

Team	Type
Chennai Super Kings	All-Rounder
Chennai Super Kings	All-Rounder
Chennai Super Kings	All-Rounder
Chennai Super Kings	Wicket-Keeper
Chennai Super Kings	All-Rounder
...	...
Unsold	All-Rounder
Unsold	All-Rounder
Unsold	All-Rounder
Unsold	All-Rounder
Unsold	All-Rounder

568 rows × 1 columns

[9]:
```
df.info()       #Is used to print a concise summary of the DataFrame, "df"
#print(df.info())
```

```
<class 'pandas.core.frame.DataFrame'>
Index: 568 entries, Chennai Super Kings to Unsold
Data columns (total 1 columns):
 #   Column  Non-Null Count  Dtype 
---  ------  --------------  ----- 
 0   Type    568 non-null    object
dtypes: object(1)
memory usage: 8.9+ KB
```

Writing CSV FILE

[3]:
```
import pandas as pd
# Sample data
data = {
    'Name': ['Alice', 'Bob', 'Charlie'],
    'Age': [25, 30, 35],
    'City': ['New York', 'Los Angeles', 'Chicago']
}
```

[4]:
```
# Create a DataFrame
df = pd.DataFrame(data)

# Specify the file path where you want to save the CSV file
file_path = 'sample_data.csv'
```

[5]:
```
# Write the DataFrame to a CSV file
df.to_csv(file_path, index=False)  # Set index=False to exclude row numbers

print(f"CSV file '{file_path}' has been created.")
```

```
CSV file 'sample_data.csv' has been created.
```

READ EXCEL FILE

[10]:
```
pip install XlsxWriter
```

```
Requirement already satisfied: XlsxWriter in c:\users\hp\appdata\local\programs\python\python310\lib\site-packages (3.1.5)
Note: you may need to restart the kernel to use updated packages.
WARNING: Ignoring invalid distribution -ip (c:\users\hp\appdata\local\programs\python\python310\lib\site-packages)
WARNING: Ignoring invalid distribution -treamlit (c:\users\hp\appdata\local\programs\python\python310\lib\site-packages)
WARNING: Ignoring invalid distribution -ip (c:\users\hp\appdata\local\programs\python\python310\lib\site-packages)
WARNING: Ignoring invalid distribution -treamlit (c:\users\hp\appdata\local\programs\python\python310\lib\site-packages)
WARNING: There was an error checking the latest version of pip.
```

READING/WIRTE JASON FILE

[30]:
```
{
  "playername1":
  {
  "Name": "Virat Kohli",
  "Runs": 11000,
  "Sixes": 219,
  "Fours": 1024
},
  "playername1":
{
  "Name": "Rohit Sharma",
  "Runs": 9000,
  "Sixes": 244,
  "Fours": 1099
},
  "playername1":
{
  "Name": "Steve Smith",
  "Runs": 7227,
  "Sixes": 51,
  "Fours": 774
}
}
```

[30]:
```
{'playername1': {'Name': 'Steve Smith',
  'Runs': 7227,
  'Sixes': 51,
  'Fours': 774}}
```

[31]:
```
df = pd.DataFrame(data)
df
```

[31]:

	Name	Runs	Sixes	Fours
0	Virat Kohli	11000	219	1024
1	Rohit Sharma	9000	244	1099
2	Steve Smith	7227	51	774

[42]:
```
df = pd.read_json("cricket_data.json")
df
```

[42]:

	Name	Runs	Sixes	Fours
0	Virat Kohli	7240	108	707
1	Rohit Sharma	9115	244	809
2	Steve Smith	7540	57	800

[ ]:
```
data = {
  "Author":
  {

  }
}
```