Name : Prajakta Yuvraj Koli

Practical No.1

Roll No.24   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
     }
   }
   ```
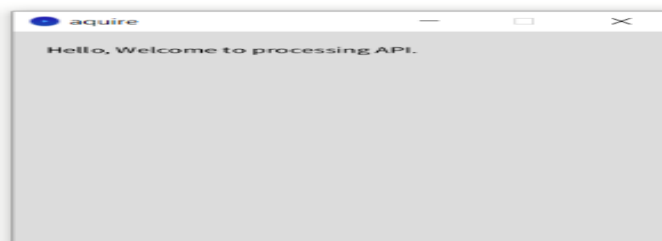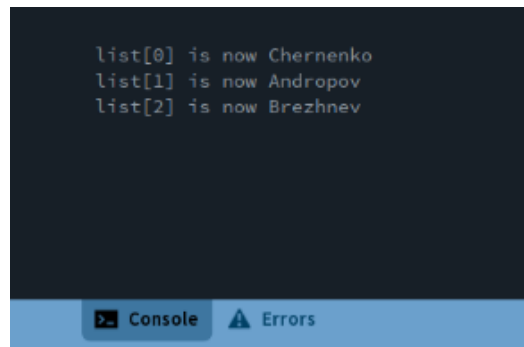

2. Parse

   ```
   // 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]);
     }
   }
   ```
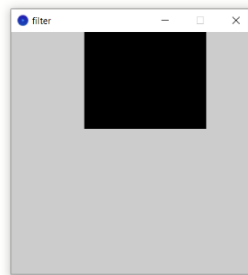
```
list[0] is now Chernenko
list[1] is now Andropov
list[2] is now Brezhnev
```
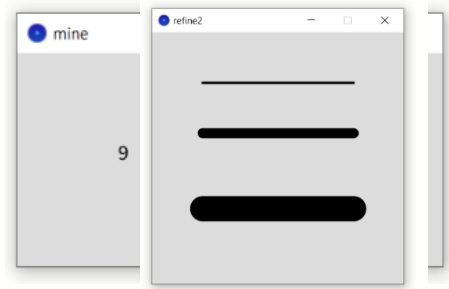
Console   Errors

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);
}
```
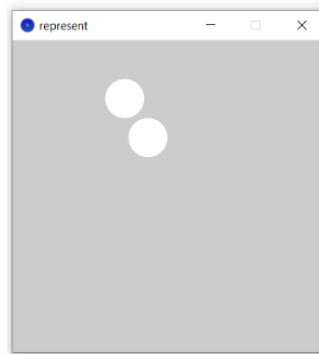

6. Refine

//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;
  }
}
```
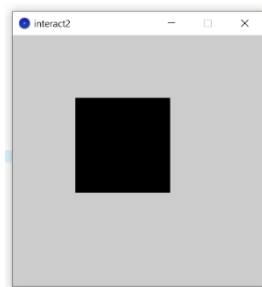
Before	After mousedrag
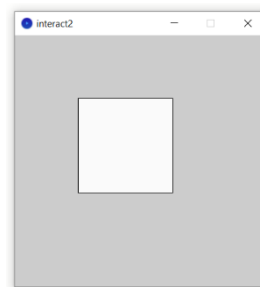
Drawing Map with locations

```
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);
 }
 }
```
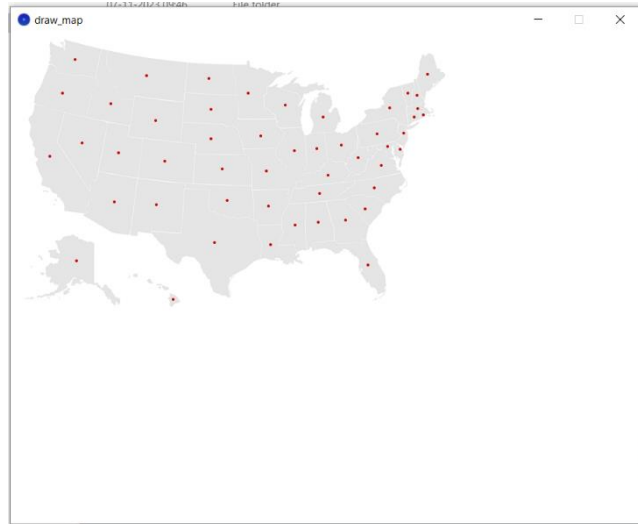
Name : Prajakta Yuvraj Koli

Practical No.2

Roll No.24   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 Colums
df
```

[8]:		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.
```

```
[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
```

	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'.
```

	Type
Team	
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 (3.1.8)
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.
```

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":
     {

     }
     }
```