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Assignment :- 10 Problem statements solving using
Pandas.

```
import pandas as pd

#Load the CSV file into a dataframe df =
pd.read_csv('/content/Iris.csv')
```

Id,SepalLengthCm,SepalWidthCm,PetalLengthCm,PetalWidthC
m,Species

1,5.1,3.5,1.4,0.2,Iris-setosa

2,4.9,3.0,1.4,0.2,Iris-setosa

3,4.7,3.2,1.3,0.2,Iris-setosa

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25,4.8,3.4,1.9,0.2,Iris-setosa
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99,5.1,2.5,3.0,1.1,Iris-versicolor
100,5.7,2.8,4.1,1.3,Iris-versicolor
101,6.3,3.3,6.0,2.5,Iris-virginica
102,5.8,2.7,5.1,1.9,Iris-virginica
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122,5.6,2.8,4.9,2.0,Iris-virginica
123,7.7,2.8,6.7,2.0,Iris-virginica
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142,6.9,3.1,5.1,2.3,Iris-virginica

143,5.8,2.7,5.1,1.9,Iris-virginica

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145,6.7,3.3,5.7,2.5,Iris-virginica

146,6.7,3.0,5.2,2.3,Iris-virginica

147,6.3,2.5,5.0,1.9,Iris-virginica

148,6.5,3.0,5.2,2.0,Iris-virginica

149,6.2,3.4,5.4,2.3,Iris-virginica

150,5.9,3.0,5.1,1.8,Iris-virginica

1. Calculate the average sepal length for each species of iris flower.

```
0s average_sepal_length = df.groupby('Species')['SepalLengthCm'].mean()
print(average_sepal_length)
```

Species	
Iris-setosa	5.006
Iris-versicolor	5.936
Iris-virginica	6.588

Name: SepalLengthCm, dtype: float64

2. Find the maximum petal width among all the iris flowers.

```
0s [3] max_petal_width = df['PetalWidthCm'].max()
print(max_petal_width)
```

2.5

3. Determine the number of samples available for each species of iris flower.


```

0s sample_counts = df['Species'].value_counts()
print(sample_counts)

Iris-setosa      50
Iris-versicolor  50
Iris-virginica   50
Name: Species, dtype: int64

```

4. Identify the species of iris flower that has the smallest sepal length.

```

0s smallest_sepal_length_species = df.loc[df['SepalLengthCm'].idxmin(), 'Species']
print(smallest_sepal_length_species)

Iris-setosa

```

5. Identify any missing values in the dataset and handle them appropriately.

```

0s missing_values = df.isnull().sum()
print(missing_values)

Id      0
SepalLengthCm  0
SepalWidthCm  0
PetalLengthCm  0
PetalWidthCm  0
Species    0
dtype: int64

```

6. Find the median sepal width for each species of iris flower.

```

0s median_sepal_width = df.groupby('Species')['SepalWidthCm'].median()
print(median_sepal_width)

Species
Iris-setosa      3.4
Iris-versicolor  2.8
Iris-virginica   3.0
Name: SepalWidthCm, dtype: float64

```

7. Identify the top 3 samples with the largest sepal length across all species.

