```
import pandas as pd

df = pd.read_csv('Iris.csv')

df.head()
```

```
   sepal.length  sepal.width  petal.length  petal.width variety
0           5.1          3.5           1.4          0.2  Setosa
1           4.9          3.0           1.4          0.2  Setosa
2           4.7          3.2           1.3          0.2  Setosa
3           4.6          3.1           1.5          0.2  Setosa
4           5.0          3.6           1.4          0.2  Setosa
```

```
Setosa = df[df['variety'] == 'Setosa']
Versicolor = df[df['variety'] == 'Versicolor']
Virginica = df[df['variety'] == 'Virginica']

Setosa.head()
```

```
   sepal.length  sepal.width  petal.length  petal.width variety
0           5.1          3.5           1.4          0.2  Setosa
1           4.9          3.0           1.4          0.2  Setosa
2           4.7          3.2           1.3          0.2  Setosa
3           4.6          3.1           1.5          0.2  Setosa
4           5.0          3.6           1.4          0.2  Setosa
```

```
merged_df = pd.concat([Setosa, Versicolor], ignore_index=True)
merged_df
```

```
    sepal.length  sepal.width  petal.length  petal.width     variety
0            5.1          3.5           1.4          0.2      Setosa
1            4.9          3.0           1.4          0.2      Setosa
2            4.7          3.2           1.3          0.2      Setosa
3            4.6          3.1           1.5          0.2      Setosa
4            5.0          3.6           1.4          0.2      Setosa
..           ...          ...           ...          ...         ...
95           5.7          3.0           4.2          1.2  Versicolor
96           5.7          2.9           4.2          1.3  Versicolor
97           6.2          2.9           4.3          1.3  Versicolor
98           5.1          2.5           3.0          1.1  Versicolor
99           5.7          2.8           4.1          1.3  Versicolor

[100 rows x 5 columns]
```

```
sorted_df = df.sort_values(by='petal.length')
sorted_df.head()
```

```
    sepal.length  sepal.width  petal.length  petal.width variety
22           4.6          3.6           1.0          0.2  Setosa
13           4.3          3.0           1.1          0.1  Setosa
14           5.8          4.0           1.2          0.2  Setosa
```

```
35           5.0          3.2           1.2          0.2  Setosa
36           5.5          3.5           1.3          0.2  Setosa

transposed_df = df.T
transposed_df

                  0       1       2       3       4       5       6
7    \
sepal.length    5.1     4.9     4.7     4.6     5.0     5.4     4.6
5.0
sepal.width     3.5     3.0     3.2     3.1     3.6     3.9     3.4
3.4
petal.length    1.4     1.4     1.3     1.5     1.4     1.7     1.4
1.5
petal.width     0.2     0.2     0.2     0.2     0.2     0.4     0.3
0.2
variety       Setosa  Setosa  Setosa  Setosa  Setosa  Setosa  Setosa
Setosa

                  8       9    ...         140         141         142
143  \
sepal.length    4.4     4.9  ...         6.7         6.9         5.8
6.8
sepal.width     2.9     3.1  ...         3.1         3.1         2.7
3.2
petal.length    1.4     1.5  ...         5.6         5.1         5.1
5.9
petal.width     0.2     0.1  ...         2.4         2.3         1.9
2.3
variety       Setosa  Setosa  ...  Virginica  Virginica  Virginica
Virginica

                   144         145         146         147         148
149
sepal.length        6.7         6.7         6.3         6.5         6.2
5.9
sepal.width         3.3         3.0         2.5         3.0         3.4
3.0
petal.length        5.7         5.2         5.0         5.2         5.4
5.1
petal.width         2.5         2.3         1.9         2.0         2.3
1.8
variety       Virginica   Virginica   Virginica   Virginica   Virginica
Virginica

[5 rows x 150 columns]

melted_df = pd.melt(df, id_vars=['variety'], var_name='features',
value_name='value')
melted_df
```

```
       variety      features  value
0       Setosa  sepal.length    5.1
1       Setosa  sepal.length    4.9
2       Setosa  sepal.length    4.7
3       Setosa  sepal.length    4.6
4       Setosa  sepal.length    5.0
..         ...           ...    ...
595  Virginica   petal.width    2.3
596  Virginica   petal.width    1.9
597  Virginica   petal.width    2.0
598  Virginica   petal.width    2.3
599  Virginica   petal.width    1.8

[600 rows x 3 columns]
```

```
wide_df = melted_df.pivot_table(index = 'variety', columns =
'features', values = 'value', aggfunc = 'mean').reset_index()
wide_df
```

```
features     variety  petal.length  petal.width  sepal.length
sepal.width
0             Setosa         1.462        0.246         5.006
3.428
1         Versicolor         4.260        1.326         5.936
2.770
2          Virginica         5.552        2.026         6.588
2.974
```