# Experiment 07 – Develop Python Program to convert arrays into Data Frames & merge them together using NumPy and Pandas Library.

**Learning Objective:** Student should be able to build a program through which we can convert Array into Data Frames. Also merge them together using NumPy and Pandas Library.

**Tools:** Python under Windows environment

**Theory:** Develop a python program to convert Arrays into Data Frames

## 1. Write Python Program converting Arrays into Data Frames:

## Steps for Writing to convert Arrays into Data Frames:

1. Import the necessary packages: Start by importing the necessary Python packages, including NumPy and Pandas.

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

2. Create the arrays: Next, create the arrays that you want to convert into a data frame.

```
array_1 = np.array([1, 2, 3, 4, 5])
array_2 = np.array([6, 7, 8, 9, 10])
```

3. Combine the arrays: Combine the arrays into a single two-dimensional array using the NumPy **vstack()** function.

```
combined_array = np.vstack((array_1, array_2)).T
```

4. Create the data frame: Convert the combined array into a data frame using the Pandas **DataFrame()** function.

```
df = pd.DataFrame(combined_array, columns=['Column 1', 'Column 2'])
```

5. View the data frame: Finally, you can view the data frame using the **head()** function.

```
print(df.head())
```

# Program:

```
import numpy as np
import pandas as pd

# Create the first array and convert it to a data frame
array_1 = np.array([1, 2, 3, 4, 5])
df_1 = pd.DataFrame({'Column 1': array_1})

# Create the second array and convert it to a data frame
array_2 = np.array([6, 7, 8, 9, 10])
df_2 = pd.DataFrame({'Column 2': array_2})

# Merge the two data frames
merged_df = pd.concat([df_1, df_2], axis=1)

# View the merged data frame
print(merged_df)
```

# Output:

```
   Column 1  Column 2
0         1         6
1         2         7
2         3         8
3         4         9
4         5        10
```

**Learning Outcomes:** The student should have the ability to implement the following:

LO1: Firstly, We've Learnt How to convert Arrays into Data Frames

LO2: In the second step, we have imported NumPy & Pandas so that the 2 Columns can be Merged & combined to get the desired output.

LO3: Finally, we have merged all the columns & get the output of the contents of the 2 Columns.

**Course Outcomes:** Upon completion of the course students will be execute programs in Python & convert arrays into Data Frames & merge them together.

**Conclusion:** In this Experiment, we have learnt to implement:

1. **We have learnt how to convert Arrays into Data Frames.**
2. **We have learnt how to import NumPy & Pandas for merging the 2 columns & get them together in the output section.**
3. **We have learnt how to merge all the columns using NumPy & Pandas. First, we created arrays then we converted them & at the end we have merged them.**

For Faculty Use

| **Correction Parameters** | **Formative Assessment [40%]** | **Timely completion of Practical [ 40%]** | **Attendance / Learning Attitude [20%]** | |
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| **Marks Obtained** | | | | |