

## PART-B.

11.

b. Transformation techniques.

Merging data base:

Merging data base is used to merge the two data set using Concatenate function and merge the data base.

d.f. concat()

Example Code for concat()

# creating a data set using dictionary.

```
class 1 = {"Student_ID": [1, 2, 4, 8, 6, 11],
```

```
         "Mark 1": [56, 87, 72, 92, 97, 100],
```

```
         "Mark 2": [80, 85, 90, 95, 96, 87]}]
```

```
class 2 = {"Student_ID": [5, 7, 3, 4, 11, 13, 8],
```

```
         "Mark 1": [76, 87, 90, 72, 100, 99, 91],
```

```
         "Mark 2": [81, 88, 92, 90, 87, 57, 67]}]
```

# importing required packages.

```
import pandas as pd
```

```
import numpy as np
```

```
df1 = pd.DataFrame(class1)
```

```
df2 = pd.DataFrame(class2)
```

```
Print(df1)
```

```
Print(df2)
```

Output for the preceding code.

	Student_ID	Mark1	Mark2
0	1	56	80
1	2	87	85
2	4	72	90
3	8	92	95
4	6	97	96
5	11	100	87

	Student_ID	Mark1	Mark2
0	5	76	81
1	7	87	88
2	3	90	92
3	4	72	90
4	11	100	87
5	13	99	57
6	8	91	67

# using concat() to join two dataset.

```
df3 = Pd.Concat(df1, df2, ignore_index=True)
```

```
Print(df3)
```

Output for the preceding code will be

	Student ID	Mark 1	Mark 2
0	1	86	80
	2	87	85
1	4	72	90
2	8	92	95
3	6	97	96
4	11	100	87
5	5	76	81
6	7	87	88
7	3	90	92
8	4	72	90
9	11	100	87
10	13	99	57
11	8	91	67

Merging.

Merging has two type.

⇒ Inner ( $A \cap B$ )

⇒ Outer has three type

1. Left Outer ( $(A \cup (A \cap B))$ )

2. Right Outer ( $((A \cap B) \cup B)$ )

3. Full Outer join ( $A \cup B$ )

d.f. merge()

Inner join.

d.f 4 = d.f 1. merge(d.f 2, how = 'inner')

↳ It is used to specify the method of merge.

Print(d.f 4)

Output for the preceding code will be

	Student_ID	Mark 1	Mark 2
0	4	72	90
1	11	100	87

Outer join.

Left:

df5 = df1.merge(df2, how='left')

print(df5)

Output:

	Student_ID	Mark1	mark 2
0	1	56	80
1	2	87	85
2	4	72	90
3	8	92	95
4	6	97	96
5	11	100	87

Right:

df6 = df1.merge(df2, how='right')

print(df6)

Output for the code



	Student_ID	Mark 1	Mark 2
0	5	87	88
1	7	90	92
2	3	72	90
3	4	100	87
4	11	99	57
5	13	91	67
6	8		

Full Outer join:  
`df7 = df1.merge(df2, how='outer')`  
`Print(df7)`

Output:

	Student_ID	Mark 1	Mark 2
0	1	56	80
1	2	87	85
2	4	72	90
3	8	92	95
4	6	97	96
5	11	100	87
6	5	76	81
7	7	87	88
8	3	90	92
9	4	72	90
10	11	100	87
11	13	99	57
12	8	91	67

Reshaping.

Reshaping is used to reshape the values in the column that is now is

Converted into Column or Column to row  
or Row by Column.

Example.

```
import numpy as np
```

```
import pandas as pd
```

```
x = np.arange(15).reshape(3, 5)
```

```
indexers = ['Delhi', 'Chennai', 'Bengaluru']
```

```
df = pd.DataFrame(x, index=indexers,  
                  column=['Rain', 'Sun', 'Hot',  
                          'Cold', 'Netral'])
```

Print(df)

Output for the preceding code,

	Rain	Sun	Hot	Cold	Netral
Delhi	0	1	2	3	4
Chennai	5	6	7	8	9
Bengaluru	10	11	12	13	14

It implements the stack() also.

```
df1 = df.stack(df)
```

Print(df1)