

Observe the following data:

	PNAME	COMPANY	PRICE	QTY
P1	TV	LG	10000	10
P2	AC	WHIRLPOOL	25000	5
P3	TV	SONY	15000	15
P4	WM	WHIRLPOOL	12000	8
P5	AC	LG	28000	12
P6	TV	LG	15000	5

Answer the following questions on the basis of above data-

1. Create dataframe product for above data .
2. display complete data from dataframe.
3. Display no. of rows in dataframe
4. Display no. of columns in dataframe

Selecting and Accessing from DataFrame

- Selecting a Column-
<DataFrame Object>[<column name>] ← To select a column
or <DataFrame Object>.<column name> ← To select a column
<DataFrame Object>[List of column name] ← Selection of multiple column

Selection of subset from DataFrame
<DataFrameObject>.loc [<StartRow> : <EndRow>, <StartCol> : <EndCol>]

```
<DataFrameObject> .iloc [<Row Index> : <RowIndex>, <ColIndex> : <ColIndex>]
```

5. Display product name from above dataframe.
6. Display details of products from P2 to P4.
7. Display columns from pname to price for all products.
8. Display columns from pname to price for P2 to P4 products.
9. Display the Pname and price of all products.
10. Display the detail of P2 product only.
11. Display the record of p2 and p5 products.
12. Display the pname and price of p2 and p5 products.

Selection of an Individual Value from DataFrame

```
<DFObj>. <col name>[<row name or row index>  
or  
<DFObj> . at [<row name>, <col name>]  
or  
<DFObj> iat[<row index>, <col index>]
```

13. Display pname of p4 product.
14. Display price of p2 product.

Accessing and modifying values in DataFrame

a) Syntax to add or change a column-

```
<DFObj>.<Col Name>[<row label>]=<new value>
```

15. To add new column amount which is qty*price
16. To add new column launch_year with different values.
17. To modify the values of launch_year field.

b) Syntax to add or change a row-

```
<DFOBJECT> at[<RowName>, : ] =<new value>
```

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```
<DFOBJECT> loc[<RowName>, : ] =<new value>
```

18. To insert new record of product P7 .
19. To modify record of P5.

c) Syntax to change single value-

```
<DFOBJECT>.<ColName>[<RowName/Label>]
```

20. To change company of P2 product.

d) Syntax for Column deletion-

```
del <DFOBJECT>[<ColName>] or
```

```
df.drop([<Col1Name>,<Col2Name>, . . . ], axis=1)
```

21. to delete column launch_year
22. to delete column qty and amount columns.
23. to delete record of p5 product.
24. to delete first three records.

Arrange data in ascending or descending order

```
DataFrame.sort_values(by = None, axis=0, ascending = True, inplace = False)  
DataFrame.sort_index(by = None, axis=0, ascending = True, inplace = False)
```

25. arrange the data in ascending order of price.
26. arrange the data in descending order of name.
27. Arrange the data in ascending order of pname and descending order of price.

Apply filtering condition-

28. Display those products whose price less than 10000.
29. Display pname and price of those products whose qty is greater than 12.
30. Display top 3 records
31. Display bottom 2 record.
32. To modify price of TV to 20000.
33. increase the price of all products by 10%
34. Decrease the price of TV by 1000.
35. display the price of SONY TV.

Rename the columns-

36. Rename the column "price" to "rate".

Aggregation Statistics-

37. To count no. of records in dataframe.
38. To calculate sum of price.

39. To calculate mean of price.
40. To calculate mode of price.
41. To calculate median of price.
42. To calculate standard deviation of price.
43. To calculate min and max of price.
44. To find maximum price of TV
45. To find avg price of AC
46. To count no. of product whose company is "LG".
47. To display pname which has highest price.

Pivoting-

Pivoting using pivot() method
syntax → `pandas.pivot(index, columns, values)`

Pivoting using pivot_table() method. . .
*pandas.pivot_table (DataFrame, values=None, index=None,
columns=None, aggfunc='mean',
fill_value=None, margins=False, dropna=True,
margins_name='All')*

48. To display the company wise price of products.
49. To display product wise avg price of products.
50. To count no. of products company wise

51. To display product wise minimum and maximum price.

52. To display product wise total price and total qty.

Handling of missing data-

53. To replace all NaN values with 0.

54. To delete those record which has NaN Value

55. To replace all NaN values with 10 in qty column.