

FROM

SQL

TO

PANDAS



INDEX

SELECT ALL COLUMNS
SELECT SINGLE COLUMN
SELECT MULTIPLE COLUMNS
FILTER ROWS
TOP N ROWS
DISTINCT VALUES
COUNT OF DISTINCT VALUES
COUNT OF TOTAL VALUES
STRUCTURE OF TABLE
DESCRIPTIVE STATISTICS
GROUP BY SINGLE COLUMN
SORT BY SINGLE COLUMN
SORT BY MULTIPLE COLUMNS
COUNT OF UNIQUE VALUES
DROP ROW - ALL COLUMNS DUPLICATED
DROP ROW - KEY COLUMN DUPLICATED

JOINS

INNER JOIN
LEFT JOIN
RIGHT JOIN
FULL JOIN
CROSS JOIN

UNION

UNION ALL BY SINGLE COLUMN
UNION ALL BY ALL COLUMNS
UNION BY SINGLE COLUMN
UNION BY ALL COLUMNS

COLUMNS

ADD SINGLE COLUMN
DROP SINGLE COLUMN
DROP MULTIPLE COLUMNS
RENAME SINGLE COLUMN
RENAME MULTIPLE COLUMNS

UPDATE

UPDATE SINGLE COLUMN SINGLE ROW
UPDATE MULTIPLE COLUMNS SINGLE ROW
UPDATE SINGLE COLUMN MULTIPLE ROWS
UPDATE MULTIPLE COLUMNS MULTIPLE ROWS
UPDATE SINGLE COLUMN ALL ROWS

SELECT ALL COLUMNS



```
CREATE TABLE "df" (  
  "CustID" INTEGER,  
  "Name"    VARCHAR(10)  
);  
  
INSERT INTO "df" VALUES  
(1, 'Doe'),  
(2, 'Jo'),  
(3, 'Tod')  
;
```

```
SELECT *  
FROM df;
```

Output

CustID	Name
1	Doe
2	Jo
3	Tod



```
import pandas as pd  
  
data = {  
    'CustID': [1, 2, 3],  
    'Name': ['Doe', 'Jo', 'Tod']  
}  
  
df = pd.DataFrame(data)
```

```
print(df)
```

output

	CustID	Name
0	1	Doe
1	2	Jo
2	3	Tod

SELECT SINGLE COLUMN



```
CREATE TABLE "df" (  
  "CustID" INTEGER,  
  "Name"    VARCHAR(10)  
);  
  
INSERT INTO "df" VALUES  
(1, 'Doe'),  
(2, 'Jo'),  
(3, 'Tod')  
;
```

```
SELECT "Name"  
FROM "df"
```

Name
Doe
Jo
Tod



```
import pandas as pd  
  
data = {  
  'CustID': [1, 2, 3],  
  'Name': ['Doe', 'Jo', 'Tod']  
}  
  
df = pd.DataFrame(data)
```

```
print(df['Name'])
```

```
0    Doe  
1     Jo  
2    Tod  
Name: Name, dtype: object
```

SELECT MULTIPLE COLUMNS



```
CREATE TABLE "df" (  
  "CustID" INTEGER,  
  "FirstName" VARCHAR,  
  "LastName" VARCHAR  
);  
  
INSERT INTO "df" VALUES  
(1, 'Doe', 'Pala'),  
(2, 'Jo', 'Noice'),  
(3, 'Tod', 'Palle')  
;  
  
SELECT  
  "CustID",  
  "FirstName"  
FROM "df";
```

...	CustID	FirstName
	1	Doe
	2	Jo
	3	Tod



```
import pandas as pd  
  
df = pd.DataFrame(  
    columns = [  
        'CustID',  
        'FirstName',  
        'LastName'  
    ]  
)  
  
df['CustID'] = [1, 2, 3]  
  
df['FirstName'] = ['Doe', 'Jo', 'Tod']  
  
df['LastName'] = ['Pala', 'Noice', 'Palle']  
  
print(df)
```

```
   CustID  FirstName  LastName  
0        1        Doe        Pala  
1        2         Jo        Noice  
2        3         Tod        Palle
```

```
print(df[['CustID', 'FirstName']])
```

```
   CustID  FirstName  
0        1        Doe  
1        2         Jo  
2        3         Tod
```

FILTER ROWS



```
CREATE TABLE "df" (  
  "CustID" INTEGER,  
  "Name"    VARCHAR(10)  
);
```

```
INSERT INTO "df" VALUES  
(1, 'Doe'),  
(2, 'Jo'),  
(3, 'Tod')  
;
```

```
SELECT *  
  FROM "df"  
 WHERE "CustID" = '2';
```

CustID	Name	...
2	Jo	



```
import pandas as pd
```

```
df = pd.DataFrame(  
    columns = ['CustID', 'Name']  
)
```

```
df['CustID'] = [1, 2, 3]
```

```
df['Name'] = ['Doe', 'Jo', 'Tod']
```

```
df[df['CustID'] == 2]
```

	CustID	Name
1	2	Jo

TOP N ROWS



```
CREATE TABLE "df" (  
  "CustID" INTEGER,  
  "Name"    VARCHAR(10)  
);  
  
INSERT INTO "df" VALUES  
(1, 'Doe'),  
(2, 'Jo'),  
(3, 'Tod')  
;|  
  
SELECT *  
  FROM "df"  
  LIMIT 1;
```

...	CustID	Name
	1	Doe



```
import pandas as pd  
  
df = pd.DataFrame(  
    columns = ['CustID', 'Name']  
)  
  
df['CustID'] = [1, 2, 3]  
  
df['Name'] = ['Doe', 'Jo', 'Tod']
```

```
print(df.head(1))
```

```
   CustID  Name  
0         1  Doe
```

DISTINCT VALUES



```
CREATE TABLE "df" (  
  "CustID" INTEGER,  
  "Name" VARCHAR  
);
```

```
INSERT INTO "df" VALUES  
(1, 'Doe'),  
(2, 'Jo'),  
(1, 'Tod')  
;
```

```
SELECT DISTINCT "CustID"  
FROM "df";
```

CustID
1
2



```
import pandas as pd  
  
df = pd.DataFrame(  
    columns = ['CustID', 'Name']  
)  
  
df['CustID'] = [1, 2, 1]  
  
df['Name'] = ['Doe', 'Jo', 'Tod']  
  
print(df)
```

```
   CustID Name  
0        1  Doe  
1        2   Jo  
2        1  Tod
```

```
print(df.CustID.unique())
```

```
[1 2]
```


COUNT OF DISTINCT VALUES



```
create table "df" (  
  "CustID" INTEGER  
);  
  
INSERT INTO df values  
(10),  
(20),  
(10);  
  
SELECT COUNT(DISTINCT "CustID")  
FROM df;
```

...	COUNT(DISTINCT "CUSTID")
	2



```
import pandas as pd  
  
df = pd.DataFrame(  
    columns = ['CustID']  
)  
  
df['CustID'] = [10, 20, 10]  
  
print(df)
```

```
      CustID  
0         10  
1         20  
2         10
```

```
print(df.CustID.nunique())
```

2

COUNT OF TOTAL VALUES

table/dataframe

CustID	Name
10	Doe
20	Jo
30	Tod



```
SELECT COUNT(*) * (  
  SELECT COUNT(*)  
  FROM INFORMATION_SCHEMA.columns  
  WHERE TABLE_CATALOG = 'DATABASE_NAME'  
  AND TABLE_SCHEMA = 'SCHEMA_NAME'  
  AND TABLE_NAME='df'  
) AS "Size"  
from "df";
```

Size
6



```
df.size
```

6

STRUCTURE OF TABLE

table/dataframe

CustID	Name
10	Doe
20	Jo
30	Tod



```
desc table "df";
```

name	...	type	kind
CustID		NUMBER(38,0)	COLUMN
Name		VARCHAR(20)	COLUMN



```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 3 entries, 0 to 2  
Data columns (total 2 columns):  
#   Column  Non-Null Count  Dtype  
---  -  
0   CustID   3 non-null      int64  
1   Name     3 non-null      object  
dtypes: int64(1), object(1)  
memory usage: 176.0+ bytes
```

DESCRIPTIVE STATISTICS



In [17]:

```
df
```

```
Out[17]: 0    1
          1    2
          2    3
          3    4
          4    5
          Name: AGE, dtype: int64
```

In [21]:

```
df.describe()
```

```
Out[21]: count    5.00000
          mean     3.00000
          std      1.58111
          min      1.00000
          25%      2.00000
          50%      3.00000
          75%      4.00000
          max      5.00000
          Name: AGE, dtype: float64
```



AGE
1
2
3
4
5

SELECT

```
    COUNT(age) AS "count"
,   AVG(age) AS "mean"
,   STDDEV(age) as "std"
,   MIN(age) as "min"
,   PERCENTILE_CONT(0.25) WITHIN GROUP (ORDER BY age) "25%"
,   PERCENTILE_CONT(0.5) WITHIN GROUP (ORDER BY age) "50%"
,   PERCENTILE_CONT(0.75) WITHIN GROUP (ORDER BY age) "75%"
,   MAX(age) as "max"
```

FROM desc_stats;

...	count	mean	std	min	25%	50%	75%	max
	5	3.000000	1.58113883	1	2.000	3.000	4.000	5

GROUP BY SINGLE COLUMN



```
CREATE TABLE "df" (  
  "Gender" VARCHAR(1)  
  ,"Population" |INTEGER  
);  
  
INSERT INTO "df" VALUES  
( 'M', 1),  
( 'F', 1),  
( 'M', 0),  
( 'F', 1)  
;
```

```
SELECT  
  "Gender"  
  , SUM("Population")  
  FROM "df"  
  GROUP BY "Gender"  
;
```

Gender	Population
M	1
F	2



```
: import pandas as pd  
  
df = {  
  'Gender': ['M', 'F', 'M', 'F'],  
  'Population': [1, 1, 0, 1]  
}  
  
df = pd.DataFrame(df)  
  
df
```

```
:  
  
      Gender  Population  
0         M             1  
1         F             1  
2         M             0  
3         F             1
```

```
: print(df.groupby('Gender').sum());
```

```
      Population  
Gender  
F             2  
M             1
```

SORT BY SINGLE COLUMN



```
create or replace table "df" (  
  "ID" INTEGER,  
  "Name" VARCHAR(10)  
);
```

```
INSERT INTO "df" values  
(5, 'Joe'),  
(2, 'Doe'),  
(4, 'Paula'),  
(3, 'John'),  
(1, 'Terry')  
;
```

```
SELECT *  
FROM "df"  
ORDER BY "ID";
```

...	ID	Name
	1	Terry
	2	Doe
	3	John
	4	Paula
	5	Joe



```
import pandas as pd  
  
df = {  
  'ID': [5, 2, 4, 3, 1],  
  'NAME': ['Joe', 'Doe', 'Paula', 'John', 'Terry']  
}
```

```
df = pd.DataFrame(df)  
  
df.sort_values(by=['ID'])
```

	ID	NAME
4	1	Terry
1	2	Doe
3	3	John
2	4	Paula
0	5	Joe

SORT BY MULTIPLE COLUMNS



```
create or replace table "df" (  
  "ID"    INTEGER,  
  "Name"  VARCHAR(10),  
  "AGE"   INTEGER  
);
```

```
INSERT INTO "df" values  
(5, 'Joe', 20),  
(2, 'Doe', 50),  
(2, 'Paula', 10),  
(1, 'John', 40),  
(1, 'Terry', 30)  
;
```

```
SELECT *  
FROM "df"  
ORDER BY "ID", "AGE";
```

...	ID	Name	AGE
	1	Terry	30
	1	John	40
	2	Paula	10
	2	Doe	50
	5	Joe	20



```
import pandas as pd  
  
df = {  
  'ID': [5, 2, 2, 1, 1],  
  'NAME': ['Joe', 'Doe', 'Paula', 'John', 'Terry'],  
  'AGE': [20, 50, 10, 40, 30]  
}
```

```
df = pd.DataFrame(df)  
  
df.sort_values(by=['ID', 'AGE'])
```

	ID	NAME	AGE
4	1	Terry	30
3	1	John	40
2	2	Paula	10
1	2	Doe	50
0	5	Joe	20

**Sorted by default
in ascending order**

COUNT OF UNIQUE VALUES



```
create or replace table "df" (  
  "NAME"    VARCHAR(10)  
);
```

```
INSERT INTO "df" values  
( 'Joe' ),  
( 'Doe' ),  
( 'Paula' ),  
( 'Joe' ),  
( 'Doe' )  
;
```

```
SELECT "NAME", COUNT(*)  
FROM "df"  
GROUP BY "NAME"  
ORDER BY COUNT(*) DESC;
```

NAME	... COUNT(*)
Joe	2
Doe	2
Paula	1



```
import pandas as pd
```

```
df = ['Joe', 'Doe', 'Paula', 'Joe', 'Doe']
```

```
df = pd.DataFrame(df)
```

```
df.value_counts()
```

```
Doe      2
```

```
Joe      2
```

```
Paula    1
```

```
Name: count, dtype: int64
```


DROP ROW - ALL COLUMNS DUPLICATED



```
create or replace table "df" (  
  "ID"      INTEGER,  
  "NAME"    VARCHAR(10)  
);
```

```
INSERT INTO "df" values  
(1, 'Joe'),  
(2, 'Jack'),  
(3, 'Paula'),  
(1, 'Joe')  
;
```

```
SELECT DISTINCT *  
FROM "df"  
;
```

...	ID	NAME
	1	Joe
	2	Jack
	3	Paula



```
: import pandas as pd
```

```
: df = {  
  'ID': [1, 2, 3, 1],  
  'Name': ['Joe', 'Jack', 'Paul', 'Joe']  
}
```

```
: df = pd.DataFrame(df)
```

```
: df
```

```
:  
:  ID  Name  
0  1   Joe  
1  2  Jack  
2  3  Paul  
3  1   Joe
```

```
df.drop_duplicates()
```

```
:  ID  Name  
0  1   Joe  
1  2  Jack  
2  3  Paul
```



DROP ROW - KEY COLUMN DUPLICATED



```
create or replace table "df" (  
  "ID"      INTEGER,  
  "NAME"    VARCHAR(10)  
);  
  
INSERT INTO "df" values  
(1, 'Joe'),  
(2, 'Jack'),  
(3, 'Paula'),  
(1, 'Doe')  
;  
  
DELETE FROM "df" T1  
USING  
(  
  SELECT  
    ID,  
    NAME  
  FROM "df"  
  QUALIFY ROW_NUMBER() OVER (PARTITION BY ID ORDER BY ID ASC) = '2'  
) T2  
WHERE T1."ID" = T2."ID" AND T1."NAME" = T2."NAME"  
;  
  
SELECT *  
FROM "df"  
;
```

...	ID	NAME
	1	Joe
	2	Jack
	3	Paula



```
import pandas as pd
```

```
df = {  
  'ID': [1, 2, 3, 1],  
  'Name': ['Joe', 'Jack', 'Paul', 'Doe']  
}
```

```
df = pd.DataFrame(df)
```

```
df
```

	ID	Name
0	1	Joe
1	2	Jack
2	3	Paul
3	1	Doe

```
df.drop_duplicates(subset=['ID'])
```

	ID	Name
0	1	Joe
1	2	Jack
2	3	Paul

INNER JOIN



```
create or replace table "df1" (  
  "ID"      INTEGER,  
  "NAME"    VARCHAR(10)  
);  
INSERT INTO "df1" values  
(1, 'Joe'),  
(2, 'Jack'),  
(3, 'Paula');  
create or replace table "df2" (  
  "ID"      INTEGER,  
  "AGE"     INTEGER  
);  
INSERT INTO "df2" values  
(1, 10),  
(2, 20),  
(4, 40);  
SELECT "df1".ID, NAME, AGE  
FROM "df1"  
INNER JOIN "df2"  
ON "df1".ID = "df2".ID;
```

...	ID	NAME	AGE
	1	Joe	10
	2	Jack	20



```
import pandas as pd
```

```
df1 = {  
    'ID': [1, 2, 3],  
    'Name': ['Joe', 'Jack', 'Paula']  
}  
  
df1 = pd.DataFrame(df1)  
  
df2 = {  
    'ID': [1, 2, 4],  
    'Age': [10, 20, 40],  
}  
  
df2 = pd.DataFrame(df2)
```

```
df = pd.merge(df1, df2, on='ID', how='inner')
```

```
df
```

```
   ID  Name  Age  
0   1   Joe   10  
1   2  Jack   20
```

LEFT JOIN



```
create or replace table "df1" (  
  "ID"      INTEGER,  
  "NAME"    VARCHAR(10)  
);  
INSERT INTO "df1" values  
(1, 'Joe'),  
(2, 'Jack'),  
(3, 'Paula');  
create or replace table "df2" (  
  "ID"      INTEGER,  
  "AGE"     INTEGER  
);  
INSERT INTO "df2" values  
(1, 10),  
(2, 20),  
(4, 40);  
SELECT "df1".ID, NAME, AGE  
FROM "df1"  
LEFT JOIN "df2"  
ON "df1".ID = "df2".ID;
```

ID	NAME	AGE
1	Joe	10
2	Jack	20
3	Paula	null



```
import pandas as pd
```

```
df1 = {  
    'ID': [1, 2, 3],  
    'Name': ['Joe', 'Jack', 'Paula']  
}
```

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

```
df2 = {  
    'ID': [1, 2, 4],  
    'Age': [10, 20, 40],  
}
```

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

```
df = pd.merge(df1, df2, on='ID', how='left')
```

```
df
```

	ID	Name	Age
0	1	Joe	10.0
1	2	Jack	20.0
2	3	Paula	NaN

RIGHT JOIN



```
create or replace table "df1" (  
  "ID"      INTEGER,  
  "NAME"    VARCHAR(10)  
);  
INSERT INTO "df1" values  
(1, 'Joe'),  
(2, 'Jack'),  
(3, 'Paula');  
create or replace table "df2" (  
  "ID"      INTEGER,  
  "AGE"     INTEGER  
);  
INSERT INTO "df2" values  
(1, 10),  
(2, 20),  
(4, 40);  
SELECT "df2".ID, NAME, AGE  
FROM "df1"  
RIGHT JOIN "df2"  
ON "df1".ID = "df2".ID;
```

ID	NAME	...	AGE
1	Joe		10
2	Jack		20
4	null		40



```
: import pandas as pd
```

```
: df1 = {  
    'ID': [1, 2, 3],  
    'Name': ['Joe', 'Jack', 'Paula']  
}
```

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

```
df2 = {  
    'ID': [1, 2, 4],  
    'Age': [10, 20, 40],  
}
```

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

```
: df = pd.merge(df1, df2, on='ID', how='right')  
df
```

```
:
```

	ID	Name	Age
0	1	Joe	10
1	2	Jack	20
2	4	NaN	40

FULL JOIN



```
create or replace table "df1" (  
  "ID"      INTEGER,  
  "NAME"    VARCHAR(10)  
);  
INSERT INTO "df1" values  
(1, 'Joe'),  
(2, 'Jack'),  
(3, 'Paula');  
create or replace table "df2" (  
  "ID"      INTEGER,  
  "AGE"     INTEGER  
);  
INSERT INTO "df2" values  
(1, 10),  
(2, 20),  
(4, 40);  
SELECT COALESCE("df1".ID, "df2".ID) AS ID,  
       NAME,  
       AGE  
FROM "df1"  
FULL JOIN "df2"  
ON "df1".ID = "df2".ID;  
ORDER BY 1;
```

ID	NAME	AGE
1	Joe	10
2	Jack	20
3	Paula	null
4	null	40



```
: import pandas as pd  
  
: df1 = {  
    'ID': [1, 2, 3],  
    'Name': ['Joe', 'Jack', 'Paula']  
}  
df1 = pd.DataFrame(df1)  
  
df2 = {  
    'ID': [1, 2, 4],  
    'Age': [10, 20, 40],  
}  
df2 = pd.DataFrame(df2)  
  
: df = pd.merge(df1, df2, on='ID', how='outer')  
df
```

```
:  
      ID  Name  Age  
0     1   Joe  10.0  
1     2  Jack  20.0  
2     3  Paula  NaN  
3     4   NaN  40.0
```

CROSS JOIN



```
create or replace table "df1" (  
  "ID"      INTEGER,  
  "NAME"    VARCHAR(10)  
);  
INSERT INTO "df1" values  
(1, 'Joe'),  
(2, 'Jack');  
create or replace table "df2" (  
  "ID"      INTEGER,  
  "AGE"     INTEGER  
);  
INSERT INTO "df2" values  
(1, 10),  
(2, 20);  
SELECT *  
FROM "df1"  
CROSS JOIN "df2"  
;
```

...	ID	NAME	ID_2	AGE
	1	Joe	1	10
	1	Joe	2	20
	2	Jack	1	10
	2	Jack	2	20



```
import pandas as pd
```

```
df1 = {  
    'ID': [1, 2],  
    'Name': ['Joe', 'Jack']  
}
```

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

```
df2 = {  
    'ID': ['1', '2'],  
    'AGE': [10, 20]  
}
```

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

```
df = pd.merge(df1, df2, how='cross')
```

```
df
```

	ID_x	Name	ID_y	AGE
0	1	Joe	1	10
1	1	Joe	2	20
2	2	Jack	1	10
3	2	Jack	2	20



UNION ALL BY SINGLE COLUMN



```
CREATE OR REPLACE TABLE "df1" (  
  "ID"      INTEGER,  
  "NAME"    VARCHAR(10)  
);  
INSERT INTO "df1" values  
(1, 'Joe'),  
(2, 'Jack');  
--  
CREATE OR REPLACE TABLE "df2" (  
  "ID"      INTEGER,  
  "NAME"    VARCHAR(10)  
);  
INSERT INTO "df2" values  
(1, 'Joe'),  
(4, 'Doe');  
--  
SELECT NAME  
FROM "df1"  
UNION ALL  
SELECT NAME  
FROM "df2"
```

NAME
Joe
Jack
Joe
Doe



```
import pandas as pd
```

```
df1 = {  
    'ID': [1, 2],  
    'Name': ['Joe', 'Jack']  
}
```

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

```
df2 = {  
    'ID': [1, 4],  
    'Name': ['Joe', 'Doe']  
}
```

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

```
df = pd.concat([df1['Name'], df2['Name']], ignore_index=True)
```

```
# ignore_index=True will reindex the dataframe
```

```
df
```

```
0    Joe  
1    Jack  
2    Joe  
3    Doe
```



UNION ALL BY ALL COLUMNS



```
CREATE OR REPLACE TABLE "df1" (  
  "ID"      INTEGER,  
  "NAME"    VARCHAR(10)  
);  
INSERT INTO "df1" values  
(1, 'Joe'),  
(2, 'Jack');  
--  
CREATE OR REPLACE TABLE "df2" (  
  "ID"      INTEGER,  
  "NAME"    VARCHAR(10)  
);  
INSERT INTO "df2" values  
(1, 'Joe'),  
(4, 'Doe');  
--  
SELECT *  
FROM "df1"  
UNION ALL  
SELECT *  
FROM "df2"  
;
```

ID	NAME
1	Joe
2	Jack
1	Joe
4	Doe



```
import pandas as pd
```

```
df1 = {  
    'ID': [1, 2],  
    'Name': ['Joe', 'Jack']  
}
```

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

```
df2 = {  
    'ID': [1, 4],  
    'Name': ['Joe', 'Doe']  
}
```

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

```
df = pd.concat([df1, df2], ignore_index=True)  
  
# ignore_index=True will reindex the dataframe  
  
df
```

	ID	Name
0	1	Joe
1	2	Jack
2	1	Joe
3	4	Doe

UNION BY SINGLE COLUMN



```
CREATE OR REPLACE TABLE "df1" (  
  "ID"      INTEGER,  
  "NAME"    VARCHAR(10)  
);  
INSERT INTO "df1" values  
(1, 'Joe'),  
(2, 'Jack');  
--  
CREATE OR REPLACE TABLE "df2" (  
  "ID"      INTEGER,  
  "NAME"    VARCHAR(10)  
);  
INSERT INTO "df2" values  
(1, 'Joe'),  
(4, 'Doe');  
--  
SELECT NAME  
FROM "df1"  
UNION  
SELECT NAME  
FROM "df2"  
;
```

NAME ...
Joe
Jack
Doe



```
import pandas as pd
```

```
df1 = {  
    'ID': [1, 2],  
    'Name': ['Joe', 'Jack']  
}
```

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

```
df2 = {  
    'ID': [1, 4],  
    'Name': ['Joe', 'Doe']  
}
```

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

```
df = pd.concat([df1['Name'], df2['Name']], ignore_index=True).drop_duplicates()
```

```
# ignore_index=True will reindex the dataframe
```

```
df
```

```
0      Joe  
1      Jack  
3      Doe
```



UNION BY ALL COLUMNS



```
CREATE OR REPLACE TABLE "df1" (  
  "ID"      INTEGER,  
  "NAME"    VARCHAR(10)  
);  
INSERT INTO "df1" values  
(1, 'Joe'),  
(2, 'Jack');  
--  
CREATE OR REPLACE TABLE "df2" (  
  "ID"      INTEGER,  
  "NAME"    VARCHAR(10)  
);  
INSERT INTO "df2" values  
(1, 'Joe'),  
(4, 'Doe');  
--  
SELECT *  
FROM "df1"  
UNION  
SELECT *  
FROM "df2"  
;
```

ID	NAME
1	Joe
2	Jack
4	Doe



```
import pandas as pd
```

```
df1 = {  
    'ID': [1, 2],  
    'Name': ['Joe', 'Jack']  
}  
  
df1 = pd.DataFrame(df1)  
  
df2 = {  
    'ID': [1, 4],  
    'Name': ['Joe', 'Doe']  
}  
  
df2 = pd.DataFrame(df2)
```

```
df = pd.concat([df1, df2], ignore_index=True).drop_duplicates()  
df
```

	ID	Name
0	1	Joe
1	2	Jack
3	4	Doe



ADD SINGLE COLUMN



```
CREATE TABLE "data" (  
  "ID" INTEGER  
,  "NAME" VARCHAR(10)  
);
```

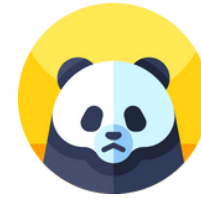
```
INSERT INTO "data" VALUES  
(1, 'Joe'),  
(2, 'Jack'),  
(3, 'Paula')  
;
```

```
ALTER TABLE "data" ADD COLUMN AGE INTEGER;
```

```
UPDATE "data" SET AGE = 10 WHERE ID = '1';  
UPDATE "data" SET AGE = 20 WHERE ID = '2';  
UPDATE "data" SET AGE = 40 WHERE ID = '3';
```

```
SELECT * FROM "data";
```

...	ID	NAME	AGE
	1	Joe	10
	2	Jack	20
	3	Paula	40



```
data = {  
  'ID': [1, 2, 3],  
  'Name': ['Joe', 'Jack', 'Paula']  
}
```

```
df = pd.DataFrame(data)
```

```
df
```

```
   ID  Name
```

```
0   1   Joe
```

```
1   2  Jack
```

```
2   3  Paula
```

```
df['Age'] = [10, 20, 40]
```

```
df
```

```
   ID  Name  Age
```

```
0   1   Joe   10
```

```
1   2  Jack   20
```

```
2   3  Paula  40
```



DROP SINGLE COLUMN



```
CREATE or replace TABLE "data" (  
  "ID" INTEGER  
,  "NAME" VARCHAR(10)  
,  "AGE" INTEGER  
);  
  
INSERT INTO "data" VALUES  
(1, 'Joe', '10'),  
(2, 'Jack', '20'),  
(3, 'Paula', '40')  
;  
  
ALTER TABLE "data" DROP COLUMN "AGE";  
  
SELECT * FROM "data";
```

...	ID	NAME
	1	Joe
	2	Jack
	3	Paula



```
data = {  
  'ID': [1, 2, 3],  
  'Name': ['Joe', 'Jack', 'Paula']  
  'Age': [10, 20, 40]  
}
```

```
df = pd.DataFrame(data)
```

```
df
```

	ID	Name	Age
0	1	Joe	10
1	2	Jack	20
2	3	Paula	40

```
df.drop(['Age'], axis=1, inplace=True)
```

```
df
```

	ID	Name
0	1	Joe
1	2	Jack
2	3	Paula

DROP MULTIPLE COLUMNS



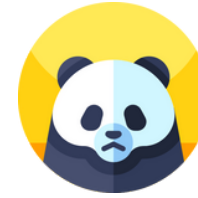
```
CREATE or replace TABLE "data" (  
  "ID" INTEGER  
,  
  "NAME" VARCHAR(10)  
,  
  "AGE" INTEGER  
);
```

```
INSERT INTO "data" VALUES  
(1, 'Joe', '10'),  
(2, 'Jack', '20'),  
(3, 'Paula', '40')  
;
```

```
ALTER TABLE "data"  
DROP COLUMN "AGE", "NAME";
```

```
SELECT * FROM "data";
```

ID
1
2
3



```
: import pandas as pd
```

```
: data = {  
  'ID': [1, 2, 3],  
  'Name': ['Joe', 'Jack', 'Paula'],  
  'Age': [10, 20, 40]  
}
```

```
: df = pd.DataFrame(data)
```

```
: df
```

```
:  
   ID  Name  Age  
0   1   Joe   10  
1   2  Jack   20  
2   3  Paula  40
```

```
: df.drop(['Age', 'Name'], axis=1, inplace=True)
```

```
: df
```

```
:  
   ID  
0   1  
1   2  
2   3
```

RENAME SINGLE COLUMN



```
CREATE TABLE "data" (  
  "ID" INTEGER  
,  
  "NAME" VARCHAR(10)  
,  
  "AGE" INTEGER  
,  
  "HEIHT" VARCHAR(10)  
);
```

```
ALTER TABLE "data"  
RENAME COLUMN "HEIHT" to "HEIGHT";
```

```
DESC TABLE "data";
```

name	type
ID	NUMBER(38,0)
NAME	VARCHAR(10)
AGE	NUMBER(38,0)
HEIGHT	VARCHAR(10)



```
: import pandas as pd
```

```
: data = {  
  'ID': [1, 2, 3],  
  'Name': ['Joe', 'Jack', 'Paula'],  
  'Age': [10, 20, 40],  
  'Heiht': ['1.65', '1.78', '1.82']  
}
```

```
: df = pd.DataFrame(data)
```

```
: df.rename(columns = {'Heiht': 'Height'}, inplace = True)
```

```
: df.info()
```

```
<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 3 entries, 0 to 2  
Data columns (total 4 columns):  
#   Column   Non-Null Count  Dtype  
---  ---      -  
0   ID       3 non-null      int64  
1   Name     3 non-null      object  
2   Age      3 non-null      int64  
3   Height   3 non-null      object  
dtypes: int64(2), object(2)  
memory usage: 228.0+ bytes
```

RENAME MULTIPLE COLUMNS



```
CREATE TABLE "data" (  
  "ID" INTEGER  
,  
  "NME" VARCHAR(10)  
,  
  "AGE" INTEGER  
,  
  "HEIHT" VARCHAR(10)  
);  
  
ALTER TABLE "data"  
RENAME COLUMN "NME" to "NAME";  
  
ALTER TABLE "data"  
RENAME COLUMN "HEIHT" to "HEIGHT";  
  
DESC TABLE "data";
```

name	type
ID	NUMBER(38,0)
NAME	VARCHAR(10)
AGE	NUMBER(38,0)
HEIGHT	VARCHAR(10)



```
import pandas as pd
```

```
data = {  
  'ID': [1, 2, 3],  
  'Nme': ['Joe', 'Jack', 'Paula'],  
  'Age': [10, 20, 40],  
  'Heiht': ['1.65', '1.78', '1.82']  
}
```

```
df = pd.DataFrame(data)
```

```
df.rename(columns = {'Nme': 'Name',  
                    'Heiht': 'Height'},  
         inplace = True)
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 3 entries, 0 to 2  
Data columns (total 4 columns):  
#   Column  Non-Null Count  Dtype  
---  ---  
0   ID      3 non-null      int64  
1   Name    3 non-null      object  
2   Age     3 non-null      int64  
3   Height  3 non-null      object  
dtypes: int64(2), object(2)  
memory usage: 228.0+ bytes
```


UPDATE SINGLE COLUMN SINGLE ROW



```
CREATE OR REPLACE TABLE "data" (  
  "ID" INTEGER  
,  
  "NAME" VARCHAR(10)  
,  
  "AGE" INTEGER  
);
```

```
INSERT INTO "data" VALUES  
(1, 'Joe', 10),  
(2, 'Jack', 20),  
(3, 'Paula', 30)  
;
```

```
UPDATE "data"  
SET "NAME" = 'John'  
WHERE "ID" = '3';
```

```
SELECT * FROM "data";
```

ID	NAME	...	AGE
1	Joe		10
2	Jack		20
3	John		30



```
: import pandas as pd
```

```
: data = {  
  'ID': [1, 2, 3],  
  'Name': ['Joe', 'Jack', 'Paula'],  
  'Age': [10, 20, 30]  
}
```

```
df = pd.DataFrame(data)
```

```
df
```

```
:
```

```
   ID  Name  Age  
0   1   Joe   10  
1   2  Jack   20  
2   3 Paula   30
```

```
: df.loc[df['ID'] == 3, 'Name'] = ['John']
```

```
df
```

```
:
```

```
   ID  Name  Age  
0   1   Joe   10  
1   2  Jack   20  
2   3  John   30
```

UPDATE MULTIPLE COLUMNS SINGLE ROW



```
CREATE OR REPLACE TABLE "data" (  
  "ID" INTEGER  
,  
  "NAME" VARCHAR(10)  
,  
  "AGE" INTEGER  
);
```

```
INSERT INTO "data" VALUES  
(1, 'Joe', 10),  
(2, 'Jack', 20),  
(3, 'Paula', 40)  
;
```

```
UPDATE "data"  
SET "NAME" = 'John', "AGE" = '30'  
WHERE "ID" = '3';
```

```
SELECT * FROM "data";
```

...	ID	NAME	AGE
	1	Joe	10
	2	Jack	20
	3	John	30



```
import pandas as pd
```

```
data = {  
  'ID': [1, 2, 3],  
  'Name': ['Joe', 'Jack', 'Paula'],  
  'Age': [10, 20, 40]  
}  
  
df = pd.DataFrame(data)  
  
df
```

	ID	Name	Age
0	1	Joe	10
1	2	Jack	20
2	3	Paula	40

```
df.loc[df['ID'] == 3, ['Name', 'Age']] = ['John', 30]  
  
df
```

	ID	Name	Age
0	1	Joe	10
1	2	Jack	20
2	3	John	30

UPDATE SINGLE COLUMN MULTIPLE ROWS



```
CREATE OR REPLACE TABLE "data" (  
  "ID" INTEGER  
,  
  "NAME" VARCHAR(10)  
,  
  "AGE" INTEGER  
);
```

```
INSERT INTO "data" VALUES  
(1, 'Joe', 10),  
(2, 'Jack', 200),  
(3, 'Paula', 400);
```

```
UPDATE "data"  
SET "AGE" = '99'  
WHERE "AGE" > '100';
```

```
SELECT * FROM "data";
```

...	ID	NAME	AGE
	1	Joe	10
	2	Jack	99
	3	Paula	99



```
import pandas as pd
```

```
data = {  
  'ID': [1, 2, 3],  
  'Name': ['Joe', 'Jack', 'Paula'],  
  'Age': [10, 200, 400]  
}  
  
df = pd.DataFrame(data)  
  
df
```

	ID	Name	Age
0	1	Joe	10
1	2	Jack	200
2	3	Paula	400

```
df.loc[df['Age'] > 100, 'Age'] = 99  
  
df
```

	ID	Name	Age
0	1	Joe	10
1	2	Jack	99
2	3	Paula	99

UPDATE MULTIPLE COLUMNS MULTIPLE ROWS



```
CREATE OR REPLACE TABLE "data" (  
  "ID" INTEGER  
,  
  "NAME" VARCHAR(10)  
,  
  "AGE" INTEGER  
);
```

```
INSERT INTO "data" VALUES  
(1, 'Joe', 10),  
(2, 'Jack', 200),  
(3, 'Paula', 400);
```

```
UPDATE "data"  
SET "AGE" = '99', "NAME" = 'John'  
WHERE "AGE" > '100';
```

```
SELECT * FROM "data";
```

ID	NAME	AGE
1	Joe	10
2	John	99
3	John	99



```
import pandas as pd
```

```
data = {  
  'ID': [1, 2, 3],  
  'Name': ['Joe', 'Jack', 'Paula'],  
  'Age': [10, 200, 400]  
}
```

```
df = pd.DataFrame(data)
```

```
df
```

	ID	Name	Age
0	1	Joe	10
1	2	Jack	200
2	3	Paula	400

```
df.loc[df['Age'] > 100, ['Name', 'Age']] = ['John', 99]
```

```
df
```

	ID	Name	Age
0	1	Joe	10
1	2	John	99
2	3	John	99

UPDATE SINGLE COLUMN ALL ROWS



```
CREATE OR REPLACE TABLE "data" (  
  "ID" INTEGER  
,  "NAME" VARCHAR(10)  
,  "AGE" INTEGER  
);
```

```
INSERT INTO "data" VALUES  
(1, 'Joe', 10),  
(2, 'Jack', 20),  
(3, 'Paula', 30)  
;
```

```
UPDATE "data"  
SET "AGE" = 99;
```

```
SELECT * FROM "data";
```

...	ID	NAME	AGE
	1	Joe	99
	2	Jack	99
	3	Paula	99



```
data = {  
  'ID': [1, 2, 3],  
  'Name': ['Joe', 'Jack', 'Paula'],  
  'Age': [10, 20, 30]  
}
```

```
df = pd.DataFrame(data)
```

```
df
```

	ID	Name	Age
0	1	Joe	10
1	2	Jack	20
2	3	Paula	30

```
df['Age'] = 99
```

```
df
```

	ID	Name	Age
0	1	Joe	99
1	2	Jack	99
2	3	Paula	99

That's a wrap!

*If you liked this content,
follow [Uzwal](#) on LinkedIn
and click the bell icon
for updates.*