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TD03 G7

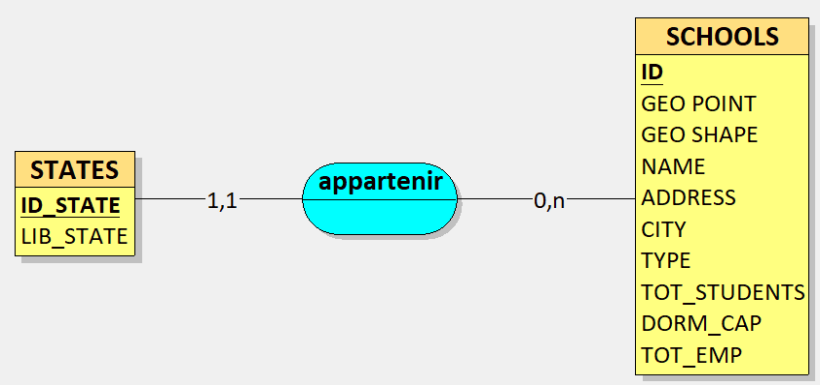
Informatique S4 : Bases de Données
Projet pratique N°2
US Colleges and Universities

ETAPE 1 : Structuration des données, lien avec Python

i. Téléchargement du Data set *us-colleges-and-universities.csv* sur kaggle.com et nettoyage (*nettoyer-us-colleges-and-universities.csv*)

ii. Rétro conception

1. Le modèle Entité/Association



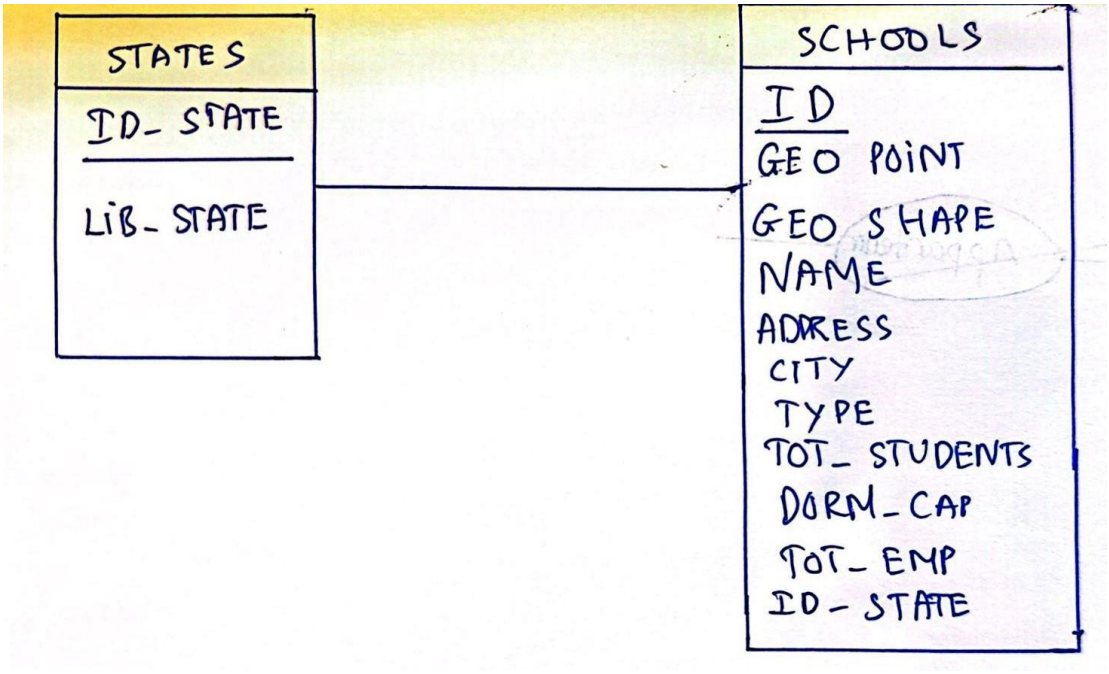
Réalisé avec Looping
Lecture : 0 à N écoles appartiennent à 1 état et 1 état possède 0 à N écoles.

2. Les relations et les schémas relationnels

SCHOOLS (ID, GEO POINT, GEO SHAPE, NAME, ADDRESS, CITY, TYPE, TOT_STUDENTS, DORM_CAP, TOT_EMP, #ID_STATE)
STATES (ID_STATE, LIB_STATE)

3. Les schémas relationnels précédents sont normalisés en 3FN car tout attribut dépend fonctionnellement de la clé primaire (1FN), tout attribut dépend de toute la clé (2FN) et il n'existe aucune dépendance fonctionnelle entre les attributs non-clé.

4. **Le modèle physique :**



iii. **Data Analyse, lien avec EXCEL**

1. Utilisation des fonctions mathématiques simples d'EXCEL

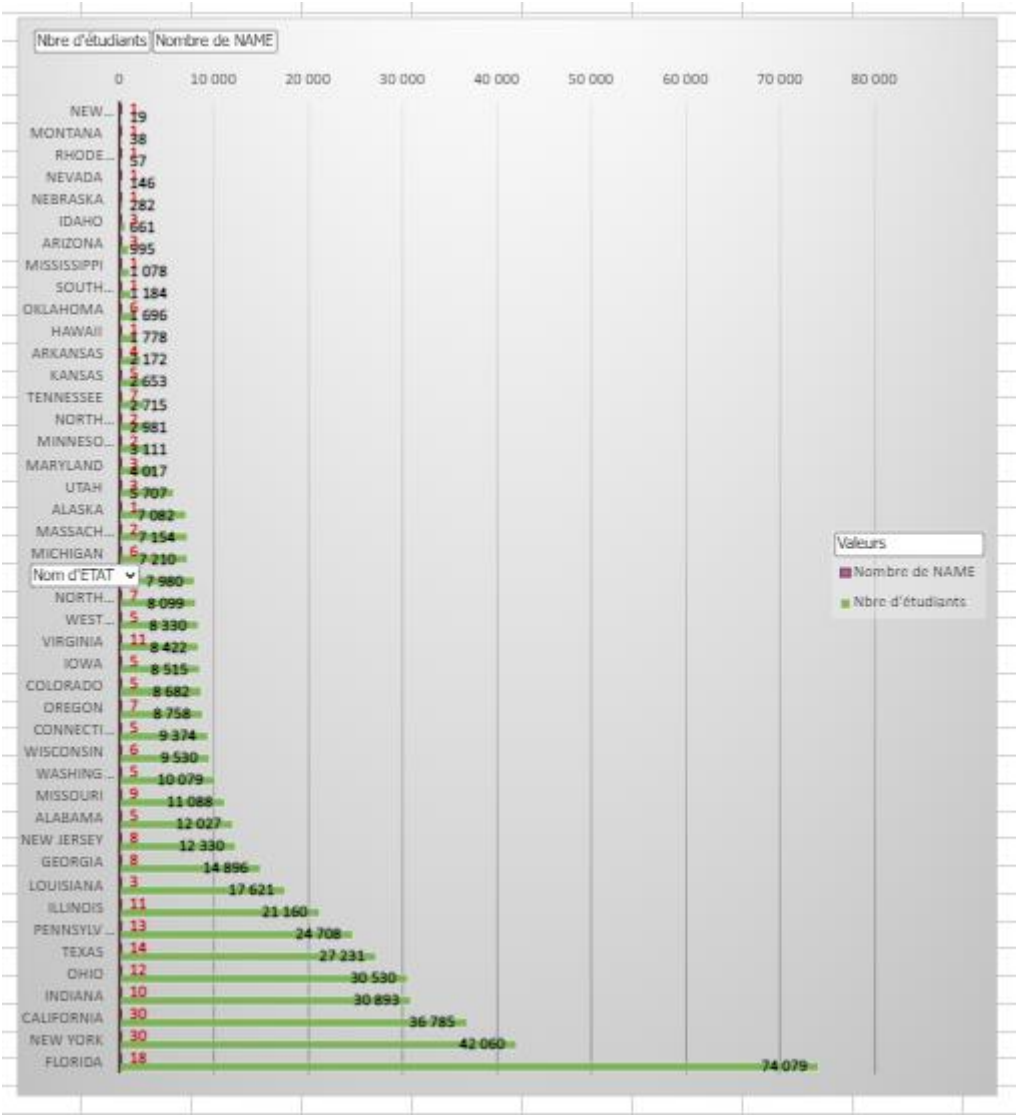
Exemple sur la colonne J "TOT_STUDENTS"

Fonction	Résultat
=MOYENNE(J2:J287)	1733,96153846154
=MEDIANE(J2:J287)	492,5
=MIN(J2:J287)	2
=MAX(J2:J287)	23980
=SOMME(J2:J287)	495913
=ECARTYPE(J2:J287)	3117,35154380098
=VAR(J2:J287)	9717880,64763834

Tableau croisé dynamique avec le nombre d'étudiants et d'écoles par état

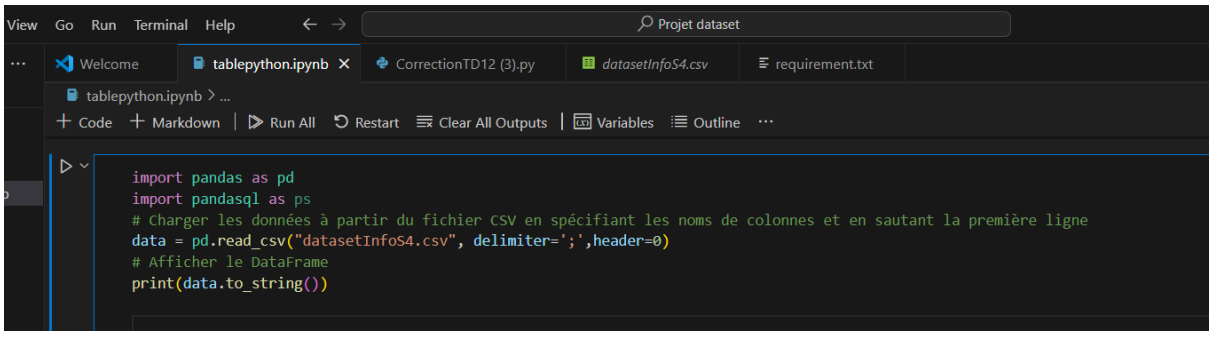
3	Nom d'ETAT	Nbre d'étudiants	Nombre de NAME
4	FLORIDA	74 079	18
5	NEW YORK	42 060	30
6	CALIFORNIA	36 785	30
7	INDIANA	30 893	10
8	OHIO	30 530	12
9	TEXAS	27 231	14
10	PENNSYLVANIA	24 708	13
11	ILLINOIS	21 160	11
12	LOUISIANA	17 621	3
13	GEORGIA	14 896	8
14	NEW JERSEY	12 330	8
15	ALABAMA	12 027	5
16	MISSOURI	11 088	9
17	WASHINGTON	10 079	5
18	WISCONSIN	9 530	6
19	CONNECTICUT	9 374	5
20	OREGON	8 758	7
21	COLORADO	8 682	5
22	IOWA	8 515	5
23	VIRGINIA	8 422	11
24	WEST VIRGINIA	8 330	5
25	NORTH CAROLINA	8 099	7
26	KENTUCKY	7 980	4
27	MICHIGAN	7 210	6
28	MASSACHUSETTS	7 154	2
29	ALASKA	7 082	1
30	UTAH	5 707	3
31	MARYLAND	4 017	3
32	MINNESOTA	3 111	2
33	NORTH DAKOTA	2 981	2
34	TENNESSEE	2 715	7
35	KANSAS	2 653	5
36	ARKANSAS	2 172	4
37	HAWAII	1 778	1
38	OKLAHOMA	1 696	6
39	SOUTH CAROLINA	1 184	1
40	MISSISSIPPI	1 078	1
41	ARIZONA	995	3
42	IDAHO	661	3
43	NEBRASKA	282	1
44	NEVADA	146	1
45	RHODE ISLAND	57	1
46	MONTANA	38	1
47	NEW MEXICO	19	1
48	**Total général**	**495 913**	**286**
49			

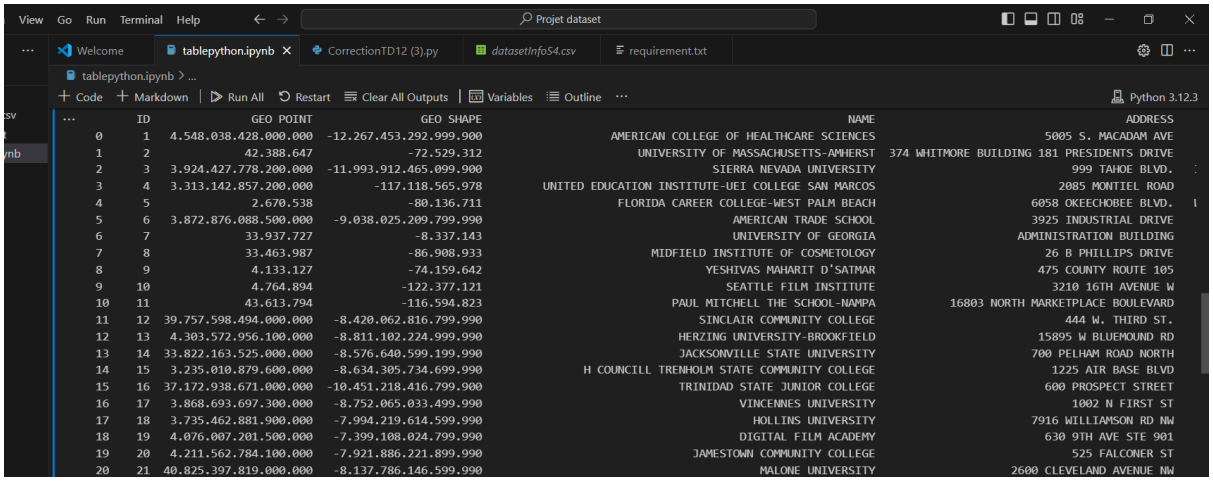
2. Histogramme avec le nombre d'étudiants et d'écoles par état



iv. **Lien avec Python**

1. Création d'une 4ème table et alimentation à partir d'un programme Python :
Première méthode en utilisant pandas :

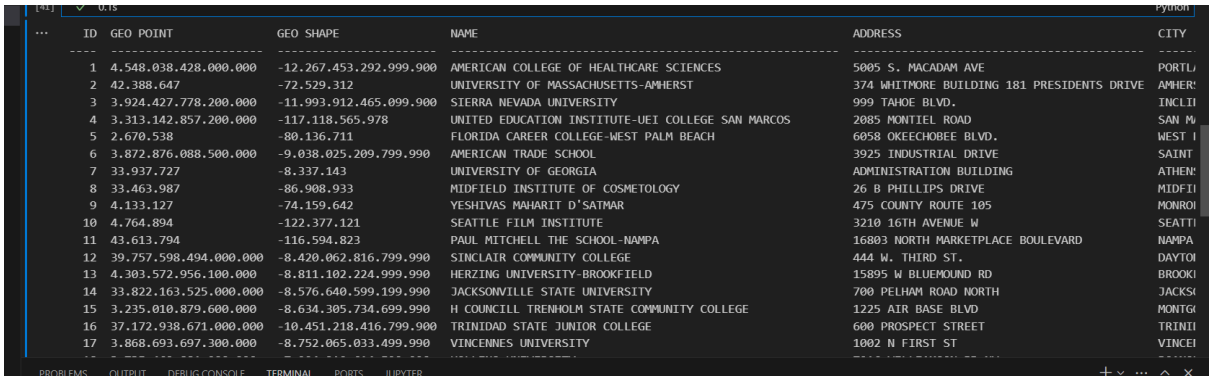




	ID	GEO POINT	GEO SHAPE	NAME	ADDRESS
0	1	4.548.038.428.000.000	-12.267.453.292.999.900	AMERICAN COLLEGE OF HEALTHCARE SCIENCES	5005 S. MACADAM AVE
1	2	42.388.647	-72.529.312	UNIVERSITY OF MASSACHUSETTS-AMHERST	374 WHITMORE BUILDING 181 PRESIDENTS DRIVE
2	3	3.924.427.778.200.000	-11.993.912.465.099.900	SIERRA NEVADA UNIVERSITY	999 TAHOE BLVD.
3	4	3.313.142.857.200.000	-117.118.565.978	UNITED EDUCATION INSTITUTE-UEI COLLEGE SAN MARCOS	2085 MONTIEL ROAD
4	5	2.670.538	-80.136.711	FLORIDA CAREER COLLEGE-WEST PALM BEACH	6058 OKEECHOBEE BLVD.
5	6	3.872.876.088.500.000	-9.038.025.209.799.990	AMERICAN TRADE SCHOOL	3925 INDUSTRIAL DRIVE
6	7	33.937.727	-8.337.143	UNIVERSITY OF GEORGIA	ADMINISTRATION BUILDING
7	8	33.463.987	-86.908.933	MIDFIELD INSTITUTE OF COSMETOLOGY	26 B PHILLIPS DRIVE
8	9	4.133.127	-74.159.642	YESHIVAS MAHARIT D'SATMAR	475 COUNTY ROUTE 105
9	10	4.764.894	-122.377.121	SEATTLE FILM INSTITUTE	3210 16TH AVENUE W
10	11	43.613.794	-116.594.823	PAUL MITCHELL THE SCHOOL-NAMPA	16803 NORTH MARKETPLACE BOULEVARD
11	12	39.757.598.494.000.000	-8.420.062.816.799.990	SINCLAIR COMMUNITY COLLEGE	444 W. THIRD ST.
12	13	4.303.572.956.100.000	-8.811.102.224.999.990	HERZING UNIVERSITY-BROOKFIELD	15895 W BLUEMOUND RD
13	14	33.822.163.525.000.000	-8.576.640.599.199.990	JACKSONVILLE STATE UNIVERSITY	700 PELHAM ROAD NORTH
14	15	3.235.010.879.600.000	-8.634.305.734.699.990	H COUNCILL TRENHOLM STATE COMMUNITY COLLEGE	1225 AIR BASE BLVD
15	16	37.172.938.671.000.000	-10.451.218.416.799.900	TRINIDAD STATE JUNIOR COLLEGE	600 PROSPECT STREET
16	17	3.868.693.697.300.000	-8.752.065.033.499.990	VINCENNES UNIVERSITY	1002 N FIRST ST
17	18	3.735.462.881.900.000	-7.994.219.614.599.990	HOLLINS UNIVERSITY	7916 WILLIAMSON RD NW
18	19	4.076.007.201.500.000	-7.399.108.024.799.990	DIGITAL FILM ACADEMY	630 9TH AVE STE 901
19	20	4.211.562.784.100.000	-7.921.886.221.899.990	JAMESTOWN COMMUNITY COLLEGE	525 FALCONER ST
20	21	40.825.397.819.000.000	-8.137.786.146.599.990	MALONE UNIVERSITY	2600 CLEVELAND AVENUE NW

Deuxième méthode en utilisant mysql.connector :

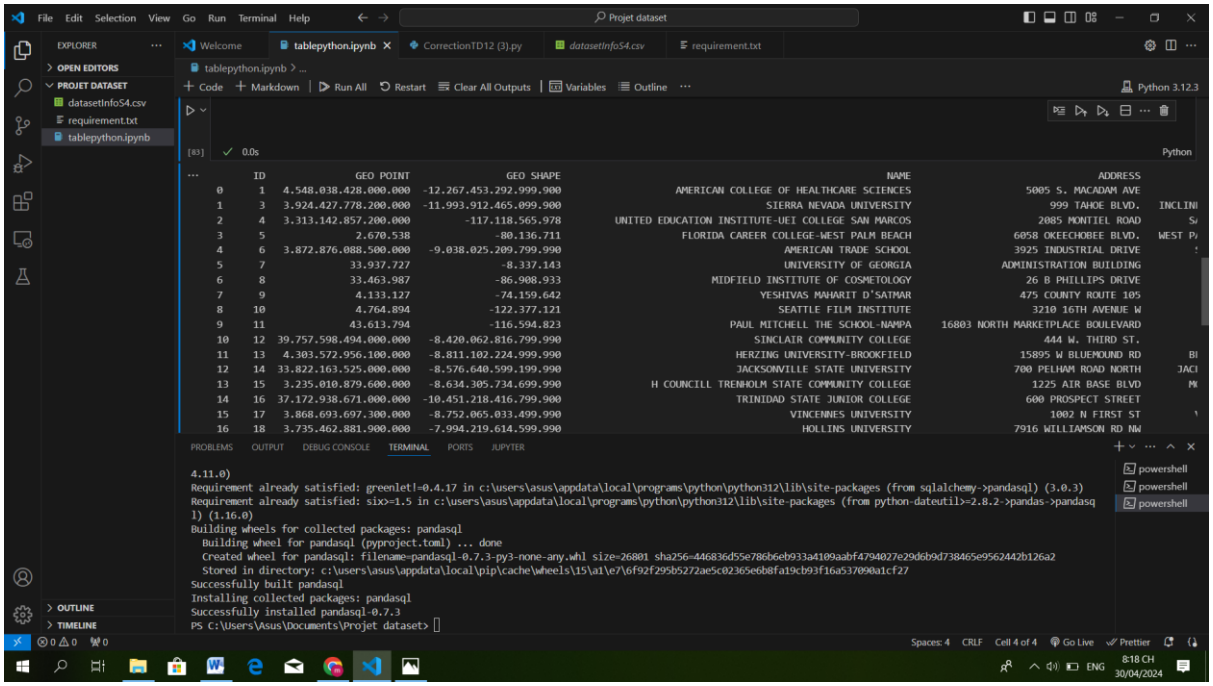
```python
import mysql.connector
from tabulate import tabulate
# Connexion à la base de données
connection=mysql.connector.connect(
    host='localhost',
    user='root',
    database='us college'

)
cursor= connection.cursor()
#Exécution de la requête
query='SELECT * FROM `school`'
cursor.execute(query)
columns = [col[0] for col in cursor.description]
result=cursor.fetchall()
# Affichage des données sous forme de tableau

print(tabulate([row for row in result], headers=columns))
## Fermeture du curseur et de la connexion
cursor.close()
connection.close()
```



ID	GEO POINT	GEO SHAPE	NAME	ADDRESS	CITY
1	4.548.038.428.000.000	-12.267.453.292.999.900	AMERICAN COLLEGE OF HEALTHCARE SCIENCES	5005 S. MACADAM AVE	PORTL
2	42.388.647	-72.529.312	UNIVERSITY OF MASSACHUSETTS-AMHERST	374 WHITMORE BUILDING 181 PRESIDENTS DRIVE	AMHER
3	3.924.427.778.200.000	-11.993.912.465.099.900	SIERRA NEVADA UNIVERSITY	999 TAHOE BLVD.	INCLI
4	3.313.142.857.200.000	-117.118.565.978	UNITED EDUCATION INSTITUTE-UEI COLLEGE SAN MARCOS	2085 MONTIEL ROAD	SAN M
5	2.670.538	-80.136.711	FLORIDA CAREER COLLEGE-WEST PALM BEACH	6058 OKEECHOBEE BLVD.	WEST
6	3.872.876.088.500.000	-9.038.025.209.799.990	AMERICAN TRADE SCHOOL	3925 INDUSTRIAL DRIVE	SAINT
7	33.937.727	-8.337.143	UNIVERSITY OF GEORGIA	ADMINISTRATION BUILDING	ATHEN
8	33.463.987	-86.908.933	MIDFIELD INSTITUTE OF COSMETOLOGY	26 B PHILLIPS DRIVE	MIDFI
9	4.133.127	-74.159.642	YESHIVAS MAHARIT D'SATMAR	475 COUNTY ROUTE 105	MONRO
10	4.764.894	-122.377.121	SEATTLE FILM INSTITUTE	3210 16TH AVENUE W	SEATT
11	43.613.794	-116.594.823	PAUL MITCHELL THE SCHOOL-NAMPA	16803 NORTH MARKETPLACE BOULEVARD	NAMPA
12	39.757.598.494.000.000	-8.420.062.816.799.990	SINCLAIR COMMUNITY COLLEGE	444 W. THIRD ST.	DAYTO
13	4.303.572.956.100.000	-8.811.102.224.999.990	HERZING UNIVERSITY-BROOKFIELD	15895 W BLUEMOUND RD	BROOK
14	33.822.163.525.000.000	-8.576.640.599.199.990	JACKSONVILLE STATE UNIVERSITY	700 PELHAM ROAD NORTH	JACKS
15	3.235.010.879.600.000	-8.634.305.734.699.990	H COUNCILL TRENHOLM STATE COMMUNITY COLLEGE	1225 AIR BASE BLVD	MONTG
16	37.172.938.671.000.000	-10.451.218.416.799.900	TRINIDAD STATE JUNIOR COLLEGE	600 PROSPECT STREET	TRINI
17	3.868.693.697.300.000	-8.752.065.033.499.990	VINCENNES UNIVERSITY	1002 N FIRST ST	VINCE

2. Suppression d'un enregistrement à partir du programme Python :
Ici on supprime l'enregistrement d'identifiant ID = 2.

```
import pandas as pd
import pandasql as ps
# Charger les données à partir du fichier CSV en spécifiant les noms de colonnes et en sautant la première ligne
data = pd.read_csv("datasetInfoS4.csv", delimiter=';',header=0)
data = data[data['ID'] != 2]

# Réinitialiser les index après la suppression
data.reset_index(drop=True, inplace=True)

# Afficher le DataFrame après la suppression
print(data.to_string())
```



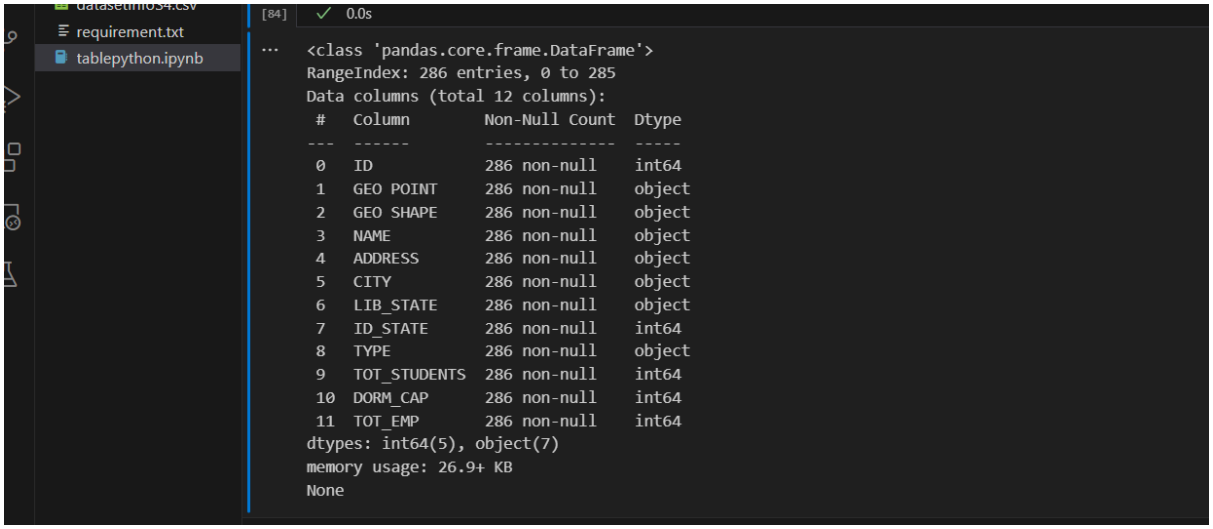
	ID	GEO POINT	GEO SHAPE	NAME	ADDRESS
0	1	4.548.038.428.000.000	-12.267.453.292.999.900	AMERICAN COLLEGE OF HEALTHCARE SCIENCES	5005 S. MACADAM AVE
1	3	3.924.427.778.200.000	-11.993.912.465.099.900	SIERRA NEVADA UNIVERSITY	999 TAHOE BLVD.
2	4	3.313.142.857.200.000	-117.118.565.978	UNITED EDUCATION INSTITUTE-UEI COLLEGE SAN MARCOS	2085 MONTIEL ROAD
3	5	2.670.538	-80.136.711	FLORIDA CAREER COLLEGE-WEST PALM BEACH	6058 OKEECHOBEE BLVD.
4	6	3.872.876.088.500.000	-9.038.025.209.799.990	AMERICAN TRADE SCHOOL	3925 INDUSTRIAL DRIVE
5	7	33.937.727	-8.337.143	UNIVERSITY OF GEORGIA	ADMINISTRATION BUILDING
6	8	33.463.987	-86.908.933	MIDFIELD INSTITUTE OF COSMETOLOGY	26 B PHILLIPS DRIVE
7	9	4.133.127	-74.159.642	YESHIVAS MAHARIT D'SATMAR	475 COUNTY ROUTE 105
8	10	4.764.894	-122.377.121	SEATTLE FILM INSTITUTE	3210 16TH AVENUE W
9	11	43.613.794	-116.594.823	PAUL MITCHELL THE SCHOOL-NAMPA	16803 NORTH MARKETPLACE BOULEVARD
10	12	39.757.598.494.000.000	-8.420.062.816.799.990	SINCLAIR COMMUNITY COLLEGE	444 W. THIRD ST.
11	13	4.303.572.956.100.000	-8.811.102.224.999.990	HERZING UNIVERSITY-BROOKFIELD	15895 W BLUEMOUND RD
12	14	33.822.163.525.000.000	-8.576.640.599.199.990	JACKSONVILLE STATE UNIVERSITY	700 PELHAM ROAD NORTH
13	15	3.235.010.879.600.000	-8.634.305.734.699.990	H COUNCILL TRENHOLM STATE COMMUNITY COLLEGE	1225 AIR BASE BLVD
14	16	37.172.938.671.000.000	-10.451.218.416.799.900	TRINIDAD STATE JUNIOR COLLEGE	600 PROSPECT STREET
15	17	3.868.693.697.300.000	-8.752.065.033.499.990	VINCENNES UNIVERSITY	1002 N FIRST ST
16	18	3.735.462.881.900.000	-7.994.219.614.599.990	HOLLINS UNIVERSITY	7916 WILLIAMSON RD NW

```
4.11.0)
Requirement already satisfied: greenlet!=0.4.17 in c:\users\asus\appdata\local\programs\python\python312\lib\site-packages (from sqlalchemy->pandasql) (3.0.3)
Requirement already satisfied: six>=1.5 in c:\users\asus\appdata\local\programs\python\python312\lib\site-packages (from python-dateutil>=2.8.2->pandas->pandasq
l) (1.16.0)
Building wheels for collected packages: pandasql
  Building wheel for pandasql (pyproject.toml) ... done
  Created wheel for pandasql: filename=pandasql-0.7.3-py3-none-any.whl size=26801 sha256=446836d55e786b6eb933a4109aabf4794027e29d6b9d738465e9562442b126a2
  Stored in directory: c:\users\asus\appdata\local\pip\cache\wheels\15\a1\e7\6f92f295b5272ae5c02365e6b8fa19cb93f16a537090a1cf27
Successfully built pandasql
Installing collected packages: pandasql
Successfully installed pandasql-0.7.3
PS C:\Users\Asus\Documents\Projet dataset>
```

3. Contrôles de saisie pour garantir les contraintes de la base :

```
import pandas as pd
import pandasql as ps
# Charger les données à partir du fichier CSV en spécifiant les noms de colonnes et en sautant la première ligne
data = pd.read_csv("datasetInfoS4.csv", delimiter=';',header=0)
#Prévoyez des contrôles de saisie pour garantir les contraintes de la
base.
print(data.info())
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 286 entries, 0 to 285
```



ETAPE 2 : SQL

i.

1. Importation des données du dataset avec phpMyAdmin dans la base de données MySQL “projet2”

Table “state”

Structure :

#	Nom	Type	Interclassement	Attributs	Null	Valeur par défaut	Commentaires	Extra	Action
1	LIB_STATE	varchar(14)	utf8mb3_general_ci		Oui	*NULL*			Modifier Supprimer Plus
2	ID_STATE	int			Non	*Aucun(e)*			Modifier Supprimer Plus

Quelques enregistrements :

	LIB_STATE	ID_STATE
Éditer Copier Supprimer	OREGON	1
Éditer Copier Supprimer	MASSACHUSETTS	2
Éditer Copier Supprimer	NEVADA	3
Éditer Copier Supprimer	CALIFORNIA	4
Éditer Copier Supprimer	FLORIDA	5
Éditer Copier Supprimer	MISSOURI	6
Éditer Copier Supprimer	GEORGIA	7
Éditer Copier Supprimer	ALABAMA	8
Éditer Copier Supprimer	NEW YORK	9
Éditer Copier Supprimer	WASHINGTON	10
Éditer Copier Supprimer	IDAHO	11
Éditer Copier Supprimer	OHIO	12
Éditer Copier Supprimer	WISCONSIN	13
Éditer Copier Supprimer	COLORADO	14
Éditer Copier Supprimer	INDIANA	15
Éditer Copier Supprimer	VIRGINIA	16

Table “school”

Structure :

#	Nom	Type	Interclassement	Attributs	Null	Valeur par défaut	Commentaires	Extra	Action
1	ID	int			Non	*Aucun(e)*			Modifier Supprimer Plus
2	GEO POINT	varchar(18)	utf8mb3_general_ci		Oui	*NULL*			Modifier Supprimer Plus
3	GEO SHAPE	varchar(20)	utf8mb3_general_ci		Oui	*NULL*			Modifier Supprimer Plus
4	NAME	varchar(56)	utf8mb3_general_ci		Oui	*NULL*			Modifier Supprimer Plus
5	ADDRESS	varchar(42)	utf8mb3_general_ci		Oui	*NULL*			Modifier Supprimer Plus
6	CITY	varchar(16)	utf8mb3_general_ci		Oui	*NULL*			Modifier Supprimer Plus
7	ID_STATE	int			Oui	*NULL*			Modifier Supprimer Plus
8	TYPE	varchar(33)	utf8mb3_general_ci		Oui	*NULL*			Modifier Supprimer Plus
9	TOT_STUDENTS	int			Oui	*NULL*			Modifier Supprimer Plus
10	DORM_CAP	int			Oui	*NULL*			Modifier Supprimer Plus
11	TOT_EMP	int			Oui	*NULL*			Modifier Supprimer Plus

Quelques enregistrements :

ID	GEO POINT	GEO SHAPE	NAME	ADDRESS	CITY	ID_STATE	TYPE	TOT_STUDENTS	DORM_CAP	TOT_EMP
1	45.48038428000007	-122.67453292999994	AMERICAN COLLEGE OF HEALTHCARE SCIENCES	5005 S. MACADAM AVE	PORTLAND	1	COMPUTER TRAINING	856	2	5
2	42.388647	-72.529312	UNIVERSITY OF MASSACHUSETTS-AMHERST	374 WHITMORE BUILDING 181 PRESIDENTS DRIVE	AMHERST	2	COLLEGES	6941	24701	31642
3	39.24427778200004	-119.93912465099999	SIERRA NEVADA UNIVERSITY	999 TAHOE BLVD.	INCLINE VILLAGE	3	COLLEGES	146	471	617
4	33.13142857200006	-117.118565978	UNITED EDUCATION INSTITUTE-UEI COLLEGE SAN MARCOS	2085 MONTIEL ROAD	SAN MARCOS	4	OTHER TECHNICAL AND TRADE SCHOOLS	719	2	1000
5	26.70538	-80.136711	FLORIDA CAREER COLLEGE-WEST PALM BEACH	6058 OKEECHOBEE BLVD.	WEST PALM BEACH	5	JUNIOR COLLEGES	869	2	1000
6	38.72876088500004	-90.38025209799997	AMERICAN TRADE SCHOOL	3925 INDUSTRIAL DRIVE	SAINT ANN	6	OTHER TECHNICAL AND TRADE SCHOOLS	128	2	1000
7	33.937727	-83.37143	UNIVERSITY OF GEORGIA	ADMINISTRATION BUILDING	ATHENS	7	COLLEGES	4196	34951	39147
8	33.463987	-86.908933	MIDFIELD INSTITUTE OF COSMETOLOGY	26 B PHILLIPS DRIVE	MIDFIELD	8	COSMETOLOGY AND BARBER SCHOOLS	17	2	1000

2. Introduction des requêtes SQL :
    1) 3 requêtes SQL avec un “SELECT FROM WHERE” et des conditions de types différents

       Condition de type “like” : SELECT * FROM school WHERE NAME LIKE ‘%college%’ ;
       Cette requête renvoie toutes les écoles dont le nom contient “college”.

Affichage des lignes 0 - 24 (total de 112, traitement en 0,0005 seconde(s).)

```
SELECT * FROM school WHERE NAME LIKE '%college%';
```

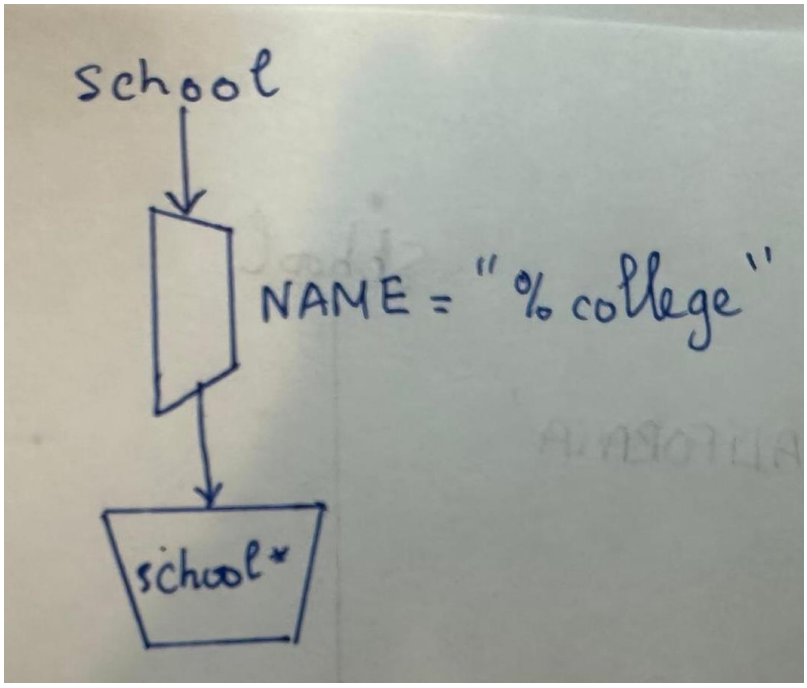
Profilage [Éditer en ligne] [Éditer] [Expliquer SQL] [Créer le code source PHP] [Actualiser]

1 > >> | Tout afficher | Nombre de lignes : 25 | Filtrer les lignes: Chercher dans cette table | Trier par clé : Aucun(e)

Options supplémentaires

	ID	GEO POINT	GEO SHAPE	NAME	ADDRESS	CITY	ID_STATE	TYPE	TOT_STUDENTS	DORM_CAP	TOT_EMP
Éditer Copier Supprimer	1	45.48038428000007	-122.67453292999994	AMERICAN COLLEGE OF HEALTHCARE SCIENCES	5005 S. MACADAM AVE	PORTLAND	1	COMPUTER TRAINING	856	2	5
Éditer Copier Supprimer	4	33.13142857200006	-117.118565978	UNITED EDUCATION INSTITUTE-UEI COLLEGE SAN MARCOS	2085 MONTIEL ROAD	SAN MARCOS	4	OTHER TECHNICAL AND TRADE SCHOOLS	719	2	1000
Éditer Copier Supprimer	5	26.70538	-80.136711	FLORIDA CAREER COLLEGE-WEST PALM BEACH	6058 OKEECHOBEE BLVD.	WEST PALM BEACH	5	JUNIOR COLLEGES	869	2	1000
Éditer Copier Supprimer	12	39.757598494000035	-84.20062816799998	SINCLAIR COMMUNITY COLLEGE	444 W. THIRD ST.	DAYTON	12	JUNIOR COLLEGES	18687	2	1000
Éditer Copier Supprimer	15	32.35010879600003	-86.34305734699996	H COUNCILL TRENHOLM STATE COMMUNITY COLLEGE	1225 AIR BASE BLVD	MONTGOMERY	8	JUNIOR COLLEGES	1526	2	1000
Éditer Copier Supprimer	16	37.172938671000054	-104.51218416799998	TRINIDAD STATE JUNIOR COLLEGE	600 PROSPECT STREET	TRINIDAD	14	JUNIOR COLLEGES	1404	50	307
Éditer Copier Supprimer	20	42.11562784100005	-79.21886221899996	JAMESTOWN COMMUNITY COLLEGE	525 FALCONER ST	JAMESTOWN	9	JUNIOR COLLEGES	3430	50	340
Éditer Copier Supprimer	22	40.05369676600003	-75.38209657799996	VALLEY FORGE MILITARY COLLEGE	1001 EAGLE RD	WAYNE	17	JUNIOR COLLEGES	110	50	382

Console de requêtes SQL



Condition de type “between” : SELECT NAME FROM school WHERE GEO_POINT BETWEEN 10 AND 30 ;
Cette requête renvoie le nom des écoles dont la coordonnée géographique est comprise dans la fourchette 10-30.

Affichage des lignes 0 - 24 (total de 25, traitement en 0,0008 seconde(s).)

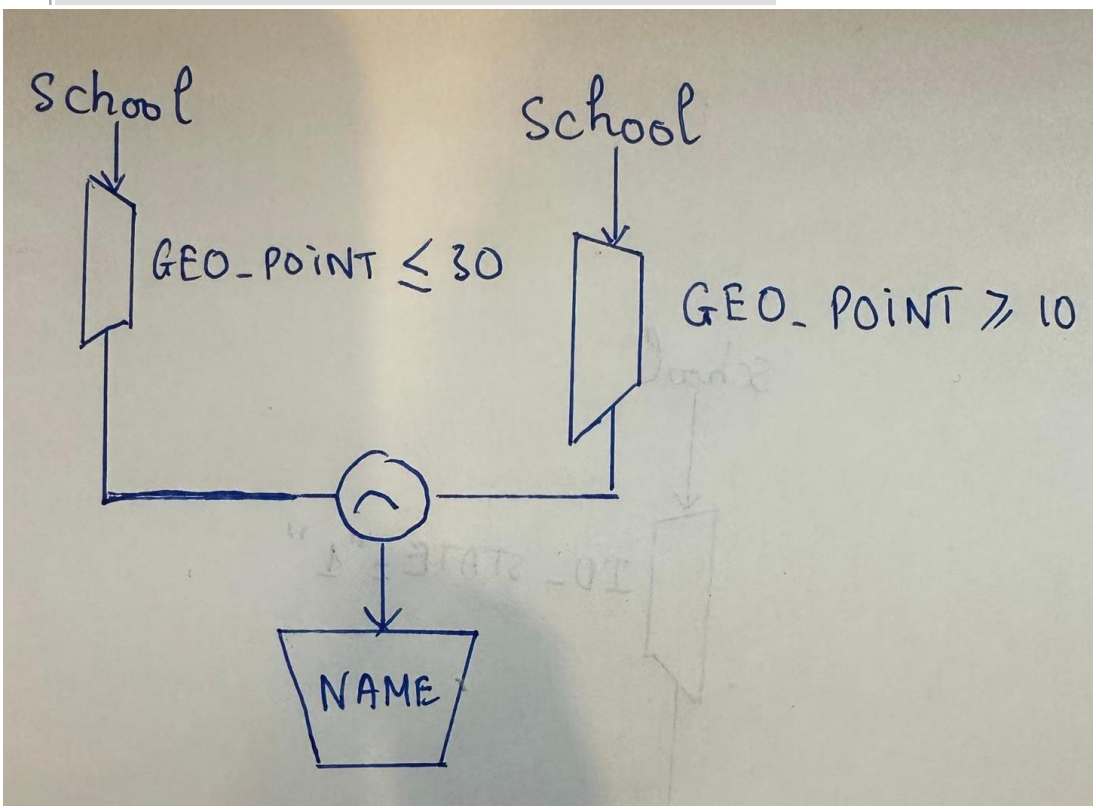
```
SELECT NAME FROM school WHERE GEO_POINT BETWEEN 10 AND 30;
```

Profilage [Éditer en ligne] [Éditer] [Expliquer SQL] [Créer le code source PHP] [Actualiser]

Tout afficher | Nombre de lignes : 25 Filtrer les lignes: Chercher dans cette table Trier par clé : Aucun(e)

Options supplémentaires

←T→	NAME
Éditer Copier Supprimer	FLORIDA CAREER COLLEGE-WEST PALM BEACH
Éditer Copier Supprimer	LAKE-SUMTER STATE COLLEGE
Éditer Copier Supprimer	STATE COLLEGE OF FLORIDA-MANATEE-SARASOTA
Éditer Copier Supprimer	THE TRAINING DOMAIN
Éditer Copier Supprimer	FLORIDA SOUTHWESTERN STATE COLLEGE
Éditer Copier Supprimer	COASTAL BEND COLLEGE
Éditer Copier Supprimer	COLLEGE OF THE MAINLAND
Éditer Copier Supprimer	DELGADO COMMUNITY COLLEGE
Éditer Copier Supprimer	BOCA BEAUTY ACADEMY
Éditer Copier Supprimer	ALTIERUS CAREER COLLEGE-TAMPA
Éditer Copier Supprimer	FLORIDA GULF COAST UNIVERSITY
Éditer Copier Supprimer	TEXAS STATE UNIVERSITY
Éditer Copier Supprimer	SOUTHERN CAREERS INSTITUTE-PHARR



Condition avec une jointure : SELECT sc.* FROM school AS sc JOIN state AS st ON sc.ID_STATE = st.ID_STATE WHERE st.LIB_STATE = 'CALIFORNIA' ;

Affichage des lignes 0 - 24 (total de 30, traitement en 0,0014 seconde(s).)

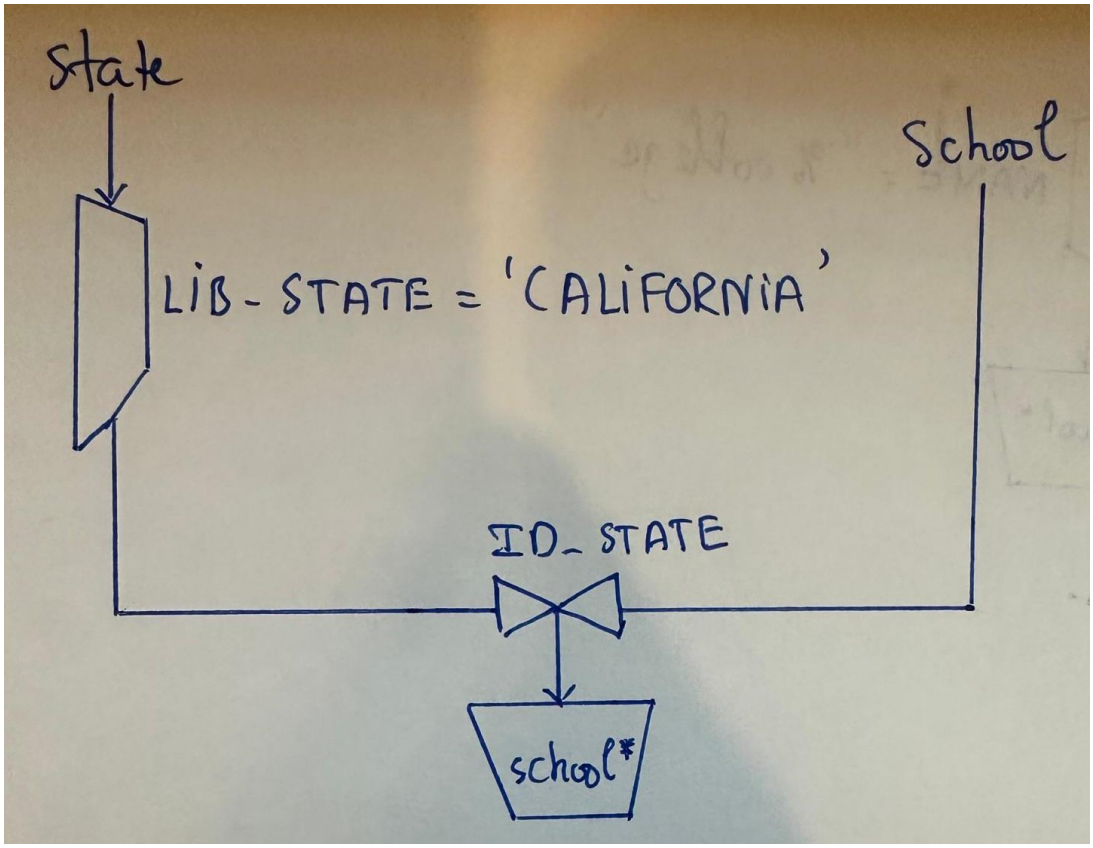
```
SELECT sc.* FROM school AS sc JOIN state AS st ON sc.ID_STATE=st.ID_STATE WHERE st.LIB_STATE = 'CALIFORNIA';
```

Profilage [Éditer en ligne] [Éditer] [Expliquer SQL] [Créer le code source PHP] [Actualiser]

1 > >> | Tout afficher | Nombre de lignes : 25 | Filtrer les lignes: Chercher dans cette table | Trier par clé : Aucun(e)

Options supplémentaires

ID	GEO_POINT	GEO SHAPE	NAME	ADDRESS	CITY	ID_STATE	TYPE	TOT_STUDENTS	DORM_CAP	TOT_EMP
4	33.1314	-117.118565978	UNITED EDUCATION INSTITUTE-UEI COLLEGE SAN MARCOS	2085 MONTIEL ROAD	SAN MARCOS	4	OTHER TECHNICAL AND TRADE SCHOOLS	719	2	1000
24	37.7908	-122.40595565299998	BAY AREA MEDICAL ACADEMY	530 BUSH STREET #201	SAN FRANCISCO	4	OTHER TECHNICAL AND TRADE SCHOOLS	160	2	1000
30	36.999	-122.06072612599996	UNIVERSITY OF CALIFORNIA-SANTA CRUZ	1156 HIGH ST	SANTA CRUZ	4	COLLEGES	751	18410	19161
36	34.0967	-117.95948561399996	BALDWIN PARK ADULT & COMMUNITY EDUCATION	4640 N. MAINE AVE	BALDWIN PARK	4	COSMETOLOGY AND BARBER SCHOOLS	347	2	1000
41	38.0065	-121.86096733499994	LOS MEDANOS COLLEGE	2700 EAST LELAND ROAD	PITTSBURG	4	JUNIOR COLLEGES	2894	8521	2
51	34.4293	-119.71722524499995	FIELDING GRADUATE UNIVERSITY	2020 DE LA VINA ST	SANTA BARBARA	4	COLLEGES	312	759	1071
57	38.5967	-121.28025897999999	SAN JOAQUIN VALLEY COLLEGE-RANCHO CORDOVA	11050 OLSON DRIVE	RANCHO CORDOVA	4	JUNIOR COLLEGES	197	2	1000
72	34.0992	-118.338301	THEATRE OF ARTS	6767 SUNSET BLVD SUITE 210	HOLLYWOOD	4	JUNIOR COLLEGES	22	2	1000
85	37.7749	-122.22079621699999	INTERNATIONAL COLLEGE OF COSMETOLOGY	3701 INTERNATIONAL BOULEVARD	OAKLAND	4	COSMETOLOGY AND BARBER SCHOOLS	195	2	1000



2) 2 requêtes SQL avec 2 “SELECT FROM WHERE” imbriqués utilisant des conditions de types différents

Conditions de type |N et “like” : SELECT * FROM school WHERE ID_STATE = 1 AND CITY IN (SELECT CITY FROM school WHERE CITY LIKE “%land%”) ;

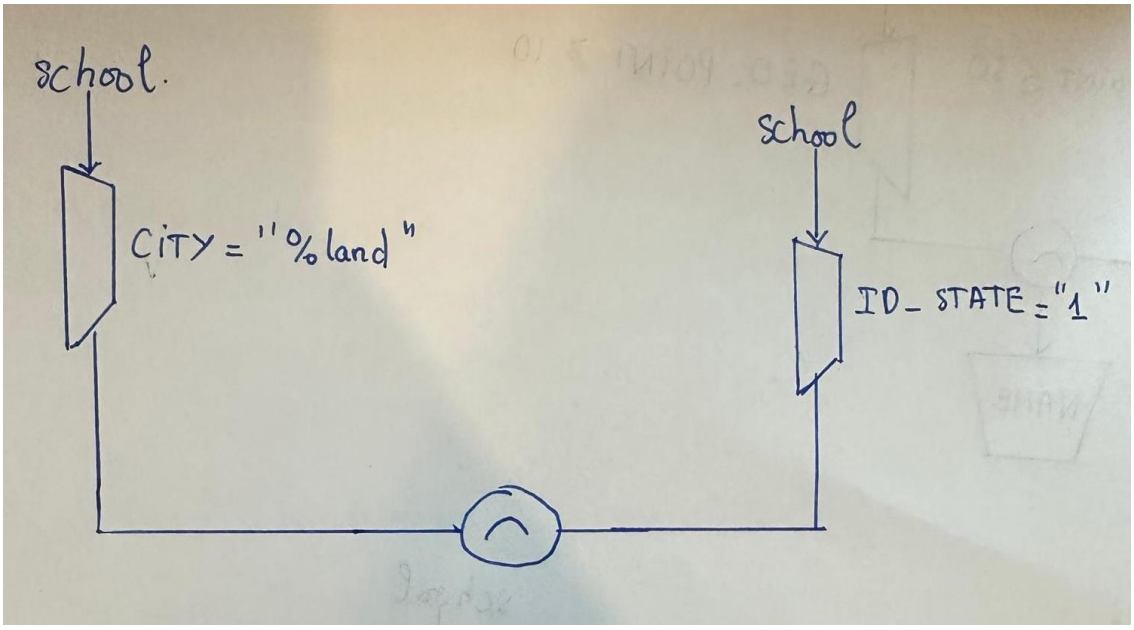
```
SELECT * FROM school WHERE ID_STATE = 1 AND CITY IN (SELECT CITY FROM school WHERE CITY LIKE "%land%");
```

Profilage [Éditer en ligne] [Éditer] [Expliquer SQL] [Créer le code source PHP] [Actualiser]

Tout afficher | Nombre de lignes : 25 | Filtrer les lignes: Chercher dans cette table

Options supplémentaires

← T →	ID	GEO_POINT	GEO SHAPE	NAME	ADDRESS	CITY	ID_STATE	TYPE	TOT_STUDENTS	DORM_CAP	TOT_EMP
Éditer Copier Supprimer	1	45.4804	-122.67453292999994	AMERICAN COLLEGE OF HEALTHCARE SCIENCES	5005 S. MACADAM AVE	PORTLAND	1	COMPUTER TRAINING	856	2	5



Condition de type |N : SELECT * FROM school WHERE ID_STATE IN (SELECT ID_STATE FROM state WHERE LIB_STATE = “FLORIDA”) ;

Affichage des lignes 0 - 17 (total de 18, traitement en 0,0006 seconde(s).)

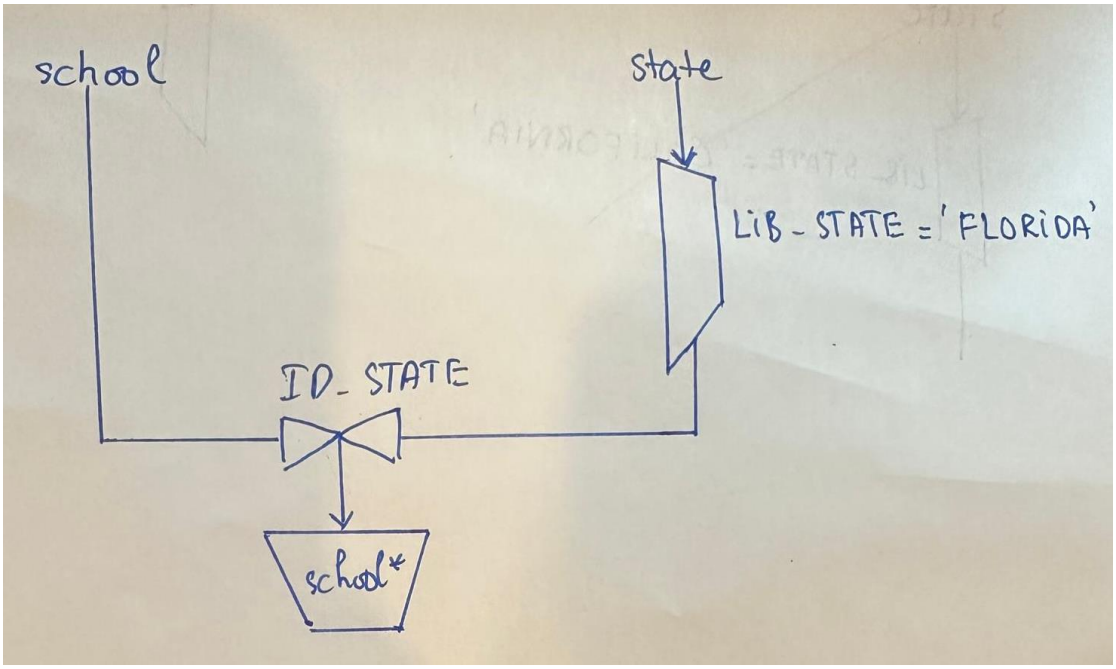
```
SELECT * FROM school WHERE ID_STATE IN (SELECT ID_STATE FROM state WHERE LIB_STATE = "FLORIDA");
```

Profilage [Éditer en ligne] [Éditer] [Expliquer SQL] [Créer le code source PHP] [Actualiser]

Tout afficher | Nombre de lignes : 25 Filtrer les lignes: Chercher dans cette table Trier par clé : Aucun(e)

Options supplémentaires

	ID	GEO_POINT	GEO SHAPE	NAME	ADDRESS	CITY	ID_STATE	TYPE	TOT_STUDENTS	DORM_CAP
Éditer Copier Supprimer	5	26.7054	-80.136711	FLORIDA CAREER COLLEGE-WEST PALM BEACH	6058 OKEECHOBEE BLVD.	WEST PALM BEACH	5	JUNIOR COLLEGES	869	2
Éditer Copier Supprimer	61	28.8302	-81.79773085499994	LAKE-SUMTER STATE COLLEGE	9501 US HWY 441	LEESBURG	5	JUNIOR COLLEGES	4760	2
Éditer Copier Supprimer	62	27.438	-82.59088663399996	STATE COLLEGE OF FLORIDA-MANATEE-SARASOTA	5840 26TH ST W	BRADENTON	5	JUNIOR COLLEGES	9242	2
Éditer Copier Supprimer	70	26.5606	-81.87854850899998	THE TRAINING DOMAIN	12761 WORLD PLAZA LANE	FORT MYERS	5	OTHER TECHNICAL AND TRADE SCHOOLS	999	50
Éditer Copier Supprimer	71	26.5547	-81.88737526399996	FLORIDA SOUTHWESTERN STATE COLLEGE	8099 COLLEGE PARKWAY	FORT MYERS	5	JUNIOR COLLEGES	15141	50



3) **Requête SQL avec un "GROUP BY" :**
SELECT st.LIB_STATE, COUNT(s.ID) AS TOTAL_SCHOOLS FROM school s JOIN state st ON s.ID_STATE = st.ID_STATE GROUP BY st.ID_STATE, st.LIB_STATE ;

Affichage des lignes 0 - 43 (total de 44, traitement en 0,0016 seconde(s).)

```
SELECT st.LIB_STATE, COUNT(s.ID) AS TOTAL_SCHOOLS FROM school s JOIN state st ON s.ID_STATE = st.ID_STATE GROUP BY st.ID_STATE, st.LIB_STATE;
```

Profilage [Éditer en ligne] [Éditer] [Expliquer SQL] [Créer le code source PHP] [Actualiser]

Tout afficher | Nombre de lignes : Tout | Filtrer les lignes: Chercher dans cette table

Options supplémentaires

LIB_STATE	TOTAL_SCHOOLS
OREGON	7
MASSACHUSETTS	2
NEVADA	1
CALIFORNIA	30
FLORIDA	18
MISSOURI	9
GEORGIA	8
ALABAMA	5
NEW YORK	30
WASHINGTON	5
IDAHO	3
OHIO	12
WISCONSIN	6
COLORADO	5
INDIANA	10
VIRGINIA	11
PENNSYLVANIA	13

4) **Requête SQL avec un "GROUP BY HAVING COUNT" :**
SELECT s.ID_STATE, ST.LIB_STATE, COUNT(s.ID) AS TOTAL_SCHOOLS FROM school s INNER JOIN state st ON s.ID_STATE = st.ID_STATE GROUP BY S.ID_STATE, ST.LIB_STATE HAVING COUNT(s.ID) > 10 ;

Affichage des lignes 0 - 7 (total de 8, traitement en 0,0114 seconde(s).)

```
SELECT s.ID_STATE, ST.LIB_STATE, COUNT(s.ID) AS TOTAL_SCHOOLS FROM school s INNER JOIN state st ON s.ID_STATE = st.ID_STATE GROUP BY S.ID_STATE, ST.LIB_STATE HAVING COUNT(s.ID) > 10;
```

Profilage [Éditer en ligne] [Éditer] [Expliquer SQL] [Créer le code source PHP] [Actualiser]

Tout afficher | Nombre de lignes : 25 | Filtrer les lignes: Chercher dans cette table

Options supplémentaires

ID_STATE	LIB_STATE	TOTAL_SCHOOLS
4	CALIFORNIA	30
5	FLORIDA	18
9	NEW YORK	30
12	OHIO	12
16	VIRGINIA	11
17	PENNSYLVANIA	13
26	TEXAS	14
28	ILLINOIS	11

5) **Requête réalisant une différence :**

SELECT * FROM school EXCEPT (SELECT * FROM school WHERE ID_STATE = “1”) ;

Cette requête renvoie toutes les écoles qui ne sont pas dans l’état d’identifiant 1 (OREGON).

Affichage des lignes 0 - 278 (total de 279, traitement en 0,0082 seconde(s).)

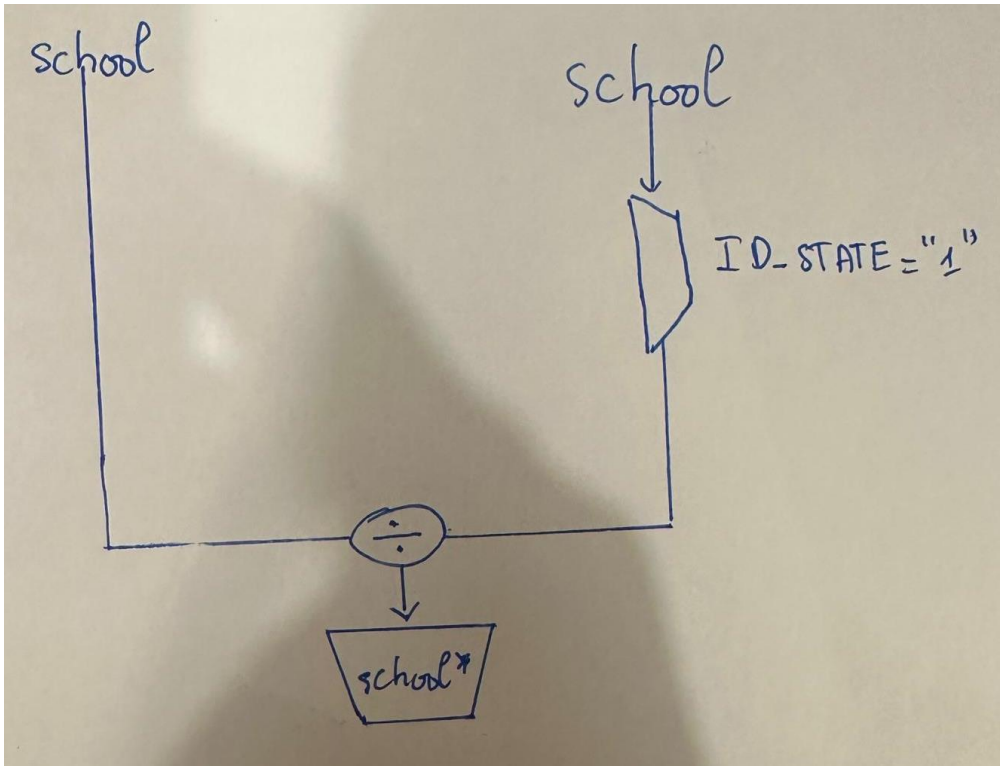
```
SELECT * FROM school EXCEPT (SELECT * FROM school WHERE ID_STATE = "1");
```

Profilage [Éditer en ligne] [Éditer] [Expliquer SQL] [Créer le code source PHP] [Actualiser]

Tout afficher | Nombre de lignes : Tout | Filtrer les lignes: Chercher dans cette table | Trier par clé : Aucun(e)

Options supplémentaires

ID	GEO_POINT	GEO SHAPE	NAME	ADDRESS	CITY	ID_STATE	TYPE	TOT_STUDENTS	DORM_CAP	TOT_EMP
159	37.0853	-94.50938901299997	NEW DIMENSIONS SCHOOL OF HAIR DESIGN	621 KENTUCKY AVE.	JOPLIN	6	COSMETOLOGY AND BARBER SCHOOLS	29	2	1000
226	42.2533	-77.78753969999997	ALFRED UNIVERSITY	ONE SAXON DRIVE	ALFRED	9	COLLEGES	506	1681	2187
18	37.3546	-79.94219614599996	HOLLINS UNIVERSITY	7916 WILLIAMSON RD NW	ROANOKE	16	COLLEGES	73	722	795
45	32.4485	-99.74714463099997	TEXAS COLLEGE OF COSMETOLOGY-ABILENE	117 SAYLES BLVD	ABILENE	26	COSMETOLOGY AND BARBER SCHOOLS	72	2	1000
256	39.3111	-76.65860460699997	COPPIN STATE UNIVERSITY	2500 WEST NORTH AVENUE	BALTIMORE	37	COLLEGES	668	1680	2348
16	37.1729	-104.51218416799998	TRINIDAD STATE JUNIOR COLLEGE	600 PROSPECT STREET	TRINIDAD	14	JUNIOR COLLEGES	1404	50	307
58	42.5086	-90.70690937799998	EMMAUS BIBLE COLLEGE	2570 ASBURY RD	DUBUQUE	24	COLLEGES	29	165	194
232	39.4354	-78.001853	BLUE RIDGE COMMUNITY AND TECHNICAL COLLEGE	13650 APPLE HARVEST DRIVE	MARTINSBURG	33	JUNIOR COLLEGES	3912	2	1000
53	33.4357	-112.05490579999997	GATEWAY COMMUNITY COLLEGE-CENTRAL CITY	1245 E BUCKEYE	PHOENIX	30	COSMETOLOGY AND BARBER SCHOOLS	524	2	1000



Requête réalisant une union :

SELECT * FROM school WHERE TYPE = ‘COLLEGES’ UNION SELECT * FROM school WHERE DORM_CAP = 2 ;

Affichage des lignes 0 - 253 (total de 254, traitement en 0,0070 seconde(s).)

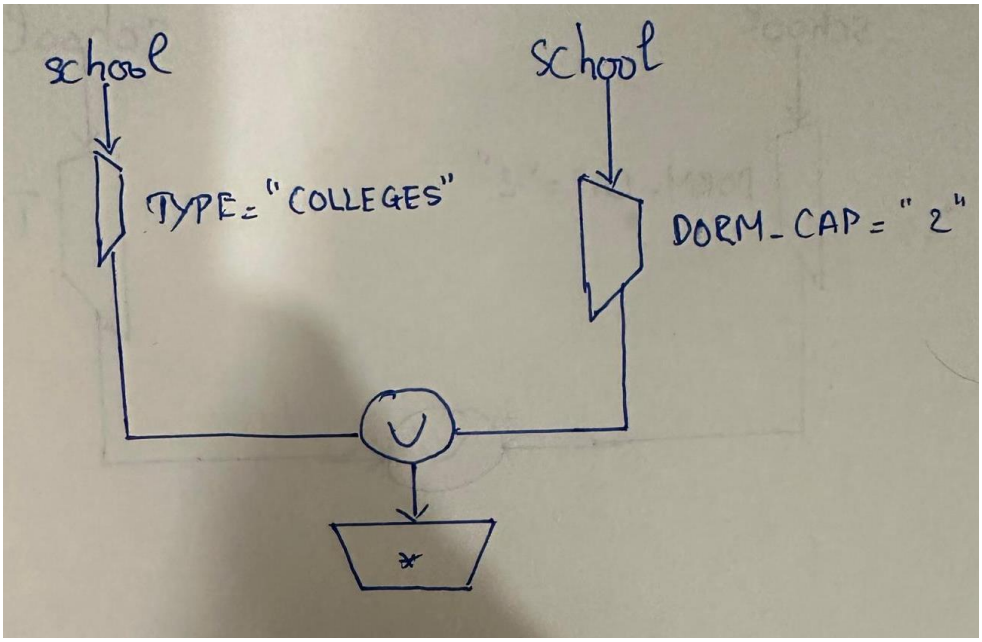
```
SELECT * FROM school WHERE TYPE = "COLLEGES" UNION SELECT * FROM school WHERE DORM_CAP = 2;
```

Profilage [Éditer en ligne] [Éditer] [Expliquer SQL] [Créer le code source PHP] [Actualiser]

Tout afficher | Nombre de lignes : Tout | Filtrer les lignes: Chercher dans cette table | Trier par clé : Aucun(e)

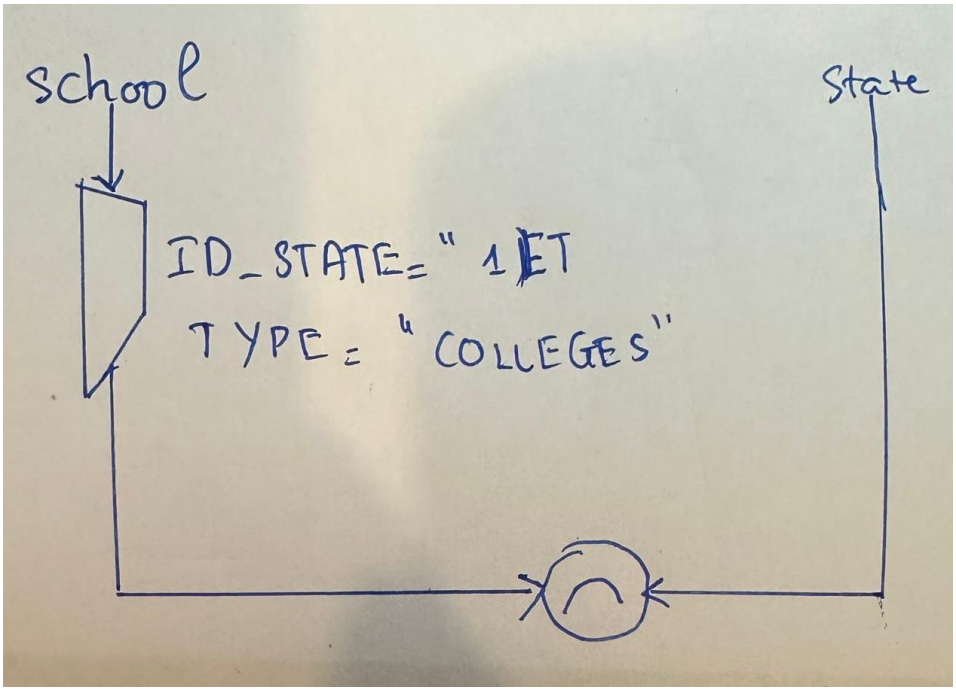
Options supplémentaires

ID	GEO_POINT	GEO SHAPE	NAME	ADDRESS	CITY	ID_STATE	TYPE	TOT_STUDENTS	DORM_CAP	TOT_EMP
2	42.3886	-72.529312	UNIVERSITY OF MASSACHUSETTS-AMHERST	374 WHITMORE BUILDING 181 PRESIDENTS DRIVE	AMHERST	2	COLLEGES	6941	24701	31642
3	39.2443	-119.93912465099999	SIERRA NEVADA UNIVERSITY	999 TAHOE BLVD.	INCLINE VILLAGE	3	COLLEGES	146	471	617
7	33.9377	-83.37143	UNIVERSITY OF GEORGIA	ADMINISTRATION BUILDING	ATHENS	7	COLLEGES	4196	34951	39147
9	41.3313	-74.159642	YESHIVAS MAHARIT D'SATMAR	475 COUNTY ROUTE 105	MONROE	9	COLLEGES	999	143	143
10	47.6489	-122.377121	SEATTLE FILM INSTITUTE	3210 16TH AVENUE W	SEATTLE	10	COLLEGES	8	88	96
13	43.0357	-88.11102224999996	HERZING UNIVERSITY-BROOKFIELD	15895 W BLUEMOUND RD	BROOKFIELD	13	COLLEGES	256	242	498
14	33.8222	-85.76640599199999	JACKSONVILLE STATE UNIVERSITY	700 PELHAM ROAD NORTH	JACKSONVILLE	8	COLLEGES	2754	6484	9238
18	37.3546	-79.94219614599996	HOLLINS UNIVERSITY	7916 WILLIAMSON RD NW	ROANOKE	16	COLLEGES	73	722	795
21	40.8254	-81.37786146599996	MALONE UNIVERSITY	2600 CLEVELAND AVENUE NW	CANTON	12	COLLEGES	510	953	1463
29	33.4695	-81.99309267899997	PAINE COLLEGE	1235 15TH ST	AUGUSTA	7	COLLEGES	34	155	189
30	36.999	-122.06072612599996	UNIVERSITY OF CALIFORNIA-SANTA CRUZ	1156 HIGH ST	SANTA CRUZ	4	COLLEGES	751	18410	19161
31	33.7439	-90.73437836699998	DELTA STATE UNIVERSITY	1003 W SUNFLOWER ROAD	CLEVELAND	21	COLLEGES	1078	1921	2999
271	26.3029	-80.134468	SOUTH FLORIDA BIBLE COLLEGE AND THEOLOGICAL SEMINA...	2200 SW 10TH STREET	DEERFIELD BEACH	5	COLLEGES	169	144	313
272	40.7429	-74.24875250999997	SETON HALL UNIVERSITY	400 S ORANGE AVE	SOUTH ORANGE	29	COLLEGES	2373	7441	9814
273	43.1398	-87.90904470899994	CARDINAL STRITCH UNIVERSITY	6801 N YATES RD	MILWAUKEE	13	COLLEGES	930	716	1646
274	43.7774	-88.42063757499994	MARIAN UNIVERSITY	45 S NATIONAL AVE	FOND DU LAC	13	COLLEGES	336	1257	1593
277	38.5599	-121.42241598799995	CALIFORNIA STATE UNIVERSITY-SACRAMENTO	6000 J ST	SACRAMENTO	4	COLLEGES	6607	25686	32293
279	35.944	-97.260263	LANGSTON UNIVERSITY	102 PAGE HALL	LANGSTON	25	COLLEGES	205	1833	2038
281	38.0691	-122.23155092999997	CALIFORNIA STATE UNIVERSITY MARITIME ACADEMY	200 MARITIME ACADEMY DR	VALLEJO	4	COLLEGES	79	873	952
282	29.9361	-90.12041721699995	LOYOLA UNIVERSITY NEW ORLEANS	6363 SAINT CHARLES AVE	NEW ORLEANS	27	COLLEGES	818	3679	4497
283	40.4032	-104.701721	UNIVERSITY OF NORTHERN COLORADO	CARTER HALL - RM 4000	GREELEY	14	COLLEGES	3755	7705	11460
284	32.7169	-117.25021126499996	POINT LOMA NAZARENE UNIVERSITY	3900 LOMALAND DR	SAN DIEGO	4	COLLEGES	1435	3181	4616
285	40.5207	-80.21158512499994	ROBERT MORRIS UNIVERSITY	6001 UNIVERSITY BOULEVARD	MOON TOWNSHIP	17	COLLEGES	1064	3070	4134
286	36.9643	-121.99824495299998	FIVE BRANCHES UNIVERSITY	200 7TH AVENUE	SANTA CRUZ	4	COLLEGES	90	259	349
1	45.4804	-122.67453292999994	AMERICAN COLLEGE OF HEALTHCARE SCIENCES	5005 S. MACADAM AVE	PORTLAND	1	COMPUTER TRAINING	856	2	5
4	33.1314	-117.118565978	UNITED EDUCATION INSTITUTE-UEI COLLEGE SAN MARCOS	2085 MONTIEL ROAD	SAN MARCOS	4	OTHER TECHNICAL AND TRADE SCHOOLS	719	2	1000
5	26.7054	-80.136711	FLORIDA CAREER COLLEGE-WEST PALM BEACH	6058 OKEECHOBEE BLVD.	WEST PALM BEACH	5	JUNIOR COLLEGES	869	2	1000
6	38.7288	-90.38025209799997	AMERICAN TRADE SCHOOL	3925 INDUSTRIAL DRIVE	SAINT ANN	6	OTHER TECHNICAL AND TRADE SCHOOLS	128	2	1000
8	33.464	-86.908933	MIDFIELD INSTITUTE OF COSMETOLOGY	26 B PHILLIPS DRIVE	MIDFIELD	8	COSMETOLOGY AND BARBER SCHOOLS	17	2	1000



Requête réalisant une intersection :

La requête suivante ne fonctionne pas car “INTERSECTION” n’est pas un opérateur standard en SQL : SELECT * FROM school WHERE ID_STATE = 1 INTERSECTION SELECT * FROM school WHERE TYPE = “COLLEGES” ;



Requête réalisant une division :
Cette requête renvoie les écoles qui ont un nombre total d’employés égal à la moyenne par état.
SELECT * FROM school s WHERE TOT_EMP = (SELECT AVG(TOT_EMP) FROM school WHERE ID_STATE = S.ID_STATE)

Affichage des lignes 0 - 11 (total de 12, traitement en 0,0072 seconde(s).)

```
SELECT * FROM school s WHERE TOT_EMP = (SELECT AVG(TOT_EMP) FROM school WHERE ID_STATE = S.ID_STATE);
```

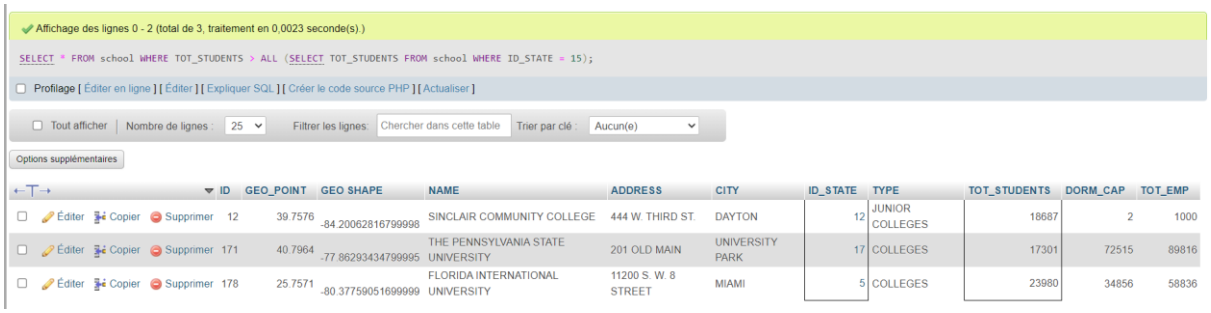
Profilage [Éditer en ligne] [Éditer] [Expliquer SQL] [Créer le code source PHP] [Actualiser]

Tout afficher | Nombre de lignes : 25 | Filtrer les lignes: Chercher dans cette table | Trier par clé : Aucun(e)

Options supplémentaires

	ID	GEO_POINT	GEO SHAPE	NAME	ADDRESS	CITY	ID_STATE	TYPE	TOT_STUDENTS	DORM_CAP	TOT_EMP
Éditer Copier Supprimer	3	39.2443	-119.93912465099999	SIERRA NEVADA UNIVERSITY	999 TAHOE BLVD	INCLINE VILLAGE	3	COLLEGES	146	471	617
Éditer Copier Supprimer	31	33.7439	-90.73437836699998	DELTA STATE UNIVERSITY	1003 W SUNFLOWER ROAD	CLEVELAND	21	COLLEGES	1078	1921	2999
Éditer Copier Supprimer	34	35.669	-105.91512160499997	ST. JOHN'S COLLEGE	1160 CAMINO CRUZ BLANCA	SANTA FE	22	COLLEGES	19	336	355
Éditer Copier Supprimer	53	33.4357	-112.05490579999997	GATEWAY COMMUNITY COLLEGE-CENTRAL CITY	1245 E BUCKEYE	PHOENIX	30	COSMETOLOGY AND BARBER SCHOOLS	524	2	1000
Éditer Copier Supprimer	67	41.8064	-71.412848	COLLEGE UNBOUND	325 PUBLIC STREET	PROVIDENCE	31	COLLEGES	57	101	158
Éditer Copier Supprimer	86	34.9384	-81.029884	WINTHROP UNIVERSITY	701 OAKLAND AVE	ROCK HILL	35	COLLEGES	1184	4392	5576
Éditer Copier Supprimer	89	61.1896	-149.82613488799998	UNIVERSITY OF ALASKA ANCHORAGE	3211 PROVIDENCE DRIVE	ANCHORAGE	36	COLLEGES	7082	4871	11953

Requête utilisant l’opérateur “all” :
Cette requête renvoie les écoles ayant un nombre total d’étudiants supérieur à tous les autres dans l’état d’identifiant 15 (INDIANA).
SELECT * FROM school WHERE TOT_STUDENTS > ALL (SELECT TOT_STUDENTS FROM school WHERE ID_STATE = 15) ;



Affichage des lignes 0 - 2 (total de 3, traitement en 0,0023 seconde(s).)

```
SELECT * FROM school WHERE TOT_STUDENTS > ALL (SELECT TOT_STUDENTS FROM school WHERE ID_STATE = 15);
```

Profilage [Éditer en ligne] [Éditer] [Expliquer SQL] [Créer le code source PHP] [Actualiser]

Tout afficher | Nombre de lignes : 25 | Filtrer les lignes: Chercher dans cette table | Trier par clé : Aucun(e)

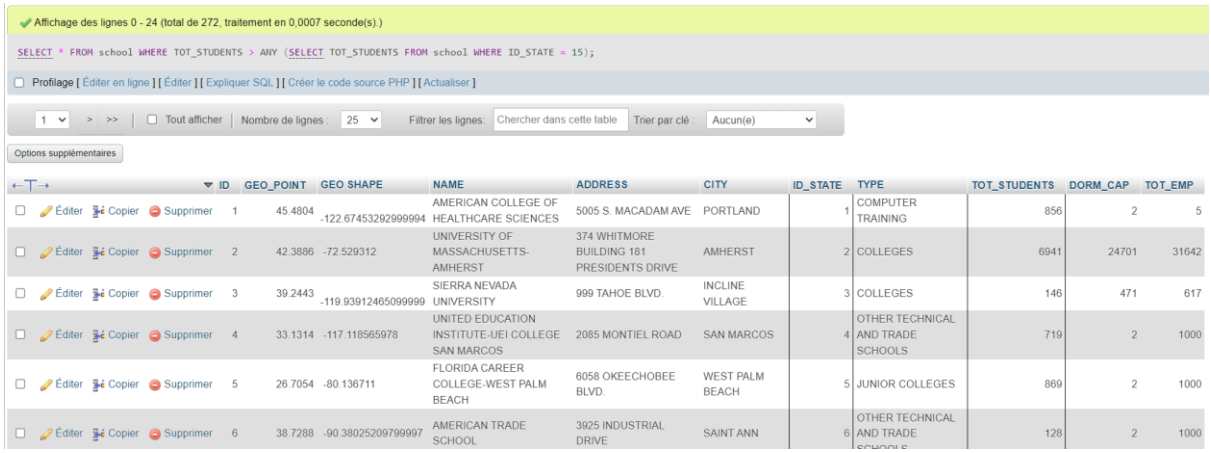
Options supplémentaires

	ID	GEO_POINT	GEO SHAPE	NAME	ADDRESS	CITY	ID_STATE	TYPE	TOT_STUDENTS	DORM_CAP	TOT_EMP
Éditer Copier Supprimer	12	39.7576	-84.20062816799998	SINCLAIR COMMUNITY COLLEGE	444 W. THIRD ST.	DAYTON	12	JUNIOR COLLEGES	18687	2	1000
Éditer Copier Supprimer	171	40.7964	-77.86293434799995	THE PENNSYLVANIA STATE UNIVERSITY	201 OLD MAIN	UNIVERSITY PARK	17	COLLEGES	17301	72515	89816
Éditer Copier Supprimer	178	25.7571	-80.37759051699999	FLORIDA INTERNATIONAL UNIVERSITY	11200 S. W. 8 STREET	MIAMI	5	COLLEGES	23980	34856	58836

Requête utilisant l'opérateur "any" :

Cette requête renvoie les écoles ayant un nombre total d'étudiants supérieur à au moins une autre école dans l'état d'identifiant 15 (INDIANA).

SELECT * FROM school WHERE TOT_STUDENTS > ANY (SELECT TOT_STUDENTS FROM school WHERE ID_STATE = 15) ;



Affichage des lignes 0 - 24 (total de 272, traitement en 0,0007 seconde(s).)

```
SELECT * FROM school WHERE TOT_STUDENTS > ANY (SELECT TOT_STUDENTS FROM school WHERE ID_STATE = 15);
```

Profilage [Éditer en ligne] [Éditer] [Expliquer SQL] [Créer le code source PHP] [Actualiser]

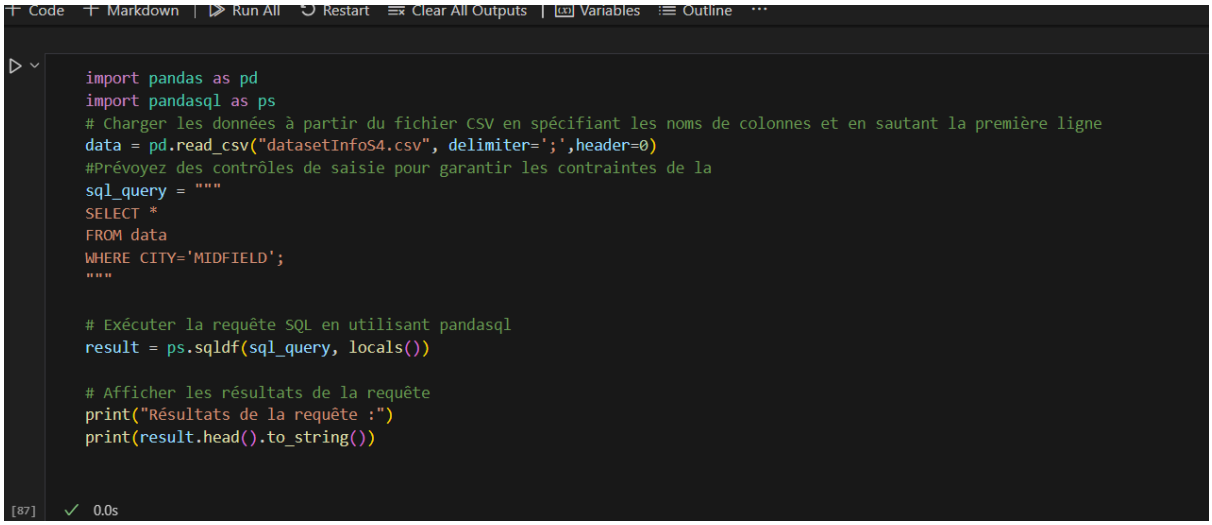
1 > >> | Tout afficher | Nombre de lignes : 25 | Filtrer les lignes: Chercher dans cette table | Trier par clé : Aucun(e)

Options supplémentaires

	ID	GEO_POINT	GEO SHAPE	NAME	ADDRESS	CITY	ID_STATE	TYPE	TOT_STUDENTS	DORM_CAP	TOT_EMP
Éditer Copier Supprimer	1	45.4804	-122.67453292999994	AMERICAN COLLEGE OF HEALTHCARE SCIENCES	5005 S. MACADAM AVE	PORTLAND	1	COMPUTER TRAINING	856	2	5
Éditer Copier Supprimer	2	42.3886	-72.529312	UNIVERSITY OF MASSACHUSETTS-AMHERST	374 WHITMORE BUILDING 181 PRESIDENTS DRIVE	AMHERST	2	COLLEGES	6941	24701	31642
Éditer Copier Supprimer	3	39.2443	-119.93912465099999	SIERRA NEVADA UNIVERSITY	999 TAHOE BLVD.	INCLINE VILLAGE	3	COLLEGES	146	471	617
Éditer Copier Supprimer	4	33.1314	-117.118565978	UNITED EDUCATION INSTITUTE-UEI COLLEGE SAN MARCOS	2085 MONTIEL ROAD	SAN MARCOS	4	OTHER TECHNICAL AND TRADE SCHOOLS	719	2	1000
Éditer Copier Supprimer	5	26.7054	-80.136711	FLORIDA CAREER COLLEGE-WEST PALM BEACH	6058 OKEECHOBEE BLVD.	WEST PALM BEACH	5	JUNIOR COLLEGES	869	2	1000
Éditer Copier Supprimer	6	38.7288	-90.38025209799997	AMERICAN TRADE SCHOOL	3925 INDUSTRIAL DRIVE	SAINT ANN	6	OTHER TECHNICAL AND TRADE SCHOOLS	128	2	1000

ii. Introduction de requêtes SQL dans PYTHON :

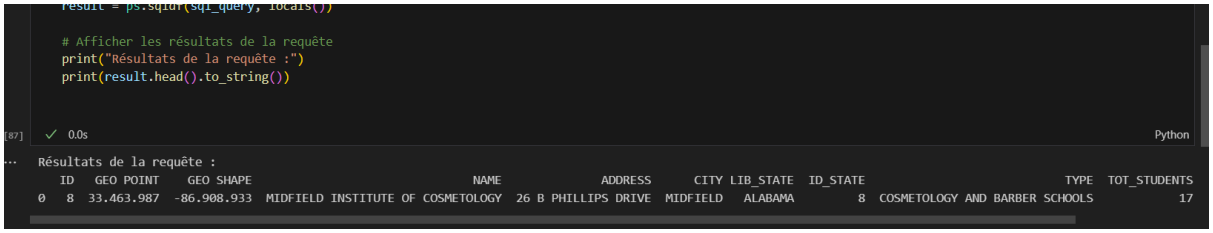
1. Introduction dans le code Python de l'étape 1 d'une requête SQL du type "SELECT FROM WHERE"



+ Code + Markdown | Run All | Restart | Clear All Outputs | Variables | Outline ...

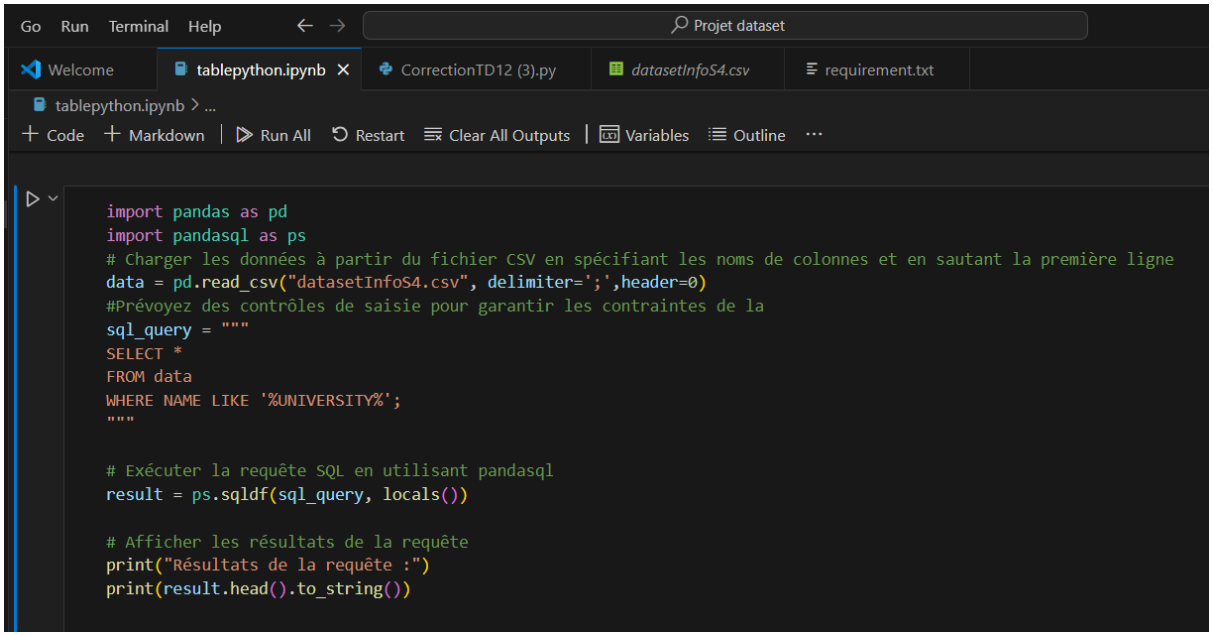
```python
import pandas as pd
import pandasql as ps
# Charger les données à partir du fichier CSV en spécifiant les noms de colonnes et en sautant la première ligne
data = pd.read_csv("datasetInfoS4.csv", delimiter=';',header=0)
#Prévoyez des contrôles de saisie pour garantir les contraintes de la
sql_query = """
SELECT *
FROM data
WHERE CITY='MIDFIELD';
"""

# Exécuter la requête SQL en utilisant pandasql
result = ps.sqldf(sql_query, locals())

# Afficher les résultats de la requête
print("Résultats de la requête :")
print(result.head().to_string())
```

[87] ✓ 0.0s



```
# Afficher les résultats de la requête
print("Résultats de la requête :")
print(result.head().to_string())
```

```
[87] ✓ 0.0s                                                                    Python
Résultats de la requête :
   ID   GEO POINT    GEO SHAPE                              NAME            ADDRESS      CITY LIB_STATE  ID_STATE                          TYPE  TOT_STUDENTS
0   8  33.463.987  -86.908.933  MIDFIELD INSTITUTE OF COSMETOLOGY  26 B PHILLIPS DRIVE  MIDFIELD    ALABAMA         8  COSMETOLOGY AND BARBER SCHOOLS            17
```



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tablepython.ipynb > ...

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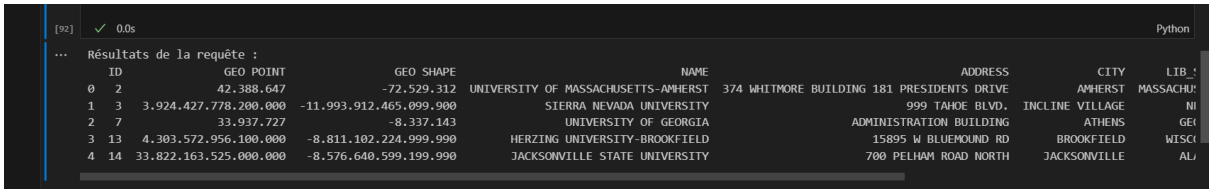
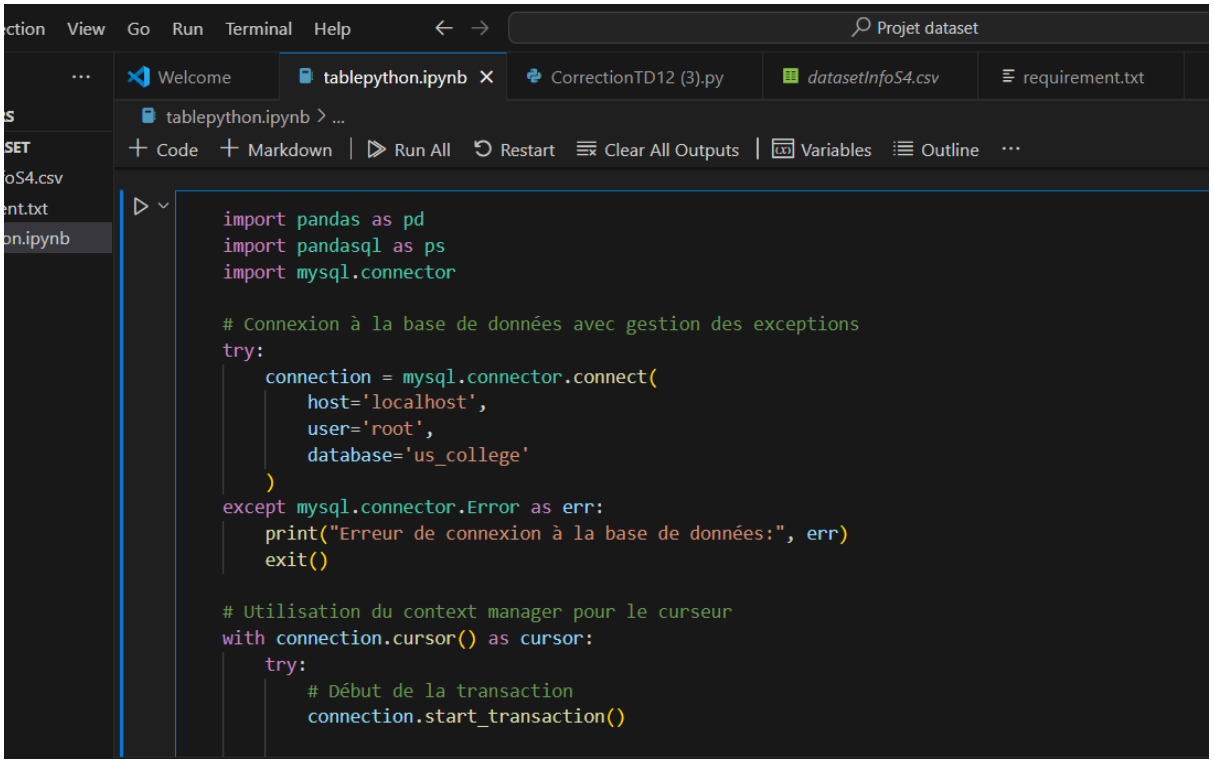
```
import pandas as pd
import pandasql as ps
# Charger les données à partir du fichier CSV en spécifiant les noms de colonnes et en sautant la première ligne
data = pd.read_csv("datasetInfoS4.csv", delimiter=';',header=0)
#Prévoyez des contrôles de saisie pour garantir les contraintes de la
sql_query = """
SELECT *
FROM data
WHERE NAME LIKE '%UNIVERSITY%';
"""

# Exécuter la requête SQL en utilisant pandasql
result = ps.sqldf(sql_query, locals())

# Afficher les résultats de la requête
print("Résultats de la requête :")
print(result.head().to_string())
```



```
[92] ✓ 0.0s                                                                    Python
Résultats de la requête :
   ID             GEO POINT              GEO SHAPE                                NAME                                ADDRESS           CITY  LIB_
0   2            42.388.647            -72.529.312  UNIVERSITY OF MASSACHUSETTS-AMHERST  374 WHITMORE BUILDING 181 PRESIDENTS DRIVE        AMHERST  MASSACHU
1   3  3.924.427.778.200.000  -11.993.912.465.099.900            SIERRA NEVADA UNIVERSITY                        999 TAHOE BLVD.  INCLINE VILLAGE        NI
2   7            33.937.727             -8.337.143              UNIVERSITY OF GEORGIA                ADMINISTRATION BUILDING          ATHENS        GE
3  13  4.303.572.956.100.000  -8.811.102.224.999.990       HERZING UNIVERSITY-BROOKFIELD                   15895 W BLUEMOUND RD       BROOKFIELD        WISC
4  14  33.822.163.525.000.000  -8.576.640.599.199.990       JACKSONVILLE STATE UNIVERSITY                   700 PELHAM ROAD NORTH     JACKSONVILLE          AL
```

iii. **Implémentation des propriétés ACID de la base : transaction**

1. et 2. Implémentation dans le programme Python d'un commit et d'un roll back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requirement.txt
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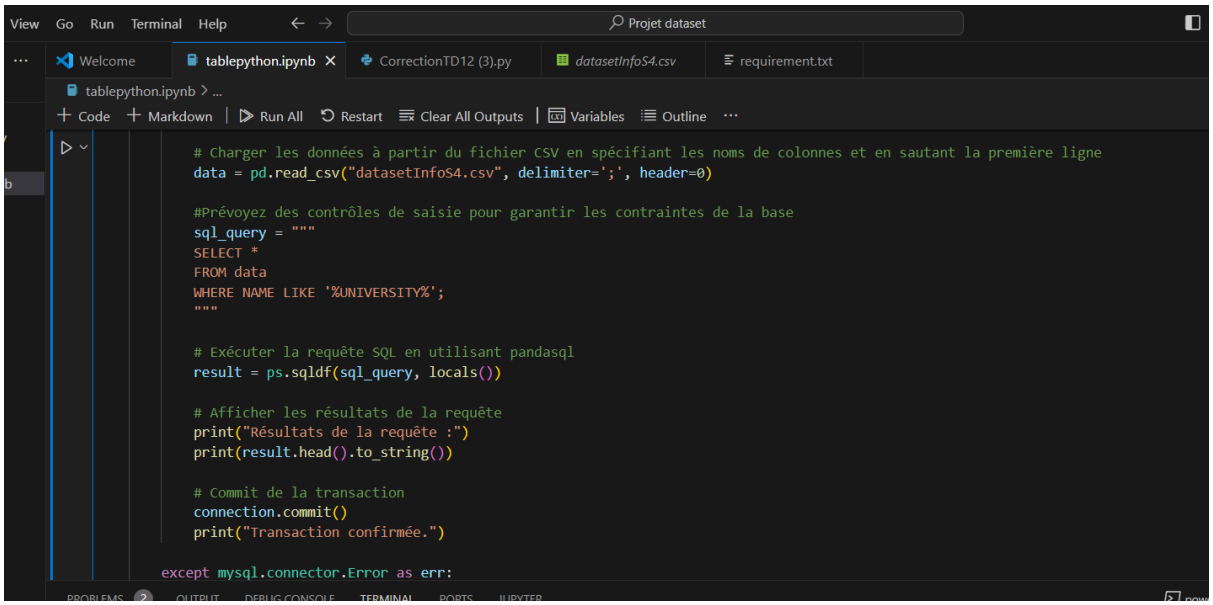
Outline
import pandas as pd
import pandasql as ps
import mysql.connector
# Connexion à la base de données avec gestion des exceptions
try:
connection = mysql.connector.connect(
host='localhost',
user='root',
database='us_college'
)
except mysql.connector.Error as err:
print("Erreur de connexion à la base de données:", err)
exit()
# Utilisation du context manager pour le curseur
with connection.cursor() as cursor:
try:
# Début de la transaction
connection.start_transaction()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Projet dataset
Welcome
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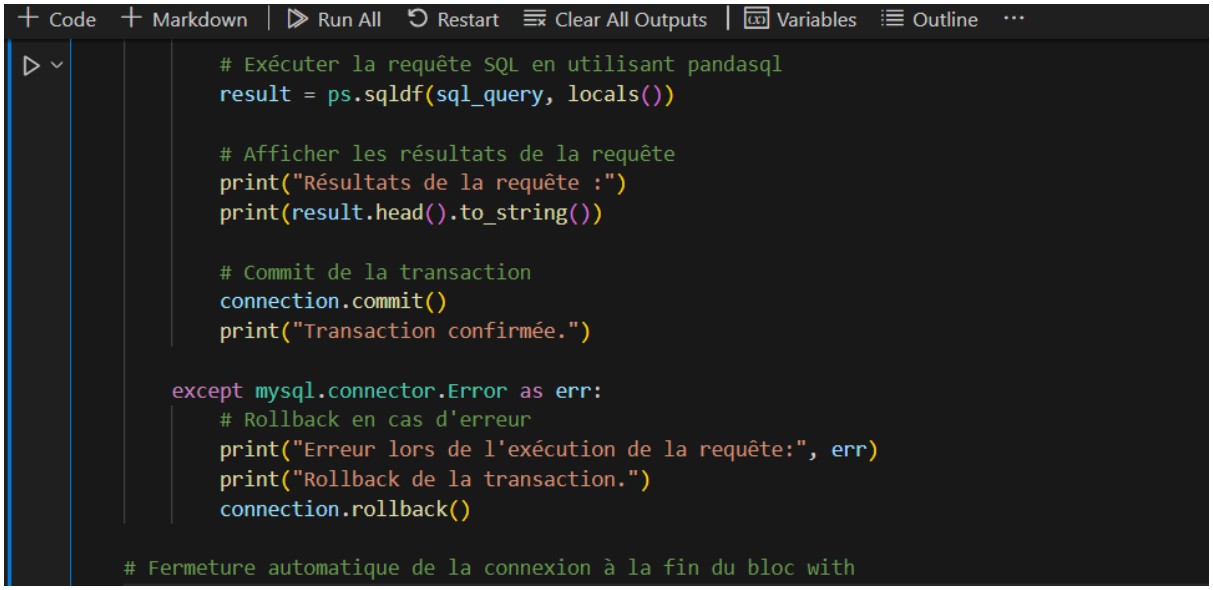
CorrectionTD12 (3).py
datasetInfoS4.csv
requirement.txt
tablepython.ipynb > ...
Code
Markdown
Run All
Restart
Clear All Outputs
Variables
Outline
# Charger les données à partir du fichier CSV en spécifiant les noms de colonnes et en sautant la première ligne
data = pd.read_csv("datasetInfoS4.csv", delimiter=';', header=0)
#Prévoyez des contrôles de saisie pour garantir les contraintes de la base
sql_query = """
SELECT *
FROM data
WHERE NAME LIKE '%UNIVERSITY%';
"""
# Exécuter la requête SQL en utilisant pandasql
result = ps.sqldf(sql_query, locals())
# Afficher les résultats de la requête
print("Résultats de la requête :")
print(result.head().to_string())
# Commit de la transaction
connection.commit()
print("Transaction confirmée.")
except mysql.connector.Error as err:


Code
Markdown
Run All
Restart
Clear All Outputs
Variables
Outline
# Exécuter la requête SQL en utilisant pandasql
result = ps.sqldf(sql_query, locals())
# Afficher les résultats de la requête
print("Résultats de la requête :")
print(result.head().to_string())
# Commit de la transaction
connection.commit()
print("Transaction confirmée.")
except mysql.connector.Error as err:
# Rollback en cas d'erreur
print("Erreur lors de l'exécution de la requête:", err)
print("Rollback de la transaction.")
connection.rollback()
# Fermeture automatique de la connexion à la fin du bloc with