In [ ]:
```
import pandas as pd
```

In [ ]:
```
flat_data = pd.read_csv('flat_data.csv')
```

In [130…
```
flat_data
```

Out[130…

	first_name	last_name	salary	dept_name	salary_increment
0	Darius	Mufutau	3901	Finance	10
1	Tiger	Elliott	5489	IT	15
2	Malik	Macaulay	5444	Sales	17
3	Ali	Vance	8993	Marketing	16
4	Randall	Deacon	9515	IT	15
5	Josiah	Lee	8113	Sales	17
6	Dante	Mohammad	8446	Sales	17
7	Wyatt	Kuame	4817	Marketing	16
8	Quinn	Oliver	5513	Finance	10
9	Oliver	Gary	5158	IT	15
10	Thane	Phelan	4957	Sales	17
11	Walter	Lester	3864	Finance	10
12	Samson	Dolan	6855	IT	15
13	Beck	Walker	7077	Sales	17
14	Lucas	Marshall	7499	Marketing	16
15	John	Nash	4269	IT	15
16	Quinlan	Elliott	7503	Sales	17
17	Ivan	Dennis	4048	Sales	17
18	Wang	Ronan	9319	Marketing	16
19	Stone	Jameson	9354	Finance	10
20	Clayton	Jarrod	4102	IT	15
21	Cain	Sean	7353	Sales	17

In [ ]:
```
#create employee and department dataframe
```

In [ ]:
```
flat_data = flat_data.rename(columns={'salary_increment ': 'salary_increment'})
```

In [ ]:
```
dept_df = flat_data[["dept_name","salary_increment"]]
```

In [ ]:
```
dept_df = dept_df.drop_duplicates()
```

In [ ]:
```
dept_df.insert(0, 'id', range(1, 1 + len(dept_df)))
```

In [129…
```
dept_df
```

Out[129…

	id	name	salary_increment
0	1	Finance	10
1	2	IT	15
2	3	Sales	17
3	4	Marketing	16

In [ ]:
```
dept_df = dept_df.rename(columns={'dept_name':'name'})
```

In [ ]:
```
dept_df
```

In [ ]:
```
emp_df = flat_data[['first_name','last_name','salary','dept_name']]
```

In [ ]:
```
emp_df.insert(0, 'id', range(1, 1 + len(emp_df)))
```

In [ ]:
```
emp_df
```

In [ ]:
```
def f(row):
    if row['dept_name'] == 'Finance':
        val = 1
    elif row['dept_name'] == 'IT':
        val = 2
    elif row['dept_name'] == 'Sales':
        val = 3
    else:
        val = 4
    return val
```

In [ ]:
```
emp_df['department_id'] = emp_df.apply(f, axis=1)
```

In [ ]:
```
del emp_df['dept_name']
```

In [128…
```
emp_df
```

Out[128...

	id	first_name	last_name	salary	department_id
0	1	Darius	Mufutau	3901	1
1	2	Tiger	Elliott	5489	2
2	3	Malik	Macaulay	5444	3
3	4	Ali	Vance	8993	4
4	5	Randall	Deacon	9515	2
5	6	Josiah	Lee	8113	3
6	7	Dante	Mohammad	8446	3
7	8	Wyatt	Kuame	4817	4
8	9	Quinn	Oliver	5513	1
9	10	Oliver	Gary	5158	2
10	11	Thane	Phelan	4957	3
11	12	Walter	Lester	3864	1
12	13	Samson	Dolan	6855	2
13	14	Beck	Walker	7077	3
14	15	Lucas	Marshall	7499	4
15	16	John	Nash	4269	2
16	17	Quinlan	Elliott	7503	3
17	18	Ivan	Dennis	4048	3
18	19	Wang	Ronan	9319	4
19	20	Stone	Jameson	9354	1
20	21	Clayton	Jarrod	4102	2
21	22	Cain	Sean	7353	3

In [ ]:
```
pip install pymysql
```

In [ ]:
```
pip install mysqlclient
```

In [ ]:
```
import sqlalchemy
import pymysql
```

In [ ]:
```
engine = sqlalchemy.create_engine('mysql://root:root@localhost')
engine.execute("CREATE DATABASE flatdata")
engine.execute("USE flatdata")
```

In [ ]:
```
connection = pymysql.connect(host='localhost',
                             user='root',
```

```
                          password='root',
                          db='flatdata')


cursor=connection.cursor()
```

In [ ]:
```
dept_df.to_sql('department', engine, if_exists='append', index=False)
```

In [ ]:
```
emp_df.to_sql('employee', engine, if_exists='append', index=False)
```

In [125…
```
sql = "SELECT * FROM employee"
cursor.execute(sql)

result = cursor.fetchall()
for i in result:
    print(i)
```

```
(1, 'Darius', 'Mufutau', 3901, 1)
(2, 'Tiger', 'Elliott', 5489, 2)
(3, 'Malik', 'Macaulay', 5444, 3)
(4, 'Ali', 'Vance', 8993, 4)
(5, 'Randall', 'Deacon', 9515, 2)
(6, 'Josiah', 'Lee', 8113, 3)
(7, 'Dante', 'Mohammad', 8446, 3)
(8, 'Wyatt', 'Kuame', 4817, 4)
(9, 'Quinn', 'Oliver', 5513, 1)
(10, 'Oliver', 'Gary', 5158, 2)
(11, 'Thane', 'Phelan', 4957, 3)
(12, 'Walter', 'Lester', 3864, 1)
(13, 'Samson', 'Dolan', 6855, 2)
(14, 'Beck', 'Walker', 7077, 3)
(15, 'Lucas', 'Marshall', 7499, 4)
(16, 'John', 'Nash', 4269, 2)
(17, 'Quinlan', 'Elliott', 7503, 3)
(18, 'Ivan', 'Dennis', 4048, 3)
(19, 'Wang', 'Ronan', 9319, 4)
(20, 'Stone', 'Jameson', 9354, 1)
(21, 'Clayton', 'Jarrod', 4102, 2)
(22, 'Cain', 'Sean', 7353, 3)
```

In [124…
```
sql = "SELECT * FROM department"
cursor.execute(sql)

result = cursor.fetchall()
for i in result:
    print(i)
```

```
(1, 'Finance', 10)
(2, 'IT', 15)
(3, 'Sales', 17)
(4, 'Marketing', 16)
```

In [120…
```
sqlquery = "ALTER TABLE `flatdata`.`employee` CHANGE COLUMN `id` `id` INT NOT NULL ,ADD
cursor.execute(sqlquery)
```

Out[120… 0

In [121…
```
sqlquery = "ALTER TABLE `flatdata`.`department` CHANGE COLUMN `id` `id` INT NOT NULL ,A
cursor.execute(sqlquery)
```

Out[121… 0

In [ ]:
```
sqlquery = "ALTER TABLE `flatdata`.`employee` ADD INDEX `dept_id_fk_idx` (`department_i
cursor.execute(sqlquery)
```

In [122…
```
sqlquery = "ALTER TABLE `flatdata`.`employee` ADD CONSTRAINT `dept_id_fk_idx`  FOREIGN
cursor.execute(sqlquery)
```

Out[122… 22

In [123…
```
sqlquery = "CREATE TABLE updated_salaries AS select e.id, (e.salary*d.salary_increment/
cursor.execute(sqlquery)
```

Out[123… 22

In [126…
```
sql = "SELECT * FROM updated_salaries"
cursor.execute(sql)

result = cursor.fetchall()
for i in result:
    print(i)
```

```
(1, Decimal('4291.1000'))
(2, Decimal('6312.3500'))
(3, Decimal('6369.4800'))
(4, Decimal('10431.8800'))
(5, Decimal('10942.2500'))
(6, Decimal('9492.2100'))
(7, Decimal('9881.8200'))
(8, Decimal('5587.7200'))
(9, Decimal('6064.3000'))
(10, Decimal('5931.7000'))
(11, Decimal('5799.6900'))
(12, Decimal('4250.4000'))
(13, Decimal('7883.2500'))
(14, Decimal('8280.0900'))
(15, Decimal('8698.8400'))
(16, Decimal('4909.3500'))
(17, Decimal('8778.5100'))
(18, Decimal('4736.1600'))
(19, Decimal('10810.0400'))
(20, Decimal('10289.4000'))
(21, Decimal('4717.3000'))
(22, Decimal('8603.0100'))
```

In [127…
```
engine.dispose()
connection.close()
```

In [ ]: