In [2]:
```python
import pandas as pd
import numpy as np
import sqlite3 as sql
import matplotlib.pyplot as plt
```

In [3]:
```python
db = 'chinook.db'
def run_query(q):
    with sql.connect(db) as conn:
        return pd.read_sql_query(q, conn)
```

In [12]:
```python
q = """

SELECT t1.track_id, t1.album_id, t2.track_id, t2.album_id FROM track t1
inner join track t2
on
t1.album_id = t2.album_id
where t1.track_id = 1159
"""

run_query(q).head(30)
```

Out[12]:

	track_id	album_id	track_id	album_id
0	1159	91	1158	91
1	1159	91	1159	91
2	1159	91	1160	91
3	1159	91	1161	91
4	1159	91	1162	91
5	1159	91	1163	91
6	1159	91	1164	91
7	1159	91	1165	91
8	1159	91	1166	91
9	1159	91	1167	91
10	1159	91	1168	91
11	1159	91	1169	91
12	1159	91	1170	91
13	1159	91	1171	91
14	1159	91	1172	91
15	1159	91	1173	91

In [15]:
```python
q = """

SELECT t2.track_id FROM track t1
inner join track t2
on
t1.album_id = t2.album_id
```

```
where t1.track_id = 1159

except

SELECT il.track_id from invoice_line il
where il.invoice_id = 1

"""

run_query(q).head(30)
```

Out[15]:   **track_id**

In [25]:
```
q = """
with invoice_data as
(select invoice_id, Min(track_id)track_id FROM invoice_line
group by 1
having invoice_id = 1)

select invoice_id ,
case
when (
SELECT t2.track_id FROM track t1
inner join track t2
on
t1.album_id = t2.album_id
where t1.track_id = invd.track_id

except

SELECT il.track_id from invoice_line il
where il.invoice_id = invd.invoice_id

) is null
then "Yes"
else "No"
end as Purchased_Album


FROM invoice_data invd

"""

run_query(q).head(30)
```

Out[25]:

	invoice_id	Purchased_Album
0	1	Yes

In [ ]: