

SQL

Using the syntax guide to the left, please translate the following queries into SQL using tables Flights and Countries.








Flights

Flight_id	Destination	Departure_from	Charter	Passengers





Countries

Destination	in_EU	Capital








Give the destinations of all flights.

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 

Find the IDs for all charter flights.

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 








What is the total number of passengers?

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 







Get the nr of flights per destination.

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 

Get all flights IDS for flights arriving in EU countries.

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 

Which non-EU countries are destination to more than 4000 passengers in total?

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 

Syntax:

Selecting columns



```
SELECT   
FROM  ;
```

Selecting rows



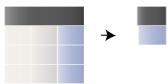
```
SELECT *  
FROM   
WHERE  ;
```

Selecting both



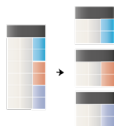
```
SELECT   
FROM   
WHERE  ;
```

Aggregating columns



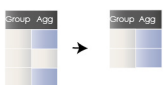
```
SELECT  (  )  
FROM 
```

Grouping rows before aggregation



```
SELECT  (  )  
FROM   
GROUP BY 
```

Filtering aggregates



```
SELECT  (  )  
FROM   
GROUP BY   
HAVING 
```

Joining tables



```
SELECT *  
FROM  INNER JOIN   
ON 
```

Example:

```
SELECT Name  
FROM Table;
```

```
SELECT *  
FROM Table  
WHERE Age > 18;
```

```
SELECT Name  
FROM Table  
WHERE Age > 18;
```

```
SELECT AVG(Age)  
FROM Table;
```

```
SELECT AVG(Age)  
FROM Table  
GROUP BY Class;
```

```
SELECT AVG(Age)  
FROM Table  
GROUP BY Class  
HAVING AVG(Age) > 25;
```

```
SELECT *  
FROM Table1 INNER JOIN Table2  
ON Table1.Name = Table2.Name;
```

Using the syntax guide to the left, please translate the following queries into R Dplyr using tables Bands and Musicians.








Bands

Bandname	Nr_members	Income	Genre




Musicians

Name	Instrument	Bandname	Startyear	Endyear






Find all the members of ABBA.

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 

Find all instruments played by musicians with a null Endyear.

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 


What is the total nr of genres?

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 

What is the mean band income per genre?

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 

Which musicians are members of several bands?

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 

Which guitarists are in bands that on average earn more than £100 000?

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 

Syntax:

Example:

Selecting columns



```
table %>% select(1, 2)
```

```
Table %>% select( Name)
```

Selecting rows



```
table %>% filter(3, 4)
```

```
Table %>% filter(Age > 18)
```

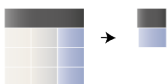
Selecting both



```
table %>% filter(3, 4) %>%  
select(1, 2)
```

```
Table %>% filter(Age > 18)  
%>% select(Name)
```

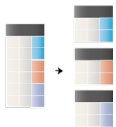
Aggregating columns



```
table %>% summarise(1, 2)
```

```
Table %>%  
summarise(mean(Age))
```

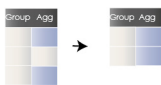
Grouping rows before
aggregation



```
table %>% group_by(1) %>%  
summarise(1, 2)
```

```
Table %>% group_by(Class)  
%>% summarise(mean(Age))
```

Filtering aggregates



```
table %>% group_by(1) %>%  
summarise(1, 2) %>%  
filter(3)
```

```
Table %>% group_by(Class)  
%>% summarise(mean(Age))  
%>% filter(mean(Age)>25)
```

Joining tables



```
inner_join(table1, table2, by=c(1, 2))
```

```
inner_join(Table1, Table2,  
by= c("Name", "Name"))
```

Python Pandas

Using the syntax guide to the left, please translate the following queries into Python Pandas using tables Recipes and Cookbooks.








Recipes

Name	Author	Nr_served	Type	Cost

Cookbooks








Bookname	Author	Cuisine	in_Paperback

Which recipes are of type dessert?

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 


```
Recipes[Recipes.Type == "Dessert"]
```

What are the cuisines of Jamie Oliver's books?

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 

```
Cookbooks[Cookbooks.Author == "Jamie Oliver"].Cuisine
```

What would it cost to cook all the recipes?

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 








```
Recipes.Cost.sum()
```

What is the average number of people served for the different recipe types.

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 

```
Recipes.groupby('Type')['Nr_served'].mean()
```

How many authors that have written a book on Italian have written a recipe of type "dessert"?

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 

Which authors that have at least one paperback book published have also written more than 80 recipes?

- Table 
- Columns 
- Row criteria 
- Agg function 
- Group by 
- Joining condition 
- Agg-criteria 

Syntax:

Example:

Selecting columns



```
Table.Columns
```

Table.Name

Selecting rows



```
Table[Table.Name > 18]
```

Table[Table.Name > 18]

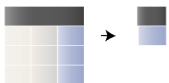
Selecting both



```
Table[Table.Age > 18].Name
```

Table[Table.Age > 18].Name

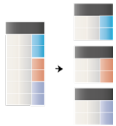
Aggregating columns



```
Table.Name.mean()
```

Table.Name.mean()

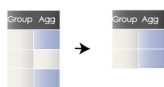
Grouping rows before aggregation



```
Table.groupby('Class')['Age'].mean()
```

Table.groupby('Class')['Age'].mean()

Filtering aggregates



```
Table.groupby('Class').filter(lambda x: x.Age.mean() > 25)
```

Table.groupby('Class').filter(lambda x: x.Age.mean() > 25)

Joining tables



```
Table1.merge(Table2, on='Name')
```

Table1.merge(Table2, on='Name')