

Desafio 06- ME315

Bruce Trevisan

```
#install.packages("RSQLite")  
#install.packages("dplyr")
```

```
library(RSQLite)
```

Warning: pacote 'RSQLite' foi compilado no R versão 4.5.1

```
library(dplyr)
```

Warning: pacote 'dplyr' foi compilado no R versão 4.5.1

Anexando pacote: 'dplyr'

Os seguintes objetos são mascarados por 'package:stats':

filter, lag

Os seguintes objetos são mascarados por 'package:base':

intersect, setdiff, setequal, union

Utilizando o pacote RSQLite, conecte-se ao arquivo de banco de dados. Armazene a conexão na variável conn.

```
conn <- dbConnect(SQLite(), "~/disco.db")  
conn
```

```
<SQLiteConnection>
  Path: C:\Users\neard\OneDrive\Documentos\disco.db
  Extensions: TRUE
```

Liste as tabelas existentes no banco de dados.

```
dbListTables(conn) # Tabelas existentes no bando de dados
```

```
[1] "albums"          "artists"          "customers"         "employees"
[5] "genres"          "invoice_items"    "invoices"          "media_types"
[9] "playlist_track"  "playlists"        "sqlite_sequence"  "sqlite_stat1"
[13] "tracks"
```

Identifique os nomes de todas as colunas existentes na tabela customers.

```
dbListFields(conn, 'customers') # Colunas existentes na tabela customers
```

```
[1] "CustomerId"  "FirstName"  "LastName"    "Company"    "Address"
[6] "City"        "State"      "Country"     "PostalCode" "Phone"
[11] "Fax"         "Email"      "SupportRepId"
```

Utilizando apenas SQLite, com o apoio do comando dbGetQuery, identifique quantos clientes estão atualmente cadastrados neste banco de dados.

```
dbGetQuery(conn, "SELECT COUNT(*) AS total_clientes FROM customers")
```

```
total_clientes
1              59
```

Utilizando apenas SQLite, identifique o número de países diferentes em que moram os clientes encontrados acima.

```
dbGetQuery(conn, "SELECT COUNT(DISTINCT country) AS num_paises FROM customers")
```

```
num_paises
1          24
```

Utilizando apenas SQLite, quantos clientes existem por país? A tabela resultante deve conter o nome do país e a respectiva contagem, além de ser ordenada de maneira decrescente pela referida contagem.

```
dbGetQuery(conn, "
  SELECT country, COUNT(*) AS num_clientes
  FROM customers
  GROUP BY country
  ORDER BY num_clientes DESC
")
```

	Country	num_clientes
1	USA	13
2	Canada	8
3	France	5
4	Brazil	5
5	Germany	4
6	United Kingdom	3
7	Portugal	2
8	India	2
9	Czech Republic	2
10	Sweden	1
11	Spain	1
12	Poland	1
13	Norway	1
14	Netherlands	1
15	Italy	1
16	Ireland	1
17	Hungary	1
18	Finland	1
19	Denmark	1
20	Chile	1
21	Belgium	1
22	Austria	1
23	Australia	1
24	Argentina	1

Quais são os 5 países com mais clientes registrados? Use apenas SQLite.

```
dbGetQuery(conn, "
  SELECT country, COUNT(*) AS num_clientes
  FROM customers
  GROUP BY country
  ORDER BY num_clientes DESC
  LIMIT 5
")
```

	Country	num_clientes
1	USA	13
2	Canada	8
3	France	5
4	Brazil	5
5	Germany	4

Quais são os países registrados que possuem apenas 6 letras no nome?

```
dbGetQuery(conn, "
  SELECT DISTINCT Country
  FROM customers
  WHERE LENGTH (Country) = 6;
")
```

	Country
1	Brazil
2	Canada
3	Norway
4	France
5	Poland
6	Sweden

Quais foram as músicas compradas por clientes brasileiros?

```
mb <- dbGetQuery(conn, "
  SELECT DISTINCT t.name AS musica
  FROM customers c
  INNER JOIN invoices i ON c.customerid = i.customerid
  INNER JOIN invoice_items ii ON i.invoiceid = ii.invoiceid
  INNER JOIN tracks t ON ii.trackid = t.trackid
  WHERE c.country = 'Brazil'
")
print(head(mb, 10))
```

	musica
1	Experiment In Terra
2	Take the Celestra
3	Shout It Out Loud
4	Calling Dr. Love
5	Strutter

6	Cold Gin
7	Think About You
8	Rocket Queen
9	Don't Cry (Original)
10	Back off Bitch

Qual o álbum mais tocado por país ?

```
dbGetQuery(conn, "
    WITH AlbumPlays AS (
        SELECT
            c.Country,
            a.Title as Album,
            COUNT(ii.InvoiceLineId) as total_plays,
            RANK() OVER (PARTITION BY c.Country ORDER BY COUNT(ii.InvoiceLineId) DESC) as rank_album
        FROM invoice_items ii
        JOIN invoices i ON ii.InvoiceId = i.InvoiceId
        JOIN customers c ON i.CustomerId = c.CustomerId
        JOIN tracks t ON ii.TrackId = t.TrackId
        JOIN albums a ON t.AlbumId = a.AlbumId
        GROUP BY c.Country, a.AlbumId
    )
    SELECT Country, Album, total_plays
    FROM AlbumPlays
    WHERE rank_album = 1
    ORDER BY Country
")
```

	Country
1	Argentina
2	Australia
3	Austria
4	Belgium
5	Belgium
6	Brazil
7	Canada
8	Chile
9	Chile
10	Chile
11	Czech Republic
12	Denmark
13	Denmark

14	Finland
15	Finland
16	France
17	France
18	Germany
19	Germany
20	Hungary
21	India
22	Ireland
23	Italy
24	Netherlands
25	Norway
26	Norway
27	Poland
28	Portugal
29	Portugal
30	Spain
31	Sweden
32	USA
33	United Kingdom
34	United Kingdom

	Album	total_plays
1	Acústico	4
2	The X Factor	4
3	My Generation - The Very Best Of The Who	4
4	Rotten Apples: Greatest Hits	4
5	Big Ones	4
6	Use Your Illusion I	7
7	Arquivo II	9
8	Heroes, Season 1	3
9	Battlestar Galactica, Season 3	3
10	My Way: The Best Of Frank Sinatra [Disc 1]	3
11	Prenda Minha	5
12	Mezmerize	4
13	Chronicle, Vol. 1	4
14	Greatest Hits	5
15	Greatest Kiss	5
16	Chronicle, Vol. 1	7
17	Minha Historia	7
18	Unplugged	5
19	Djavan Ao Vivo - Vol. 1	5
20	Pop	4
21	Up An' Atom	6

22	Lost, Season 2	7
23	Acústico	4
24	In Step	4
25	Cássia Eller - Coleção Sem Limite [Disc 2]	4
26	For Those About To Rock We Salute You	4
27	Rattle And Hum	4
28	Instant Karma: The Amnesty International Campaign to Save Darfur	4
29	Raul Seixas	4
30	My Generation - The Very Best Of The Who	5
31	Volume Dois	4
32	The Office, Season 3	14
33	Load	5
34	No Prayer For The Dying	5

Qual o artista mais tocado por país?

```
dbGetQuery(conn, "
  WITH ArtistPlays AS (
    SELECT
      c.Country,
      ar.Name as Artista,
      COUNT(ii.InvoiceLineId) as total_plays,
      RANK() OVER (PARTITION BY c.Country ORDER BY COUNT(ii.InvoiceLineId) DESC) as rank_artista
    FROM invoice_items ii
    JOIN invoices i ON ii.InvoiceId = i.InvoiceId
    JOIN customers c ON i.CustomerId = c.CustomerId
    JOIN tracks t ON ii.TrackId = t.TrackId
    JOIN albums a ON t.AlbumId = a.AlbumId
    JOIN artists ar ON a.ArtistId = ar.ArtistId
    GROUP BY c.Country, ar.ArtistId
  )
  SELECT Country, Artista, total_plays
  FROM ArtistPlays
  WHERE rank_artista = 1
  ORDER BY Country
")
```

	Country	Artista	total_plays
1	Argentina	Metallica	6
2	Australia	Iron Maiden	18
3	Austria	U2	9
4	Belgium	Faith No More	9

5	Brazil	Pearl Jam	11
6	Brazil	Os Paralamas Do Sucesso	11
7	Canada	Os Paralamas Do Sucesso	16
8	Chile	Led Zeppelin	6
9	Czech Republic	U2	9
10	Czech Republic	Iron Maiden	9
11	Denmark	Creedence Clearwater Revival	7
12	Finland	Van Halen	6
13	France	Creedence Clearwater Revival	11
14	Germany	Iron Maiden	14
15	Hungary	The Office	5
16	Hungary	Jamiroquai	5
17	India	Iron Maiden	8
18	Ireland	Lost	8
19	Italy	The Rolling Stones	5
20	Italy	Faith No More	5
21	Netherlands	Red Hot Chili Peppers	6
22	Norway	Led Zeppelin	9
23	Poland	U2	6
24	Portugal	Iron Maiden	16
25	Spain	Pearl Jam	6
26	Sweden	Titãs	5
27	USA	Iron Maiden	34
28	United Kingdom	Metallica	9

Desconecte do banco de dados.

```
dbDisconnect(conn)
```