

# Lab\_Disco

2025-09-17

## R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
# Carregar pacotes
library(DBI)
```

```
## Warning: pacote 'DBI' foi compilado no R versão 4.5.1
```

```
library(RSQLite)
```

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

```
# Conectar ao banco (mesmo .db que você usava no Colab)
conn <- dbConnect(RSQLite::SQLite(), "disco.db")
```

```
#Q3 - Liste as tabelas
dbListTables(conn)
```

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

```
#Q4 - Mostre as colunas da tabela Customers
dbListFields(conn, "customers")
```

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

```
#Q5 Quantos clientes estão atualmente cadastrados neste banco de dados.
dbGetQuery(conn, "SELECT COUNT(DISTINCT CustomerId) AS n FROM customers")
```

```
##      n
## 1 59
```

```
#Q6 Identifique o número de países diferentes em que moram os clientes encontrados acima.
dbGetQuery(conn, "SELECT COUNT(DISTINCT Country) FROM customers")
```

```
##      COUNT(DISTINCT Country)
## 1                          24
```

```
#Q7 Quantos clientes existem por país?
```

```
dbGetQuery(conn, "SELECT Country, COUNT(CustomerId) AS n
                  FROM customers
                  GROUP BY Country
                  ORDER BY n DESC")
```

```
##      Country  n
## 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
```

```
# Q8 Quais são os 5 países com mais clientes registrados?
```

```
dbGetQuery(conn, "SELECT Country, COUNT(CustomerId) AS n
                  FROM customers
                  GROUP BY Country
                  ORDER BY n DESC
                  LIMIT 5")
```

```
##      Country  n
## 1         USA 13
## 2        Canada 8
## 3         France 5
## 4         Brazil 5
## 5         Germany 4
```

*#Q9 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
```

*#Q10 Quais foram as músicas compradas por clientes brasileiros?*

```
dbGetQuery(conn, "SELECT DISTINCT tracks.Name FROM tracks
                  INNER JOIN invoice_items
                  ON tracks.trackid = invoice_items.trackid
                  INNER JOIN invoices
                  ON invoice_items.invoiceid = invoices.invoiceid
                  INNER JOIN customers
                  ON invoices.customerid = customers.customerid
                  WHERE Country = 'Brazil'")
```

##	Name
## 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
## 11	Garden of Eden
## 12	Coma
## 13	All Along The Watchtower
## 14	Karelia Suite, Op.11: 2. Ballade (Tempo Di Menuetto)
## 15	Fantasia On Greensleeves
## 16	Interlude Zumbi
## 17	Rios Pontes & Overdrives
## 18	Lixo Do Mangue
## 19	Podes Crer
## 20	A Cor Do Sol
## 21	Doutor
## 22	Linha Do Equador
## 23	TriboTchan
## 24	Reggae Tchan
## 25	Communication Breakdown(2)
## 26	Carolina Hard-Core Ecstasy
## 27	X-9 2001
## 28	Ipiranga 2001
## 29	Água de Beber
## 30	Vamo Batê Lata

## 31	Mensagen De Amor (2000)
## 32	Saber Amar
## 33	Cinema Mudo
## 34	Meu Erro
## 35	Será Que Vai Chover?
## 36	Mama, I'm Coming Home
## 37	Flying High Again
## 38	Paranoid
## 39	Admirável Gado Novo
## 40	Mis Penas Lloraba Yo (Ao Vivo) Soy Gitano (Tangos)
## 41	Drifter
## 42	Child In Time
## 43	No No No
## 44	Knocking At Your Back Door
## 45	The Unwritten Law
## 46	Maybe I'm A Leo
## 47	Vavoom : Ted The Mechanic
## 48	D'Yer Mak'er
## 49	No Quarter
## 50	Bittersweet Me
## 51	Binky The Doormat
## 52	So Fast, So Numb
## 53	Electrolite
## 54	Bad
## 55	Sweetest Thing
## 56	All I Want Is You
## 57	Like A Song...
## 58	Red Light
## 59	Babyface
## 60	Aces High
## 61	Praise
## 62	Down Under
## 63	Most High
## 64	Your Blue Room
## 65	Plot 180
## 66	Sanctuary
## 67	Untitled
## 68	Black
## 69	Big Wave
## 70	Cropduster
## 71	1/2 Full
## 72	Oceans
## 73	Dissident
## 74	Don't Look Back
## 75	Pick Myself Up
## 76	Any Colour You Like
## 77	Leper Messiah
## 78	Damage Inc.
## 79	Green Disease
## 80	Why Go
## 81	Animal
## 82	Leash
## 83	Wanted Dread And Alive
## 84	The Great Gig In The Sky

## 85	Bossa
## 86	Nega Do Cabelo Duro
## 87	You're My Best Friend
## 88	Seven Seas Of Rhye
## 89	Get Down, Make Love
## 90	Get Up
## 91	Be Mine
## 92	Redundant
## 93	Into The Light
## 94	Cry For Love
## 95	Grito De Alerta
## 96	Lindo Lago Do Amor
## 97	Ponto De Interrogação
## 98	Voce Nao Entende Nada - Cotidiano
## 99	O Leaozinho
## 100	Top Top
## 101	2 Minutes To Midnight
## 102	Losfer Words
## 103	Bora-Bora
## 104	I Feel Good (I Got You) - Sossego
## 105	Sincero Breu
## 106	Selvagem
## 107	O Descobridor Dos Sete Mares
## 108	Não Vou Ficar
## 109	Cristina Nº 2
## 110	O Que Me Importa
## 111	Eu Amo Você
## 112	Nosso Adeus
## 113	Is This Love (Live)
## 114	Right Next Door to Hell
## 115	In The Evening
## 116	Fool In The Rain
## 117	Saudade Dos Aviões Da Panair (Conversando No Bar)
## 118	Caso Você Queira Saber
## 119	Dance
## 120	Aos Leões
## 121	Demorou!
## 122	Home Sweet Home
## 123	Intro
## 124	Scentless Apprentice
## 125	In Bloom
## 126	On A Plain
## 127	Mundaréu
## 128	Nossa Gente (Avisa Lá)
## 129	Revolta Olodum
## 130	Vai Valer
## 131	Vai Passar
## 132	Morena De Angola
## 133	Meu Caro Amigo
## 134	Mateus Enter
## 135	Samba Do Lado
## 136	Um Satélite Na Cabeça
## 137	Amor De Muito
## 138	Banditismo Por Uma Questa

## 139	Maracatu De Tiro Certeiro
## 140	Stir It Up (Live)
## 141	Refavela (Live)
## 142	Be Good Johnny
## 143	Down by the Sea
## 144	It's a Mistake
## 145	Shakes and Ladders
## 146	Eye
## 147	Stand Inside Your Love
## 148	Flower
## 149	Jesus Christ Pose
## 150	The Day I Tried To Live
## 151	Burden In My Hand
## 152	Dust N' Bones
## 153	Live and Let Die
## 154	The Memory Remains
## 155	The Unforgiven II
## 156	Slither
## 157	Bad Seed
## 158	Black Light Syndrome
## 159	Midnight From The Inside Out
## 160	Sometimes Salvation
## 161	Girl From A Pawnshop
## 162	Title Song
## 163	Soul Singing
## 164	Lay Down Sally
## 165	Duelists
## 166	Powerslave
## 167	Aloha
## 168	Será
## 169	Pais E Filhos
## 170	Rock And Roll Is Dead
## 171	I Belong To You
## 172	Casa
## 173	A Cura
## 174	Sereia
## 175	Heart Of Lothian: Wide Boy / Curtain Call
## 176	Cérebro Eletrônico
## 177	A Menina Dança
## 178	You've Been A Long Time Coming
## 179	Abraham, Martin And John
## 180	Everything I Need
## 181	Help Yourself
## 182	Suite No. 3 in D, BWV 1068: III. Gavotte I & II
## 183	Music for the Funeral of Queen Mary: VI. "Thou Knowest, Lord, the Secrets of Our Hearts"
## 184	Symphony No. 2, Op. 16 - "The Four Temperaments": II. Allegro Comodo e Flessuoso
## 185	String Quartet No. 12 in C Minor, D. 703 "Quartettssatz": II. Andante - Allegro assai
## 186	Fast As a Shark
## 187	Snowballed
## 188	Go Down
## 189	Hell Ain't A Bad Place To Be

```
# QBonus 1: Qual o álbum mais tocado por país?
dbGetQuery(conn, "
```

```

WITH AlbumPlays AS (
    SELECT c.Country,
           a.Title AS Album,
           COUNT(ii.Quantity) AS TotalPlays
    FROM customers c
    JOIN invoices i      ON c.CustomerId = i.CustomerId
    JOIN invoice_items ii ON i.InvoiceId = ii.InvoiceId
    JOIN tracks t        ON ii.TrackId = t.TrackId
    JOIN albums a        ON t.AlbumId = a.AlbumId
    GROUP BY c.Country, a.AlbumId
),
Ranked AS (
    SELECT Country, Album, TotalPlays,
           RANK() OVER (PARTITION BY Country ORDER BY TotalPlays DESC) AS rk
    FROM AlbumPlays
)
SELECT Country, Album, TotalPlays
FROM Ranked
WHERE rk = 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 TotalPlays
## 1		Acústico 4
## 2		The X Factor 4
## 3	My Generation - The Very Best Of The Who	4
## 4		Big Ones 4
## 5	Rotten Apples: Greatest Hits	4
## 6		Use Your Illusion I 7
## 7		Arquivo II 9
## 8	My Way: The Best Of Frank Sinatra [Disc 1]	3
## 9	Battlestar Galactica, Season 3	3
## 10		Heroes, Season 1 3
## 11		Prenda Minha 5
## 12		Chronicle, Vol. 1 4
## 13		Mezmerize 4
## 14		Greatest Kiss 5
## 15		Greatest Hits 5
## 16		Minha Historia 7
## 17		Chronicle, Vol. 1 7
## 18		Djavan Ao Vivo - Vol. 1 5
## 19		Unplugged 5
## 20		Pop 4
## 21		Up An' Atom 6
## 22		Lost, Season 2 7
## 23		Acústico 4
## 24		In Step 4
## 25	For Those About To Rock We Salute You	4
## 26	Cássia Eller - Coleção Sem Limite [Disc 2]	4
## 27		Rattle And Hum 4
## 28		Raul Seixas 4
## 29	Instant Karma: The Amnesty International Campaign to Save Darfur	4
## 30	My Generation - The Very Best Of The Who	5
## 31		Volume Dois 4
## 32		The Office, Season 3 14
## 33		No Prayer For The Dying 5
## 34		Load 5

*# QBonus 2: Qual o artista mais tocado por país?*

```

dbGetQuery(conn, "
  WITH ArtistPlays AS (
    SELECT c.Country,
           ar.Name AS Artist,
           COUNT(ii.Quantity) AS TotalPlays
    FROM customers c
    JOIN invoices i      ON c.CustomerId = i.CustomerId
    JOIN invoice_items ii ON i.InvoiceId = ii.InvoiceId
    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
  ),

```



```

Ranked AS (
  SELECT Country, Artist, TotalPlays,
         RANK() OVER (PARTITION BY Country ORDER BY TotalPlays DESC) AS rk
  FROM ArtistPlays
)
SELECT Country, Artist, TotalPlays
FROM Ranked
WHERE rk = 1
ORDER BY Country;
")

```

##	Country	Artist	TotalPlays
## 1	Argentina	Metallica	6
## 2	Australia	Iron Maiden	18
## 3	Austria	U2	9
## 4	Belgium	Faith No More	9
## 5	Brazil	Os Paralamas Do Sucesso	11
## 6	Brazil	Pearl Jam	11
## 7	Canada	Os Paralamas Do Sucesso	16
## 8	Chile	Led Zeppelin	6
## 9	Czech Republic	Iron Maiden	9
## 10	Czech Republic	U2	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	Jamiroquai	5
## 16	Hungary	The Office	5
## 17	India	Iron Maiden	8
## 18	Ireland	Lost	8
## 19	Italy	Faith No More	5
## 20	Italy	The Rolling Stones	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

```

#Q11 Desconecte do banco de dados.
dbDisconnect(conn)

```

## Including Plots

You can also embed plots, for example:

Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.