

Lab_10

AUTHOR

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```
library(RSQLite)
library(DBI)
con <- dbConnect(SQLite(), ":memory:")
actor <- read.csv("https://raw.githubusercontent.com/ivanceras/sakila/master/csv-sakila-d"
rental <- read.csv("https://raw.githubusercontent.com/ivanceras/sakila/master/csv-sakila-customer <- read.csv("https://raw.githubusercontent.com/ivanceras/sakila/master/csv-sakila-payment <- read.csv("https://raw.githubusercontent.com/ivanceras/sakila/master/csv-sakila-dbWriteTable(con, "actor", actor)
dbWriteTable(con, "rental", rental)
dbWriteTable(con, "customer", customer)
dbWriteTable(con, "payment", payment)
```

```
dbListTables(con)
```

[1] "actor" "customer" "payment" "rental"

```
result <- dbGetQuery(con, "PRAGMA table_info(actor)")
knitr::kable(result)
```

cid	name	type	notnull	dflt_value	pk
0	actor_id	INTEGER	0	NA	0
1	first_name	TEXT	0	NA	0
2	last_name	TEXT	0	NA	0
3	last_update	TEXT	0	NA	0

Exercise 1

```
result <- dbGetQuery(con, "
  SELECT actor_id, first_name, last_name
  FROM actor
  ORDER BY last_name, first_name;
")
knitr::kable(result)
```

actor_id	first_name	last_name
58	CHRISTIAN	AKROYD
182	DEBBIE	AKROYD

actor_id	first_name	last_name
92	KIRSTEN	AKROYD
118	CUBA	ALLEN
145	KIM	ALLEN
194	MERYL	ALLEN
76	ANGELINA	ASTAIRE
112	RUSSELL	BACALL
190	AUDREY	BAILEY
67	JESSICA	BAILEY
115	HARRISON	BALE
187	RENEE	BALL
47	JULIA	BARRYMORE
158	VIVIEN	BASINGER
174	MICHAEL	BENING
124	SCARLETT	BENING
14	VIVIEN	BERGEN
121	LIZA	BERGMAN
91	CHRISTOPHER	BERRY
60	HENRY	BERRY
12	KARL	BERRY
189	CUBA	BIRCH
25	KEVIN	BLOOM
185	MICHAEL	BOLGER
37	VAL	BOLGER
98	CHRIS	BRIDGES
39	GOLDIE	BRODY
159	LAURA	BRODY
167	LAURENCE	BULLOCK
40	JOHNNY	CAGE
11	ZERO	CAGE
181	MATTHEW	CARREY
86	GREG	CHAPLIN
3	ED	CHASE
176	JON	CHASE
183	RUSSELL	CLOSE

actor_id	first_name	last_name
16	FRED	COSTNER
129	DARYL	CRAWFORD
26	RIP	CRAWFORD
49	ANNE	CRONYN
104	PENELOPE	CRONYN
105	SIDNEY	CROWE
57	JUDE	CRUISE
201	TOM	CRUISE
203	TOM	CRUISE
205	TOM	CRUISE
207	TOM	CRUISE
80	RALPH	CRUZ
81	SCARLETT	DAMON
4	JENNIFER	DAVIS
101	SUSAN	DAVIS
110	SUSAN	DAVIS
48	FRANCES	DAY-LEWIS
35	JUDY	DEAN
143	RIVER	DEAN
148	EMILY	DEE
138	LUCILLE	DEE
107	GINA	DEGENERES
41	JODIE	DEGENERES
166	NICK	DEGENERES
89	CHARLIZE	DENCH
123	JULIANNE	DENCH
160	CHRIS	DEPP
100	SPENCER	DEPP
109	SYLVESTER	DERN
173	ALAN	DREYFUSS
36	BURT	DUKAKIS
188	ROCK	DUKAKIS
106	GROUCHO	DUNST
19	BOB	FAWCETT

actor_id	first_name	last_name
199	JULIA	FAWCETT
10	CHRISTIAN	GABLE
165	AL	GARLAND
184	HUMPHREY	GARLAND
127	KEVIN	GARLAND
154	MERYL	GIBSON
46	PARKER	GOLDBERG
139	EWAN	GOODING
191	GREGORY	GOODING
71	ADAM	GRANT
179	ED	GUINNESS
1	PENELOPE	GUINNESS
90	SEAN	GUINNESS
32	TIM	HACKMAN
175	WILLIAM	HACKMAN
202	TOM	HANKS
204	TOM	HANKS
206	TOM	HANKS
208	TOM	HANKS
152	BEN	HARRIS
141	CATE	HARRIS
56	DAN	HARRIS
97	MEG	HAWKE
151	GEOFFREY	HESTON
169	KENNETH	HOFFMAN
79	MAE	HOFFMAN
28	WOODY	HOFFMAN
161	HARVEY	HOPE
134	GENE	HOPKINS
113	MORGAN	HOPKINS
50	NATALIE	HOPKINS
132	ADAM	HOPPER
170	MENA	HOPPER
65	ANGELA	HUDSON

actor_id	first_name	last_name
52	CARMEN	HUNT
140	WHOOPIE	HURT
131	JANE	JACKMAN
119	WARREN	JACKMAN
146	ALBERT	JOHANSSON
8	MATTHEW	JOHANSSON
64	RAY	JOHANSSON
82	WOODY	JOLIE
43	KIRK	JOVOVICH
130	GRETA	KEITEL
198	MARY	KEITEL
74	MILLA	KEITEL
55	FAY	KILMER
153	MINNIE	KILMER
162	OPRAH	KILMER
45	REESE	KILMER
23	SANDRA	KILMER
103	MATTHEW	LEIGH
5	JOHNNY	LOLLOBRIGIDA
157	GRETA	MALDEN
136	ED	MANSFIELD
22	ELVIS	MARX
77	CARY	MCCONAUGHEY
70	MICHELLE	MCCONAUGHEY
114	MORGAN	MCDORMAND
177	GENE	MCKELLEN
38	TOM	MCKELLEN
128	CATE	MCQUEEN
27	JULIA	MCQUEEN
42	TOM	MIRANDA
178	LISA	MONROE
120	PENELOPE	MONROE
7	GRACE	MOSTEL
99	JIM	MOSTEL

actor_id	first_name	last_name
61	CHRISTIAN	NEESON
62	JAYNE	NEESON
6	BETTE	NICHOLSON
125	ALBERT	NOLTE
150	JAYNE	NOLTE
122	SALMA	NOLTE
108	WARREN	NOLTE
34	AUDREY	OLIVIER
15	CUBA	OLIVIER
69	KENNETH	PALTROW
21	KIRSTEN	PALTROW
33	MILLA	PECK
30	SANDRA	PECK
87	SPENCER	PECK
73	GARY	PENN
133	RICHARD	PENN
88	KENNETH	PESCI
171	OLYMPIA	PFEIFFER
51	GARY	PHOENIX
54	PENELOPE	PINKETT
84	JAMES	PITT
75	BURT	POSEY
93	ELLEN	PRESLEY
135	rita	REYNOLDS
142	JADA	RYDER
195	JAYNE	SILVERSTONE
180	JEFF	SILVERSTONE
78	GROUCHO	SINATRA
31	SISSY	SOBIESKI
44	NICK	STALLONE
24	CAMERON	STREEP
116	DAN	STREEP
192	JOHN	SUVARI
9	JOE	SWANK

actor_id	first_name	last_name
155	IAN	TANDY
66	MARY	TANDY
59	DUSTIN	TAUTOU
193	BURT	TEMPLE
53	MENA	TEMPLE
149	RUSSELL	TEMPLE
200	THORA	TEMPLE
126	FRANCES	TOMEI
18	DAN	TORN
94	KENNETH	TORN
102	WALTER	TORN
20	LUCILLE	TRACY
117	RENEE	TRACY
17	HELEN	VOIGHT
95	DARYL	WAHLBERG
2	NICK	WAHLBERG
196	BELA	WALKEN
29	ALEC	WAYNE
163	CHRISTOPHER	WEST
197	REESE	WEST
172	GROUCHO	WILLIAMS
137	MORGAN	WILLIAMS
72	SEAN	WILLIAMS
83	BEN	WILLIS
96	GENE	WILLIS
164	HUMPHREY	WILLIS
168	WILL	WILSON
147	FAY	WINSLET
68	RIP	WINSLET
144	ANGELA	WITHERSPOON
156	FAY	WOOD
13	UMA	WOOD
63	CAMERON	WRAY
111	CAMERON	ZELLWEGER

actor_id	first_name	last_name
186	JULIA	ZELLWEGER
85	MINNIE	ZELLWEGER

Exercise 2

```
result <- dbGetQuery(con, "
  SELECT actor_id, first_name, last_name
  FROM actor
  WHERE last_name IN ('WILLIAMS', 'DAVIS');
")
knitr::kable(result)
```

actor_id	first_name	last_name
4	JENNIFER	DAVIS
72	SEAN	WILLIAMS
101	SUSAN	DAVIS
110	SUSAN	DAVIS
137	MORGAN	WILLIAMS
172	GROUCHO	WILLIAMS

Exercise 3

```
result <- dbGetQuery(con, "
  SELECT DISTINCT customer_id
  FROM rental
  WHERE date(rental_date) = '2005-07-05';
")
knitr::kable(result)
```

customer_id
565
242
37
60
594
8

customer_id
490
476
322
298
382
138
520
536
114
111
296
586
349
397
369
421
142
169
348
553
295

Exercise 4.1

```
result <- dbGetQuery(con, "
  SELECT *
  FROM payment
  WHERE amount IN (1.99, 7.99, 9.99);
")
knitr::kable(result)
```

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16050	269	2	7	1.99	2007-01-24 21:40:19.996577
16056	270	1	193	1.99	2007-01-26 05:10:14.996577
16081	282	2	48	1.99	2007-01-25 04:49:12.996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16103	294	1	595	1.99	2007-01-28 12:28:20.996577
16133	307	1	614	1.99	2007-01-28 14:01:54.996577
16158	316	1	1065	1.99	2007-01-31 07:23:22.996577
16160	318	1	224	9.99	2007-01-26 08:46:53.996577
16161	319	1	15	9.99	2007-01-24 23:07:48.996577
16180	330	2	967	7.99	2007-01-30 17:40:32.996577
16206	351	1	1137	1.99	2007-01-31 17:48:40.996577
16210	354	2	158	1.99	2007-01-25 23:55:37.996577
16240	369	2	913	7.99	2007-01-30 09:33:24.996577
16275	386	1	583	7.99	2007-01-28 10:17:21.996577
16277	387	1	697	7.99	2007-01-29 00:32:30.996577
16289	391	1	891	7.99	2007-01-30 06:11:38.996577
16302	400	2	516	1.99	2007-01-28 01:40:13.996577
16306	401	2	811	1.99	2007-01-29 17:59:08.996577
16307	402	2	801	1.99	2007-01-29 16:04:16.996577
16314	407	1	619	7.99	2007-01-28 14:20:52.996577
16320	411	2	972	1.99	2007-01-30 18:49:33.996577
16348	429	2	601	7.99	2007-01-28 12:36:48.996577
16354	432	2	326	7.99	2007-01-26 23:38:37.996577
16360	435	1	757	7.99	2007-01-29 08:58:13.996577
16362	436	1	45	7.99	2007-01-25 04:28:05.996577
16373	439	1	786	9.99	2007-01-29 13:45:54.996577
16393	449	1	849	7.99	2007-01-29 23:51:33.996577
16400	452	1	726	1.99	2007-01-29 04:33:55.996577
16401	454	1	735	7.99	2007-01-29 06:36:39.996577
16405	457	2	1024	7.99	2007-01-31 01:58:45.996577
16414	463	1	560	1.99	2007-01-28 07:21:28.996577
16416	464	2	373	1.99	2007-01-27 06:44:51.996577
16426	469	2	506	7.99	2007-01-28 00:37:45.996577
16428	469	2	936	1.99	2007-01-30 12:21:15.996577
16439	474	1	816	7.99	2007-01-29 18:55:05.996577
16446	479	1	709	7.99	2007-01-29 02:16:27.996577
16449	480	2	822	9.99	2007-01-29 20:04:26.996577
16469	493	1	543	7.99	2007-01-28 05:12:00.996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16475	497	1	1100	7.99	2007-01-31 12:31:47.996577
16484	501	1	605	1.99	2007-01-28 13:07:36.996577
16489	503	2	109	1.99	2007-01-25 17:08:46.996577
16521	516	1	571	1.99	2007-01-28 08:46:07.996577
16546	533	2	190	1.99	2007-01-26 04:39:54.996577
16561	541	1	1021	7.99	2007-01-31 01:44:41.996577
16566	543	2	476	1.99	2007-01-27 21:00:02.996577
16575	547	2	1094	1.99	2007-01-31 11:32:15.996577
16583	550	2	922	7.99	2007-01-30 10:24:21.996577
16584	551	2	155	7.99	2007-01-25 23:43:31.996577
16615	569	1	647	1.99	2007-01-28 17:51:18.996577
16617	570	2	1060	7.99	2007-01-31 06:50:09.996577
16618	571	1	228	9.99	2007-01-26 09:22:54.996577
16620	572	2	559	7.99	2007-01-28 07:07:28.996577
16659	596	2	782	1.99	2007-01-29 13:07:23.996577
16669	204	1	1016	1.99	2007-01-31 01:18:09.996577
16680	3	1	435	1.99	2007-01-27 15:45:35.996577
16684	5	1	1142	1.99	2007-01-31 18:15:04.996577
16702	14	1	346	9.99	2007-01-27 03:03:07.996577
16717	19	2	110	9.99	2007-01-25 17:12:15.996577
16724	20	2	546	1.99	2007-01-28 05:44:51.996577
16736	25	1	90	7.99	2007-01-25 12:59:51.996577
16743	29	2	194	1.99	2007-01-26 05:20:59.996577
16773	49	2	96	1.99	2007-01-25 15:00:45.996577
16790	53	2	856	9.99	2007-01-30 00:29:47.996577
16796	55	1	1027	9.99	2007-01-31 02:14:45.996577
16802	57	2	152	9.99	2007-01-25 23:09:36.996577
16805	58	2	276	7.99	2007-01-26 15:44:33.996577
16811	60	2	706	1.99	2007-01-29 01:34:15.996577
16822	67	2	331	9.99	2007-01-27 00:50:52.996577
16825	69	2	765	1.99	2007-01-29 10:07:00.996577
16828	71	1	272	9.99	2007-01-26 14:55:37.996577
16837	76	2	574	1.99	2007-01-28 09:12:54.996577
16840	77	1	419	1.99	2007-01-27 13:43:37.996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16856	85	1	690	9.99	2007-01-28 23:23:19.996577
16858	86	1	66	1.99	2007-01-25 08:03:38.996577
16877	101	1	468	9.99	2007-01-27 19:41:36.996577
16880	102	2	562	1.99	2007-01-28 07:29:47.996577
16881	103	1	240	7.99	2007-01-26 11:08:49.996577
16882	103	1	658	9.99	2007-01-28 18:51:49.996577
16886	105	2	473	7.99	2007-01-27 20:05:00.996577
16899	109	1	1061	7.99	2007-01-31 06:56:24.996577
16902	110	1	515	7.99	2007-01-28 01:38:36.996577
16903	110	2	538	1.99	2007-01-28 04:49:31.996577
16922	120	2	68	7.99	2007-01-25 08:15:57.996577
16944	131	2	944	7.99	2007-01-30 13:54:50.996577
16960	142	1	575	9.99	2007-01-28 09:24:35.996577
16966	146	2	762	7.99	2007-01-29 09:44:17.996577
16980	154	2	865	7.99	2007-01-30 02:08:10.996577
16990	159	2	549	1.99	2007-01-28 06:04:03.996577
16999	162	1	285	1.99	2007-01-26 18:10:06.996577
17002	164	2	1011	1.99	2007-01-31 00:34:05.996577
17004	166	1	662	1.99	2007-01-28 19:37:57.996577
17015	171	2	804	9.99	2007-01-29 16:38:50.996577
17026	176	1	663	1.99	2007-01-28 19:51:28.996577
17027	176	1	1062	7.99	2007-01-31 07:06:46.996577
17038	184	1	567	1.99	2007-01-28 08:24:46.996577
17042	186	1	581	1.99	2007-01-28 09:48:55.996577
17044	187	1	252	7.99	2007-01-26 13:08:19.996577
17050	192	1	895	1.99	2007-01-30 07:19:09.996577
17054	194	2	677	7.99	2007-01-28 21:28:34.996577
17058	196	1	1053	1.99	2007-01-31 05:41:10.996577
17062	197	2	649	1.99	2007-01-28 18:04:11.996577
17072	199	1	499	7.99	2007-01-27 23:33:33.996577
17073	200	2	270	9.99	2007-01-26 14:49:22.996577
17077	209	2	340	9.99	2007-01-27 02:23:51.996577
17083	214	1	242	1.99	2007-01-26 11:33:34.996577
17130	239	1	1022	7.99	2007-01-31 01:45:11.996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
17135	241	1	627	7.99	2007-01-28 15:33:09.996577
17142	244	1	797	1.99	2007-01-29 15:40:43.996577
17145	245	1	519	7.99	2007-01-28 01:50:59.996577
17157	248	2	330	7.99	2007-01-27 00:43:56.996577
17169	251	1	309	1.99	2007-01-26 21:06:36.996577
17201	266	1	86	1.99	2007-01-25 12:04:38.996577

```
head(payment)
```

	payment_id	customer_id	staff_id	rental_id	amount	payment_date
1	16050	269	2	7	1.99	2007-01-24 21:40:19.996577
2	16051	269	1	98	0.99	2007-01-25 15:16:50.996577
3	16052	269	2	678	6.99	2007-01-28 21:44:14.996577
4	16053	269	2	703	0.99	2007-01-29 00:58:02.996577
5	16054	269	1	750	4.99	2007-01-29 08:10:06.996577
6	16055	269	2	1099	2.99	2007-01-31 12:23:14.996577

Exercise 4.2

```
result <- dbGetQuery(con, "
SELECT *
FROM payment
WHERE amount > 5;
")
knitr:::kable(result)
```

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16052	269	2	678	6.99	2007-01-28 21:44:14.996577
16058	271	1	1096	8.99	2007-01-31 11:59:15.996577
16060	272	1	405	6.99	2007-01-27 12:01:05.996577
16061	272	1	1041	6.99	2007-01-31 04:14:49.996577
16068	274	1	394	5.99	2007-01-27 09:54:37.996577
16073	276	1	860	10.99	2007-01-30 01:13:42.996577
16074	277	2	308	6.99	2007-01-26 20:30:05.996577
16082	282	2	282	6.99	2007-01-26 17:24:52.996577
16086	284	1	1145	6.99	2007-01-31 18:42:11.996577
16087	286	2	81	6.99	2007-01-25 10:43:45.996577
16092	288	2	427	6.99	2007-01-27 14:38:30.996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16094	288	2	565	5.99	2007-01-28 07:54:57.996577
16102	293	2	1034	8.99	2007-01-31 03:22:06.996577
16106	296	1	511	5.99	2007-01-28 01:32:30.996577
16112	299	1	332	5.99	2007-01-27 00:55:36.996577
16113	299	2	606	8.99	2007-01-28 13:17:05.996577
16118	301	2	227	5.99	2007-01-26 09:20:12.996577
16121	302	2	92	5.99	2007-01-25 14:07:12.996577
16125	304	1	135	10.99	2007-01-25 20:27:24.996577
16130	306	2	672	6.99	2007-01-28 20:33:55.996577
16134	307	1	970	6.99	2007-01-30 18:18:54.996577
16136	309	2	218	6.99	2007-01-26 07:55:35.996577
16139	311	2	274	5.99	2007-01-26 15:17:17.996577
16140	311	2	544	6.99	2007-01-28 05:31:26.996577
16143	311	2	1128	6.99	2007-01-31 16:17:52.996577
16147	312	2	1079	6.99	2007-01-31 09:16:43.996577
16152	314	1	80	5.99	2007-01-25 10:40:33.996577
16154	315	1	537	8.99	2007-01-28 04:49:21.996577
16157	316	1	644	8.99	2007-01-28 17:27:38.996577
16159	317	1	107	6.99	2007-01-25 16:56:35.996577
16160	318	1	224	9.99	2007-01-26 08:46:53.996577
16161	319	1	15	9.99	2007-01-24 23:07:48.996577
16165	321	1	620	5.99	2007-01-28 14:23:11.996577
16171	323	1	878	5.99	2007-01-30 04:17:39.996577
16173	325	1	131	5.99	2007-01-25 20:11:12.996577
16174	326	1	875	6.99	2007-01-30 04:06:50.996577
16177	327	1	653	6.99	2007-01-28 18:40:46.996577
16180	330	2	967	7.99	2007-01-30 17:40:32.996577
16184	332	1	1000	6.99	2007-01-30 22:54:22.996577
16186	334	1	13	6.99	2007-01-24 22:51:21.996577
16187	334	1	431	8.99	2007-01-27 14:59:31.996577
16188	337	1	374	6.99	2007-01-27 06:54:56.996577
16190	337	1	839	8.99	2007-01-29 22:56:38.996577
16192	339	1	876	5.99	2007-01-30 04:09:48.996577
16196	344	2	813	5.99	2007-01-29 18:43:00.996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16208	353	2	1103	6.99	2007-01-31 12:52:44.996577
16218	359	1	284	8.99	2007-01-26 17:50:10.996577
16223	361	1	368	5.99	2007-01-27 06:10:55.996577
16227	364	1	462	5.99	2007-01-27 18:39:02.996577
16228	365	2	120	5.99	2007-01-25 18:06:13.996577
16230	366	2	911	6.99	2007-01-30 09:18:48.996577
16233	368	1	64	5.99	2007-01-25 07:49:55.996577
16234	368	1	125	5.99	2007-01-25 19:17:16.996577
16240	369	2	913	7.99	2007-01-30 09:33:24.996577
16242	371	2	286	6.99	2007-01-26 18:13:17.996577
16244	371	1	384	5.99	2007-01-27 08:46:46.996577
16253	375	2	307	8.99	2007-01-26 20:16:39.996577
16268	383	1	766	8.99	2007-01-29 10:15:28.996577
16275	386	1	583	7.99	2007-01-28 10:17:21.996577
16277	387	1	697	7.99	2007-01-29 00:32:30.996577
16287	391	1	317	5.99	2007-01-26 21:52:22.996577
16289	391	1	891	7.99	2007-01-30 06:11:38.996577
16294	396	2	641	5.99	2007-01-28 17:14:13.996577
16297	399	2	10	5.99	2007-01-24 22:30:47.996577
16298	399	2	694	6.99	2007-01-29 00:18:09.996577
16301	400	2	171	6.99	2007-01-26 01:42:41.996577
16303	400	2	894	5.99	2007-01-30 06:59:57.996577
16310	404	2	1081	5.99	2007-01-31 09:24:58.996577
16314	407	1	619	7.99	2007-01-28 14:20:52.996577
16316	408	2	59	5.99	2007-01-25 07:25:08.996577
16318	409	1	310	6.99	2007-01-26 21:09:33.996577
16334	417	2	630	8.99	2007-01-28 15:53:17.996577
16342	425	2	1098	5.99	2007-01-31 12:20:14.996577
16344	427	2	82	6.99	2007-01-25 10:46:12.996577
16346	429	2	150	5.99	2007-01-25 22:57:05.996577
16348	429	2	601	7.99	2007-01-28 12:36:48.996577
16354	432	2	326	7.99	2007-01-26 23:38:37.996577
16355	432	1	550	5.99	2007-01-28 06:07:42.996577
16356	432	1	897	8.99	2007-01-30 07:38:27.996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16357	433	2	146	8.99	2007-01-25 22:35:37.9996577
16358	433	1	691	10.99	2007-01-28 23:29:52.9996577
16359	434	2	508	5.99	2007-01-28 01:09:16.9996577
16360	435	1	757	7.99	2007-01-29 08:58:13.9996577
16362	436	1	45	7.99	2007-01-25 04:28:05.9996577
16364	436	1	848	5.99	2007-01-29 23:48:19.9996577
16367	437	1	666	5.99	2007-01-28 20:17:17.9996577
16370	438	1	1138	6.99	2007-01-31 17:58:53.9996577
16373	439	1	786	9.99	2007-01-29 13:45:54.9996577
16377	442	2	558	6.99	2007-01-28 07:07:09.9996577
16378	442	1	632	5.99	2007-01-28 16:06:16.9996577
16380	444	1	201	8.99	2007-01-26 05:42:11.9996577
16392	449	2	325	5.99	2007-01-26 23:38:21.9996577
16393	449	1	849	7.99	2007-01-29 23:51:33.9996577
16401	454	1	735	7.99	2007-01-29 06:36:39.9996577
16405	457	2	1024	7.99	2007-01-31 01:58:45.9996577
16411	461	1	684	6.99	2007-01-28 22:41:41.9996577
16420	468	2	101	6.99	2007-01-25 15:45:30.9996577
16422	468	2	296	6.99	2007-01-26 19:03:45.9996577
16426	469	2	506	7.99	2007-01-28 00:37:45.9996577
16439	474	1	816	7.99	2007-01-29 18:55:05.9996577
16446	479	1	709	7.99	2007-01-29 02:16:27.9996577
16448	480	1	720	6.99	2007-01-29 03:45:56.9996577
16449	480	2	822	9.99	2007-01-29 20:04:26.9996577
16450	481	2	1109	5.99	2007-01-31 13:40:41.9996577
16451	482	1	259	8.99	2007-01-26 14:01:12.9996577
16454	483	2	742	6.99	2007-01-29 07:04:56.9996577
16459	486	1	909	8.99	2007-01-30 09:12:04.9996577
16464	490	2	585	6.99	2007-01-28 10:19:11.9996577
16469	493	1	543	7.99	2007-01-28 05:12:00.9996577
16475	497	1	1100	7.99	2007-01-31 12:31:47.9996577
16477	498	1	429	8.99	2007-01-27 14:49:52.9996577
16480	500	1	112	8.99	2007-01-25 17:25:50.9996577
16481	500	1	389	8.99	2007-01-27 09:14:07.9996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16490	503	1	353	5.99	2007-01-27 04:32:05.996577
16493	504	2	136	5.99	2007-01-25 20:30:56.996577
16501	506	1	547	8.99	2007-01-28 05:52:54.996577
16510	509	1	831	8.99	2007-01-29 21:18:51.996577
16511	510	1	75	8.99	2007-01-25 09:42:00.996577
16512	510	1	372	5.99	2007-01-27 06:42:24.996577
16518	515	2	187	8.99	2007-01-26 04:11:03.996577
16519	515	2	292	6.99	2007-01-26 18:50:38.996577
16525	520	1	962	6.99	2007-01-30 17:13:43.996577
16526	522	2	426	5.99	2007-01-27 14:25:23.996577
16531	525	1	437	5.99	2007-01-27 16:15:48.996577
16537	528	1	533	5.99	2007-01-28 04:43:12.996577
16539	528	2	793	5.99	2007-01-29 15:12:34.996577
16547	533	1	615	5.99	2007-01-28 14:04:18.996577
16548	534	2	304	5.99	2007-01-26 19:49:54.996577
16555	536	1	929	6.99	2007-01-30 11:01:05.996577
16561	541	1	1021	7.99	2007-01-31 01:44:41.996577
16565	543	1	243	6.99	2007-01-26 11:34:31.996577
16571	546	1	197	5.99	2007-01-26 05:27:47.996577
16572	546	1	482	6.99	2007-01-27 21:21:28.996577
16574	547	2	443	8.99	2007-01-27 17:03:46.996577
16576	548	2	177	6.99	2007-01-26 02:42:55.996577
16583	550	2	922	7.99	2007-01-30 10:24:21.996577
16584	551	2	155	7.99	2007-01-25 23:43:31.996577
16594	556	2	772	5.99	2007-01-29 11:36:32.996577
16603	562	1	1139	5.99	2007-01-31 18:03:18.996577
16605	563	2	773	5.99	2007-01-29 11:46:31.996577
16606	564	2	195	5.99	2007-01-26 05:21:02.996577
16608	565	1	458	6.99	2007-01-27 18:27:02.996577
16610	566	2	234	5.99	2007-01-26 10:15:46.996577
16617	570	2	1060	7.99	2007-01-31 06:50:09.996577
16618	571	1	228	9.99	2007-01-26 09:22:54.996577
16620	572	2	559	7.99	2007-01-28 07:07:28.996577
16630	577	2	291	5.99	2007-01-26 18:49:13.996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16640	586	1	900	8.99	2007-01-30 08:07:07.996577
16650	593	1	991	8.99	2007-01-30 21:57:48.996577
16652	594	1	360	8.99	2007-01-27 05:19:40.996577
16654	594	1	1045	6.99	2007-01-31 04:57:27.996577
16655	595	1	613	6.99	2007-01-28 13:55:48.996577
16661	596	1	974	6.99	2007-01-30 18:57:08.996577
16663	597	2	514	8.99	2007-01-28 01:37:54.996577
16673	207	2	826	6.99	2007-01-29 20:24:41.996577
16683	5	1	1085	6.99	2007-01-31 09:44:09.996577
16688	7	2	46	5.99	2007-01-25 04:32:34.996577
16692	7	1	1063	5.99	2007-01-31 07:12:55.996577
16693	8	2	866	6.99	2007-01-30 02:12:20.996577
16698	11	1	987	6.99	2007-01-30 21:27:38.996577
16702	14	1	346	9.99	2007-01-27 03:03:07.996577
16703	14	1	525	5.99	2007-01-28 02:53:59.996577
16717	19	2	110	9.99	2007-01-25 17:12:15.996577
16718	19	1	179	6.99	2007-01-26 02:54:32.996577
16723	20	2	497	6.99	2007-01-27 23:23:05.996577
16730	22	2	820	8.99	2007-01-29 19:35:48.996577
16731	23	1	129	8.99	2007-01-25 19:48:29.996577
16734	24	2	1007	6.99	2007-01-30 23:30:54.996577
16736	25	1	90	7.99	2007-01-25 12:59:51.996577
16749	35	1	424	6.99	2007-01-27 14:02:27.996577
16755	42	1	635	5.99	2007-01-28 16:15:23.996577
16769	47	1	300	6.99	2007-01-26 19:25:26.996577
16789	53	2	783	5.99	2007-01-29 13:09:44.996577
16790	53	2	856	9.99	2007-01-30 00:29:47.996577
16796	55	1	1027	9.99	2007-01-31 02:14:45.996577
16799	56	1	341	5.99	2007-01-27 02:30:08.996577
16801	56	1	569	6.99	2007-01-28 08:41:07.996577
16802	57	2	152	9.99	2007-01-25 23:09:36.996577
16805	58	2	276	7.99	2007-01-26 15:44:33.996577
16809	59	1	1154	5.99	2007-01-31 20:10:35.996577
16822	67	2	331	9.99	2007-01-27 00:50:52.996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16828	71	1	272	9.99	2007-01-26 14:55:37.9996577
16834	74	2	1121	6.99	2007-01-31 15:06:02.9996577
16843	77	1	760	5.99	2007-01-29 09:35:51.9996577
16849	82	2	288	8.99	2007-01-26 18:16:15.9996577
16854	84	1	739	6.99	2007-01-29 06:56:44.9996577
16856	85	1	690	9.99	2007-01-28 23:23:19.9996577
16864	89	1	740	5.99	2007-01-29 06:59:02.9996577
16865	91	2	216	5.99	2007-01-26 07:46:09.9996577
16866	92	1	271	5.99	2007-01-26 14:50:27.9996577
16869	93	2	420	6.99	2007-01-27 13:48:04.9996577
16877	101	1	468	9.99	2007-01-27 19:41:36.9996577
16881	103	1	240	7.99	2007-01-26 11:08:49.9996577
16882	103	1	658	9.99	2007-01-28 18:51:49.9996577
16883	104	1	163	10.99	2007-01-26 00:54:49.9996577
16885	105	1	327	8.99	2007-01-26 23:47:23.9996577
16886	105	2	473	7.99	2007-01-27 20:05:00.9996577
16888	105	1	779	6.99	2007-01-29 12:45:43.9996577
16891	107	1	170	5.99	2007-01-26 01:39:38.9996577
16892	107	1	1026	5.99	2007-01-31 02:13:52.9996577
16895	109	1	203	5.99	2007-01-26 05:56:23.9996577
16899	109	1	1061	7.99	2007-01-31 06:56:24.9996577
16902	110	1	515	7.99	2007-01-28 01:38:36.9996577
16918	118	2	351	5.99	2007-01-27 04:07:29.9996577
16920	119	1	235	5.99	2007-01-26 10:19:35.9996577
16921	119	2	540	6.99	2007-01-28 05:08:51.9996577
16922	120	2	68	7.99	2007-01-25 08:15:57.9996577
16931	124	2	1130	5.99	2007-01-31 16:42:23.9996577
16938	128	2	888	5.99	2007-01-30 05:41:40.9996577
16944	131	2	944	7.99	2007-01-30 13:54:50.9996577
16945	133	1	275	6.99	2007-01-26 15:38:19.9996577
16949	134	1	814	6.99	2007-01-29 18:44:38.9996577
16951	135	1	78	5.99	2007-01-25 10:03:44.9996577
16958	142	2	11	8.99	2007-01-24 22:37:28.9996577
16960	142	1	575	9.99	2007-01-28 09:24:35.9996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16966	146	2	762	7.99	2007-01-29 09:44:17.9996577
16976	151	2	418	5.99	2007-01-27 13:41:43.9996577
16979	154	1	469	5.99	2007-01-27 19:42:52.9996577
16980	154	2	865	7.99	2007-01-30 02:08:10.9996577
16981	154	2	978	5.99	2007-01-30 19:59:18.9996577
16983	156	2	899	6.99	2007-01-30 07:57:56.9996577
16988	158	1	293	5.99	2007-01-26 18:55:28.9996577
16995	161	1	520	5.99	2007-01-28 01:56:03.9996577
17013	170	1	377	5.99	2007-01-27 07:32:31.9996577
17015	171	2	804	9.99	2007-01-29 16:38:50.9996577
17017	172	1	685	6.99	2007-01-28 22:46:17.9996577
17021	174	1	41	5.99	2007-01-25 03:40:55.9996577
17024	176	2	380	6.99	2007-01-27 08:03:05.9996577
17027	176	1	1062	7.99	2007-01-31 07:06:46.9996577
17029	179	1	759	6.99	2007-01-29 09:26:23.9996577
17032	181	2	579	6.99	2007-01-28 09:47:49.9996577
17044	187	1	252	7.99	2007-01-26 13:08:19.9996577
17045	189	2	1117	5.99	2007-01-31 14:43:57.9996577
17054	194	2	677	7.99	2007-01-28 21:28:34.9996577
17055	196	2	106	11.99	2007-01-25 16:46:45.9996577
17056	196	2	178	5.99	2007-01-26 02:50:12.9996577
17072	199	1	499	7.99	2007-01-27 23:33:33.9996577
17073	200	2	270	9.99	2007-01-26 14:49:22.9996577
17075	201	1	670	6.99	2007-01-28 20:32:29.9996577
17076	201	2	756	5.99	2007-01-29 08:57:11.9996577
17077	209	2	340	9.99	2007-01-27 02:23:51.9996577
17092	217	2	1141	8.99	2007-01-31 18:10:28.9996577
17097	222	1	5	6.99	2007-01-24 21:33:47.9996577
17111	231	1	329	5.99	2007-01-27 00:25:40.9996577
17112	231	1	479	6.99	2007-01-27 21:07:36.9996577
17113	231	1	512	8.99	2007-01-28 01:36:16.9996577
17129	239	1	636	6.99	2007-01-28 16:16:24.9996577
17130	239	1	1022	7.99	2007-01-31 01:45:11.9996577
17131	239	2	1082	5.99	2007-01-31 09:30:27.9996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
17135	241	1	627	7.99	2007-01-28 15:33:09.996577
17145	245	1	519	7.99	2007-01-28 01:50:59.996577
17148	245	2	948	8.99	2007-01-30 14:12:53.996577
17149	246	1	124	6.99	2007-01-25 19:14:37.996577
17150	246	2	421	8.99	2007-01-27 13:58:39.996577
17151	246	2	434	5.99	2007-01-27 15:22:53.996577
17156	247	1	450	6.99	2007-01-27 17:47:20.996577
17157	248	2	330	7.99	2007-01-27 00:43:56.996577
17161	249	1	438	6.99	2007-01-27 16:21:00.996577
17163	250	1	61	5.99	2007-01-25 07:30:23.996577
17176	253	1	566	6.99	2007-01-28 08:20:05.996577
17180	254	1	1108	5.99	2007-01-31 13:33:38.996577
17189	259	2	722	6.99	2007-01-29 03:58:57.996577
17191	259	1	1147	5.99	2007-01-31 19:06:18.996577
17192	260	1	1101	8.99	2007-01-31 12:42:25.996577
17195	261	2	542	6.99	2007-01-28 05:10:39.996577
17203	267	2	91	6.99	2007-01-25 13:25:48.996577

Exercise 4.3

```
result <- dbGetQuery(con, "
SELECT *
FROM payment
WHERE amount > 5 AND amount < 8;
")
knitr::kable(result)
```

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16052	269	2	678	6.99	2007-01-28 21:44:14.996577
16060	272	1	405	6.99	2007-01-27 12:01:05.996577
16061	272	1	1041	6.99	2007-01-31 04:14:49.996577
16068	274	1	394	5.99	2007-01-27 09:54:37.996577
16074	277	2	308	6.99	2007-01-26 20:30:05.996577
16082	282	2	282	6.99	2007-01-26 17:24:52.996577
16086	284	1	1145	6.99	2007-01-31 18:42:11.996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16087	286	2	81	6.99	2007-01-25 10:43:45.996577
16092	288	2	427	6.99	2007-01-27 14:38:30.996577
16094	288	2	565	5.99	2007-01-28 07:54:57.996577
16106	296	1	511	5.99	2007-01-28 01:32:30.996577
16112	299	1	332	5.99	2007-01-27 00:55:36.996577
16118	301	2	227	5.99	2007-01-26 09:20:12.996577
16121	302	2	92	5.99	2007-01-25 14:07:12.996577
16130	306	2	672	6.99	2007-01-28 20:33:55.996577
16134	307	1	970	6.99	2007-01-30 18:18:54.996577
16136	309	2	218	6.99	2007-01-26 07:55:35.996577
16139	311	2	274	5.99	2007-01-26 15:17:17.996577
16140	311	2	544	6.99	2007-01-28 05:31:26.996577
16143	311	2	1128	6.99	2007-01-31 16:17:52.996577
16147	312	2	1079	6.99	2007-01-31 09:16:43.996577
16152	314	1	80	5.99	2007-01-25 10:40:33.996577
16159	317	1	107	6.99	2007-01-25 16:56:35.996577
16165	321	1	620	5.99	2007-01-28 14:23:11.996577
16171	323	1	878	5.99	2007-01-30 04:17:39.996577
16173	325	1	131	5.99	2007-01-25 20:11:12.996577
16174	326	1	875	6.99	2007-01-30 04:06:50.996577
16177	327	1	653	6.99	2007-01-28 18:40:46.996577
16180	330	2	967	7.99	2007-01-30 17:40:32.996577
16184	332	1	1000	6.99	2007-01-30 22:54:22.996577
16186	334	1	13	6.99	2007-01-24 22:51:21.996577
16188	337	1	374	6.99	2007-01-27 06:54:56.996577
16192	339	1	876	5.99	2007-01-30 04:09:48.996577
16196	344	2	813	5.99	2007-01-29 18:43:00.996577
16208	353	2	1103	6.99	2007-01-31 12:52:44.996577
16223	361	1	368	5.99	2007-01-27 06:10:55.996577
16227	364	1	462	5.99	2007-01-27 18:39:02.996577
16228	365	2	120	5.99	2007-01-25 18:06:13.996577
16230	366	2	911	6.99	2007-01-30 09:18:48.996577
16233	368	1	64	5.99	2007-01-25 07:49:55.996577
16234	368	1	125	5.99	2007-01-25 19:17:16.996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16240	369	2	913	7.99	2007-01-30 09:33:24.996577
16242	371	2	286	6.99	2007-01-26 18:13:17.996577
16244	371	1	384	5.99	2007-01-27 08:46:46.996577
16275	386	1	583	7.99	2007-01-28 10:17:21.996577
16277	387	1	697	7.99	2007-01-29 00:32:30.996577
16287	391	1	317	5.99	2007-01-26 21:52:22.996577
16289	391	1	891	7.99	2007-01-30 06:11:38.996577
16294	396	2	641	5.99	2007-01-28 17:14:13.996577
16297	399	2	10	5.99	2007-01-24 22:30:47.996577
16298	399	2	694	6.99	2007-01-29 00:18:09.996577
16301	400	2	171	6.99	2007-01-26 01:42:41.996577
16303	400	2	894	5.99	2007-01-30 06:59:57.996577
16310	404	2	1081	5.99	2007-01-31 09:24:58.996577
16314	407	1	619	7.99	2007-01-28 14:20:52.996577
16316	408	2	59	5.99	2007-01-25 07:25:08.996577
16318	409	1	310	6.99	2007-01-26 21:09:33.996577
16342	425	2	1098	5.99	2007-01-31 12:20:14.996577
16344	427	2	82	6.99	2007-01-25 10:46:12.996577
16346	429	2	150	5.99	2007-01-25 22:57:05.996577
16348	429	2	601	7.99	2007-01-28 12:36:48.996577
16354	432	2	326	7.99	2007-01-26 23:38:37.996577
16355	432	1	550	5.99	2007-01-28 06:07:42.996577
16359	434	2	508	5.99	2007-01-28 01:09:16.996577
16360	435	1	757	7.99	2007-01-29 08:58:13.996577
16362	436	1	45	7.99	2007-01-25 04:28:05.996577
16364	436	1	848	5.99	2007-01-29 23:48:19.996577
16367	437	1	666	5.99	2007-01-28 20:17:17.996577
16370	438	1	1138	6.99	2007-01-31 17:58:53.996577
16377	442	2	558	6.99	2007-01-28 07:07:09.996577
16378	442	1	632	5.99	2007-01-28 16:06:16.996577
16392	449	2	325	5.99	2007-01-26 23:38:21.996577
16393	449	1	849	7.99	2007-01-29 23:51:33.996577
16401	454	1	735	7.99	2007-01-29 06:36:39.996577
16405	457	2	1024	7.99	2007-01-31 01:58:45.996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16411	461	1	684	6.99	2007-01-28 22:41:41.996577
16420	468	2	101	6.99	2007-01-25 15:45:30.996577
16422	468	2	296	6.99	2007-01-26 19:03:45.996577
16426	469	2	506	7.99	2007-01-28 00:37:45.996577
16439	474	1	816	7.99	2007-01-29 18:55:05.996577
16446	479	1	709	7.99	2007-01-29 02:16:27.996577
16448	480	1	720	6.99	2007-01-29 03:45:56.996577
16450	481	2	1109	5.99	2007-01-31 13:40:41.996577
16454	483	2	742	6.99	2007-01-29 07:04:56.996577
16464	490	2	585	6.99	2007-01-28 10:19:11.996577
16469	493	1	543	7.99	2007-01-28 05:12:00.996577
16475	497	1	1100	7.99	2007-01-31 12:31:47.996577
16490	503	1	353	5.99	2007-01-27 04:32:05.996577
16493	504	2	136	5.99	2007-01-25 20:30:56.996577
16512	510	1	372	5.99	2007-01-27 06:42:24.996577
16519	515	2	292	6.99	2007-01-26 18:50:38.996577
16525	520	1	962	6.99	2007-01-30 17:13:43.996577
16526	522	2	426	5.99	2007-01-27 14:25:23.996577
16531	525	1	437	5.99	2007-01-27 16:15:48.996577
16537	528	1	533	5.99	2007-01-28 04:43:12.996577
16539	528	2	793	5.99	2007-01-29 15:12:34.996577
16547	533	1	615	5.99	2007-01-28 14:04:18.996577
16548	534	2	304	5.99	2007-01-26 19:49:54.996577
16555	536	1	929	6.99	2007-01-30 11:01:05.996577
16561	541	1	1021	7.99	2007-01-31 01:44:41.996577
16565	543	1	243	6.99	2007-01-26 11:34:31.996577
16571	546	1	197	5.99	2007-01-26 05:27:47.996577
16572	546	1	482	6.99	2007-01-27 21:21:28.996577
16576	548	2	177	6.99	2007-01-26 02:42:55.996577
16583	550	2	922	7.99	2007-01-30 10:24:21.996577
16584	551	2	155	7.99	2007-01-25 23:43:31.996577
16594	556	2	772	5.99	2007-01-29 11:36:32.996577
16603	562	1	1139	5.99	2007-01-31 18:03:18.996577
16605	563	2	773	5.99	2007-01-29 11:46:31.996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16606	564	2	195	5.99	2007-01-26 05:21:02.996577
16608	565	1	458	6.99	2007-01-27 18:27:02.996577
16610	566	2	234	5.99	2007-01-26 10:15:46.996577
16617	570	2	1060	7.99	2007-01-31 06:50:09.996577
16620	572	2	559	7.99	2007-01-28 07:07:28.996577
16630	577	2	291	5.99	2007-01-26 18:49:13.996577
16654	594	1	1045	6.99	2007-01-31 04:57:27.996577
16655	595	1	613	6.99	2007-01-28 13:55:48.996577
16661	596	1	974	6.99	2007-01-30 18:57:08.996577
16673	207	2	826	6.99	2007-01-29 20:24:41.996577
16683	5	1	1085	6.99	2007-01-31 09:44:09.996577
16688	7	2	46	5.99	2007-01-25 04:32:34.996577
16692	7	1	1063	5.99	2007-01-31 07:12:55.996577
16693	8	2	866	6.99	2007-01-30 02:12:20.996577
16698	11	1	987	6.99	2007-01-30 21:27:38.996577
16703	14	1	525	5.99	2007-01-28 02:53:59.996577
16718	19	1	179	6.99	2007-01-26 02:54:32.996577
16723	20	2	497	6.99	2007-01-27 23:23:05.996577
16734	24	2	1007	6.99	2007-01-30 23:30:54.996577
16736	25	1	90	7.99	2007-01-25 12:59:51.996577
16749	35	1	424	6.99	2007-01-27 14:02:27.996577
16755	42	1	635	5.99	2007-01-28 16:15:23.996577
16769	47	1	300	6.99	2007-01-26 19:25:26.996577
16789	53	2	783	5.99	2007-01-29 13:09:44.996577
16799	56	1	341	5.99	2007-01-27 02:30:08.996577
16801	56	1	569	6.99	2007-01-28 08:41:07.996577
16805	58	2	276	7.99	2007-01-26 15:44:33.996577
16809	59	1	1154	5.99	2007-01-31 20:10:35.996577
16834	74	2	1121	6.99	2007-01-31 15:06:02.996577
16843	77	1	760	5.99	2007-01-29 09:35:51.996577
16854	84	1	739	6.99	2007-01-29 06:56:44.996577
16864	89	1	740	5.99	2007-01-29 06:59:02.996577
16865	91	2	216	5.99	2007-01-26 07:46:09.996577
16866	92	1	271	5.99	2007-01-26 14:50:27.996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
16869	93	2	420	6.99	2007-01-27 13:48:04.996577
16881	103	1	240	7.99	2007-01-26 11:08:49.996577
16886	105	2	473	7.99	2007-01-27 20:05:00.996577
16888	105	1	779	6.99	2007-01-29 12:45:43.996577
16891	107	1	170	5.99	2007-01-26 01:39:38.996577
16892	107	1	1026	5.99	2007-01-31 02:13:52.996577
16895	109	1	203	5.99	2007-01-26 05:56:23.996577
16899	109	1	1061	7.99	2007-01-31 06:56:24.996577
16902	110	1	515	7.99	2007-01-28 01:38:36.996577
16918	118	2	351	5.99	2007-01-27 04:07:29.996577
16920	119	1	235	5.99	2007-01-26 10:19:35.996577
16921	119	2	540	6.99	2007-01-28 05:08:51.996577
16922	120	2	68	7.99	2007-01-25 08:15:57.996577
16931	124	2	1130	5.99	2007-01-31 16:42:23.996577
16938	128	2	888	5.99	2007-01-30 05:41:40.996577
16944	131	2	944	7.99	2007-01-30 13:54:50.996577
16945	133	1	275	6.99	2007-01-26 15:38:19.996577
16949	134	1	814	6.99	2007-01-29 18:44:38.996577
16951	135	1	78	5.99	2007-01-25 10:03:44.996577
16966	146	2	762	7.99	2007-01-29 09:44:17.996577
16976	151	2	418	5.99	2007-01-27 13:41:43.996577
16979	154	1	469	5.99	2007-01-27 19:42:52.996577
16980	154	2	865	7.99	2007-01-30 02:08:10.996577
16981	154	2	978	5.99	2007-01-30 19:59:18.996577
16983	156	2	899	6.99	2007-01-30 07:57:56.996577
16988	158	1	293	5.99	2007-01-26 18:55:28.996577
16995	161	1	520	5.99	2007-01-28 01:56:03.996577
17013	170	1	377	5.99	2007-01-27 07:32:31.996577
17017	172	1	685	6.99	2007-01-28 22:46:17.996577
17021	174	1	41	5.99	2007-01-25 03:40:55.996577
17024	176	2	380	6.99	2007-01-27 08:03:05.996577
17027	176	1	1062	7.99	2007-01-31 07:06:46.996577
17029	179	1	759	6.99	2007-01-29 09:26:23.996577
17032	181	2	579	6.99	2007-01-28 09:47:49.996577

payment_id	customer_id	staff_id	rental_id	amount	payment_date
17044	187	1	252	7.99	2007-01-26 13:08:19.996577
17045	189	2	1117	5.99	2007-01-31 14:43:57.996577
17054	194	2	677	7.99	2007-01-28 21:28:34.996577
17056	196	2	178	5.99	2007-01-26 02:50:12.996577
17072	199	1	499	7.99	2007-01-27 23:33:33.996577
17075	201	1	670	6.99	2007-01-28 20:32:29.996577
17076	201	2	756	5.99	2007-01-29 08:57:11.996577
17097	222	1	5	6.99	2007-01-24 21:33:47.996577
17111	231	1	329	5.99	2007-01-27 00:25:40.996577
17112	231	1	479	6.99	2007-01-27 21:07:36.996577
17129	239	1	636	6.99	2007-01-28 16:16:24.996577
17130	239	1	1022	7.99	2007-01-31 01:45:11.996577
17131	239	2	1082	5.99	2007-01-31 09:30:27.996577
17135	241	1	627	7.99	2007-01-28 15:33:09.996577
17145	245	1	519	7.99	2007-01-28 01:50:59.996577
17149	246	1	124	6.99	2007-01-25 19:14:37.996577
17151	246	2	434	5.99	2007-01-27 15:22:53.996577
17156	247	1	450	6.99	2007-01-27 17:47:20.996577
17157	248	2	330	7.99	2007-01-27 00:43:56.996577
17161	249	1	438	6.99	2007-01-27 16:21:00.996577
17163	250	1	61	5.99	2007-01-25 07:30:23.996577
17176	253	1	566	6.99	2007-01-28 08:20:05.996577
17180	254	1	1108	5.99	2007-01-31 13:33:38.996577
17189	259	2	722	6.99	2007-01-29 03:58:57.996577
17191	259	1	1147	5.99	2007-01-31 19:06:18.996577
17195	261	2	542	6.99	2007-01-28 05:10:39.996577
17203	267	2	91	6.99	2007-01-25 13:25:48.996577

Exercise 5

```
result <- dbGetQuery(con, "
  SELECT payment.payment_id, payment.amount
  FROM payment
  INNER JOIN customer ON payment.customer_id = customer.customer_id
  WHERE customer.last_name = 'DAVIS';
```

```
"")
knitr::kable(result)
```

	payment_id	amount
	16685	4.99
	16686	2.99
	16687	0.99

Exercise 6.1

```
result <- dbGetQuery(con, "SELECT COUNT(*) AS row_count FROM rental;")
knitr::kable(result)
```

	row_count
	16044

Exercise 6.2

```
result <- dbGetQuery(con, "
  SELECT customer_id, COUNT(*) AS rental_count
  FROM rental
  GROUP BY customer_id;
")
knitr::kable(result)
```

	customer_id	rental_count
	1	32
	2	27
	3	26
	4	22
	5	38
	6	28
	7	33
	8	24
	9	23
	10	25
	11	24

customer_id	rental_count
12	28
13	27
14	28
15	32
16	28
17	21
18	22
19	24
20	30
21	35
22	22
23	30
24	25
25	29
26	34
27	31
28	32
29	36
30	34
31	26
32	29
33	21
34	24
35	32
36	27
37	23
38	34
39	29
40	27
41	25
42	30
43	24
44	26
45	27

customer_id	rental_count
46	34
47	22
48	17
49	28
50	35
51	33
52	29
53	30
54	29
55	22
56	30
57	28
58	27
59	27
60	25
61	14
62	23
63	25
64	33
65	22
66	34
67	22
68	22
69	25
70	18
71	30
72	30
73	24
74	27
75	41
76	23
77	28
78	31
79	22

customer_id	rental_count
80	30
81	22
82	26
83	25
84	33
85	23
86	33
87	30
88	21
89	32
90	28
91	35
92	28
93	23
94	21
95	18
96	27
97	18
98	25
99	24
100	24
101	24
102	33
103	31
104	24
105	26
106	23
107	30
108	30
109	26
110	14
111	26
112	30
113	29

customer_id	rental_count
114	33
115	30
116	27
117	19
118	21
119	34
120	32
121	26
122	32
123	24
124	18
125	32
126	28
127	24
128	32
129	34
130	24
131	30
132	28
133	27
134	23
135	30
136	15
137	39
138	34
139	27
140	18
141	32
142	26
143	22
144	42
145	28
146	29
147	34

customer_id	rental_count
148	46
149	26
150	25
151	27
152	21
153	24
154	30
155	25
156	25
157	31
158	32
159	21
160	27
161	30
162	20
163	29
164	16
165	21
166	28
167	32
168	34
169	22
170	26
171	26
172	33
173	29
174	21
175	24
176	37
177	23
178	39
179	29
180	23
181	34

customer_id	rental_count
182	26
183	23
184	23
185	23
186	31
187	28
188	25
189	22
190	27
191	20
192	23
193	25
194	18
195	19
196	35
197	40
198	37
199	25
200	27
201	25
202	26
203	20
204	35
205	18
206	27
207	34
208	26
209	32
210	31
211	34
212	20
213	28
214	31
215	26

customer_id	rental_count
216	23
217	23
218	18
219	26
220	27
221	28
222	21
223	17
224	22
225	26
226	21
227	24
228	27
229	25
230	33
231	26
232	25
233	23
234	26
235	25
236	42
237	33
238	21
239	34
240	26
241	34
242	32
243	24
244	32
245	32
246	23
247	22
248	15
249	23

customer_id	rental_count
250	20
251	31
252	22
253	29
254	32
255	18
256	30
257	37
258	24
259	32
260	31
261	26
262	28
263	29
264	25
265	29
266	28
267	36
268	29
269	30
270	25
271	18
272	20
273	35
274	35
275	30
276	28
277	32
278	26
279	31
280	27
281	14
282	27
283	28

customer_id	rental_count
284	28
285	26
286	27
287	29
288	24
289	30
290	28
291	23
292	27
293	31
294	26
295	38
296	30
297	33
298	26
299	30
300	31
301	21
302	29
303	26
304	26
305	25
306	32
307	30
308	25
309	31
310	20
311	23
312	26
313	23
314	33
315	17
316	29
317	28

customer_id	rental_count
318	12
319	30
320	20
321	22
322	28
323	31
324	25
325	22
326	25
327	26
328	23
329	32
330	25
331	27
332	28
333	27
334	30
335	23
336	30
337	29
338	28
339	30
340	31
341	23
342	32
343	25
344	18
345	23
346	32
347	30
348	36
349	29
350	23
351	24

customer_id	rental_count
352	23
353	18
354	36
355	20
356	30
357	26
358	21
359	25
360	34
361	31
362	32
363	29
364	23
365	23
366	37
367	22
368	35
369	25
370	19
371	35
372	34
373	35
374	28
375	24
376	28
377	26
378	19
379	23
380	36
381	35
382	24
383	27
384	25
385	26

customer_id	rental_count
386	29
387	26
388	30
389	26
390	33
391	30
392	23
393	31
394	22
395	19
396	27
397	29
398	16
399	21
400	28
401	21
402	20
403	35
404	30
405	32
406	32
407	27
408	30
409	23
410	38
411	26
412	21
413	21
414	25
415	23
416	31
417	25
418	30
419	25

customer_id	rental_count
420	21
421	27
422	26
423	26
424	30
425	26
426	27
427	24
428	20
429	21
430	22
431	23
432	23
433	25
434	27
435	25
436	30
437	23
438	33
439	36
440	22
441	28
442	32
443	22
444	30
445	26
446	31
447	29
448	29
449	20
450	26
451	33
452	32
453	23

customer_id	rental_count
454	33
455	24
456	25
457	28
458	19
459	38
460	25
461	28
462	33
463	25
464	16
465	17
466	23
467	29
468	39
469	40
470	32
471	27
472	30
473	34
474	26
475	24
476	22
477	22
478	19
479	31
480	22
481	29
482	29
483	18
484	30
485	29
486	26
487	26

customer_id	rental_count
488	22
489	21
490	24
491	27
492	16
493	23
494	31
495	26
496	21
497	28
498	27
499	30
500	28
501	21
502	34
503	32
504	28
505	21
506	35
507	25
508	25
509	20
510	26
511	24
512	26
513	31
514	22
515	28
516	26
517	25
518	26
519	23
520	32
521	23

customer_id	rental_count
522	33
523	22
524	19
525	19
526	45
527	24
528	25
529	29
530	23
531	25
532	32
533	33
534	24
535	32
536	25
537	25
538	29
539	22
540	24
541	24
542	18
543	22
544	22
545	21
546	25
547	23
548	19
549	20
550	32
551	26
552	21
553	24
554	22
555	17

customer_id	rental_count
556	21
557	24
558	28
559	28
560	30
561	27
562	25
563	29
564	24
565	29
566	34
567	20
568	21
569	32
570	26
571	24
572	25
573	29
574	28
575	29
576	34
577	27
578	22
579	27
580	27
581	27
582	25
583	23
584	30
585	24
586	19
587	26
588	29
589	28

customer_id	rental_count
590	25
591	27
592	29
593	26
594	27
595	30
596	28
597	25
598	22
599	19

Exercise 6.3

```
result <- dbGetQuery(con, "
  SELECT customer_id, COUNT(*) AS rental_count
  FROM rental
  GROUP BY customer_id
  ORDER BY rental_count DESC;
")
knitr::kable(result)
```

customer_id	rental_count
148	46
526	45
236	42
144	42
75	41
469	40
197	40
468	39
178	39
137	39
459	38
410	38
295	38

customer_id	rental_count
5	38
366	37
257	37
198	37
176	37
439	36
380	36
354	36
348	36
267	36
29	36
506	35
403	35
381	35
373	35
371	35
368	35
274	35
273	35
204	35
196	35
91	35
50	35
21	35
576	34
566	34
502	34
473	34
372	34
360	34
241	34
239	34
211	34
207	34

customer_id	rental_count
181	34
168	34
147	34
138	34
129	34
119	34
66	34
46	34
38	34
30	34
26	34
533	33
522	33
462	33
454	33
451	33
438	33
390	33
314	33
297	33
237	33
230	33
172	33
114	33
102	33
86	33
84	33
64	33
51	33
7	33
569	32
550	32
535	32
532	32

customer_id	rental_count
520	32
503	32
470	32
452	32
442	32
406	32
405	32
362	32
346	32
342	32
329	32
306	32
277	32
259	32
254	32
245	32
244	32
242	32
209	32
167	32
158	32
141	32
128	32
125	32
122	32
120	32
89	32
35	32
28	32
15	32
1	32
513	31
494	31
479	31

customer_id	rental_count
446	31
416	31
393	31
361	31
340	31
323	31
309	31
300	31
293	31
279	31
260	31
251	31
214	31
210	31
186	31
157	31
103	31
78	31
27	31
595	30
584	30
560	30
499	30
484	30
472	30
444	30
436	30
424	30
418	30
408	30
404	30
391	30
388	30
356	30

customer_id	rental_count
347	30
339	30
336	30
334	30
319	30
307	30
299	30
296	30
289	30
275	30
269	30
256	30
161	30
154	30
135	30
131	30
115	30
112	30
108	30
107	30
87	30
80	30
72	30
71	30
56	30
53	30
42	30
23	30
20	30
592	29
588	29
575	29
573	29
565	29

customer_id	rental_count
563	29
538	29
529	29
485	29
482	29
481	29
467	29
448	29
447	29
397	29
386	29
363	29
349	29
337	29
316	29
302	29
287	29
268	29
265	29
263	29
253	29
179	29
173	29
163	29
146	29
113	29
54	29
52	29
39	29
32	29
25	29
596	28
589	28
574	28

customer_id	rental_count
559	28
558	28
515	28
504	28
500	28
497	28
461	28
457	28
441	28
400	28
376	28
374	28
338	28
332	28
322	28
317	28
290	28
284	28
283	28
276	28
266	28
262	28
221	28
213	28
187	28
166	28
145	28
132	28
126	28
92	28
90	28
77	28
57	28
49	28

customer_id	rental_count
16	28
14	28
12	28
6	28
594	27
591	27
581	27
580	27
579	27
577	27
561	27
498	27
491	27
471	27
434	27
426	27
421	27
407	27
396	27
383	27
333	27
331	27
292	27
286	27
282	27
280	27
228	27
220	27
206	27
200	27
190	27
160	27
151	27
139	27

customer_id	rental_count
133	27
116	27
96	27
74	27
59	27
58	27
45	27
40	27
36	27
13	27
2	27
593	26
587	26
570	26
551	26
518	26
516	26
512	26
510	26
495	26
487	26
486	26
474	26
450	26
445	26
425	26
423	26
422	26
411	26
389	26
387	26
385	26
377	26
357	26

customer_id	rental_count
327	26
312	26
304	26
303	26
298	26
294	26
285	26
278	26
261	26
240	26
234	26
231	26
225	26
219	26
215	26
208	26
202	26
182	26
171	26
170	26
149	26
142	26
121	26
111	26
109	26
105	26
82	26
44	26
31	26
3	26
597	25
590	25
582	25
572	25

customer_id	rental_count
562	25
546	25
537	25
536	25
531	25
528	25
517	25
508	25
507	25
463	25
460	25
456	25
435	25
433	25
419	25
417	25
414	25
384	25
369	25
359	25
343	25
330	25
326	25
324	25
308	25
305	25
270	25
264	25
235	25
232	25
229	25
201	25
199	25
193	25

customer_id	rental_count
188	25
156	25
155	25
150	25
98	25
83	25
69	25
63	25
60	25
41	25
24	25
10	25
585	24
571	24
564	24
557	24
553	24
541	24
540	24
534	24
527	24
511	24
490	24
475	24
455	24
427	24
382	24
375	24
351	24
288	24
258	24
243	24
227	24
175	24

customer_id	rental_count
153	24
130	24
127	24
123	24
104	24
101	24
100	24
99	24
73	24
43	24
34	24
19	24
11	24
8	24
583	23
547	23
530	23
521	23
519	23
493	23
466	23
453	23
437	23
432	23
431	23
415	23
409	23
392	23
379	23
365	23
364	23
352	23
350	23
345	23

customer_id	rental_count
341	23
335	23
328	23
313	23
311	23
291	23
249	23
246	23
233	23
217	23
216	23
192	23
185	23
184	23
183	23
180	23
177	23
134	23
106	23
93	23
85	23
76	23
62	23
37	23
9	23
598	22
578	22
554	22
544	22
543	22
539	22
523	22
514	22
488	22

customer_id	rental_count
480	22
477	22
476	22
443	22
440	22
430	22
394	22
367	22
325	22
321	22
252	22
247	22
224	22
189	22
169	22
143	22
81	22
79	22
68	22
67	22
65	22
55	22
47	22
22	22
18	22
4	22
568	21
556	21
552	21
545	21
505	21
501	21
496	21
489	21

customer_id	rental_count
429	21
420	21
413	21
412	21
401	21
399	21
358	21
301	21
238	21
226	21
222	21
174	21
165	21
159	21
152	21
118	21
94	21
88	21
33	21
17	21
567	20
549	20
509	20
449	20
428	20
402	20
355	20
320	20
310	20
272	20
250	20
212	20
203	20
191	20

customer_id	rental_count
162	20
599	19
586	19
548	19
525	19
524	19
478	19
458	19
395	19
378	19
370	19
195	19
117	19
542	18
483	18
353	18
344	18
271	18
255	18
218	18
205	18
194	18
140	18
124	18
97	18
95	18
70	18
555	17
465	17
315	17
223	17
48	17
492	16
464	16

customer_id	rental_count
398	16
164	16
248	15
136	15
281	14
110	14
61	14
318	12

Exercise 6.4

```
result <- dbGetQuery(con, "
  SELECT customer_id, COUNT(*) AS rental_count
  FROM rental
  GROUP BY customer_id
  HAVING rental_count >= 40
  ORDER BY rental_count DESC;
")
knitr::kable(result)
```

customer_id	rental_count
148	46
526	45
236	42
144	42
75	41
469	40
197	40

Exercise 7

```
result <- dbGetQuery(con, "
  SELECT
    MAX(amount) AS max_amount,
    MIN(amount) AS min_amount,
    AVG(amount) AS avg_amount,
    SUM(amount) AS total_amount
```

```
FROM payment;
")
knitr::kable(result)
```

max_amount	min_amount	avg_amount	total_amount
11.99	0.99	4.169775	4824.43

Exercise 7.1

```
result <- dbGetQuery(con, "
SELECT customer_id,
       MAX(amount) AS max_amount,
       MIN(amount) AS min_amount,
       AVG(amount) AS avg_amount,
       SUM(amount) AS total_amount
  FROM payment
 GROUP BY customer_id;
")
knitr::kable(result)
```

customer_id	max_amount	min_amount	avg_amount	total_amount
1	2.99	0.99	1.990000	3.98
2	4.99	4.99	4.990000	4.99
3	2.99	1.99	2.490000	4.98
5	6.99	0.99	3.323333	9.97
6	4.99	0.99	2.990000	8.97
7	5.99	0.99	4.190000	20.95
8	6.99	6.99	6.990000	6.99
9	4.99	0.99	3.656667	10.97
10	4.99	4.99	4.990000	4.99
11	6.99	6.99	6.990000	6.99
12	4.99	4.99	4.990000	9.98
14	9.99	0.99	4.190000	20.95
16	3.99	0.99	2.740000	10.96
17	4.99	2.99	3.656667	10.97
18	4.99	2.99	4.323333	12.97
19	9.99	0.99	4.490000	26.94
20	6.99	1.99	3.990000	11.97

customer_id	max_amount	min_amount	avg_amount	total_amount
21	3.99	0.99	2.990000	8.97
22	8.99	4.99	6.323333	18.97
23	8.99	0.99	4.323333	12.97
24	6.99	2.99	4.990000	9.98
25	7.99	2.99	5.490000	10.98
26	2.99	2.99	2.990000	5.98
27	2.99	2.99	2.990000	2.99
28	2.99	2.99	2.990000	5.98
29	1.99	1.99	1.990000	1.99
32	4.99	4.99	4.990000	14.97
33	2.99	2.99	2.990000	2.99
35	6.99	3.99	5.490000	10.98
36	0.99	0.99	0.990000	1.98
37	2.99	0.99	1.990000	3.98
40	4.99	4.99	4.990000	4.99
42	5.99	5.99	5.990000	5.99
43	4.99	4.99	4.990000	9.98
44	4.99	0.99	2.590000	12.95
45	2.99	2.99	2.990000	2.99
46	4.99	2.99	3.656667	10.97
47	6.99	3.99	5.323333	15.97
48	4.99	0.99	2.990000	8.97
49	4.99	1.99	3.490000	13.96
50	4.99	4.99	4.990000	24.95
51	4.99	4.99	4.990000	14.97
52	0.99	0.99	0.990000	0.99
53	9.99	0.99	4.490000	26.94
54	4.99	3.99	4.656667	13.97
55	9.99	0.99	5.323333	15.97
56	6.99	2.99	4.990000	19.96
57	9.99	4.99	7.490000	14.98
58	7.99	0.99	3.323333	9.97
59	5.99	2.99	4.656667	13.97
60	4.99	1.99	3.323333	9.97

customer_id	max_amount	min_amount	avg_amount	total_amount
61	0.99	0.99	0.990000	0.99
62	4.99	0.99	2.990000	5.98
64	4.99	0.99	2.990000	8.97
65	4.99	0.99	2.990000	5.98
66	4.99	4.99	4.990000	4.99
67	9.99	2.99	6.490000	12.98
69	4.99	1.99	3.490000	6.98
70	4.99	4.99	4.990000	4.99
71	9.99	2.99	6.490000	12.98
72	4.99	0.99	3.656667	10.97
73	4.99	2.99	3.990000	7.98
74	6.99	6.99	6.990000	6.99
75	4.99	0.99	2.990000	5.98
76	1.99	0.99	1.490000	2.98
77	5.99	0.99	2.990000	14.95
79	4.99	2.99	3.656667	10.97
81	0.99	0.99	0.990000	0.99
82	8.99	2.99	5.990000	11.98
83	2.99	0.99	1.656667	4.97
84	6.99	0.99	4.323333	12.97
85	9.99	4.99	7.490000	14.98
86	1.99	1.99	1.990000	1.99
87	4.99	2.99	3.990000	7.98
88	2.99	2.99	2.990000	2.99
89	5.99	0.99	3.323333	9.97
91	5.99	5.99	5.990000	5.99
92	5.99	4.99	5.490000	10.98
93	6.99	2.99	4.990000	14.97
94	4.99	2.99	3.990000	7.98
95	4.99	4.99	4.990000	4.99
98	3.99	3.99	3.990000	3.99
99	0.99	0.99	0.990000	0.99
100	0.99	0.99	0.990000	0.99
101	9.99	9.99	9.990000	9.99

customer_id	max_amount	min_amount	avg_amount	total_amount
102	4.99	0.99	2.656667	7.97
103	9.99	7.99	8.990000	17.98
104	10.99	3.99	7.490000	14.98
105	8.99	2.99	6.740000	26.96
106	3.99	0.99	2.490000	4.98
107	5.99	5.99	5.990000	11.98
108	4.99	0.99	2.990000	5.98
109	7.99	0.99	3.990000	27.93
110	7.99	1.99	4.990000	9.98
111	2.99	2.99	2.990000	2.99
112	2.99	0.99	1.990000	3.98
113	0.99	0.99	0.990000	1.98
114	4.99	2.99	4.323333	12.97
115	2.99	0.99	1.656667	4.97
116	4.99	4.99	4.990000	4.99
117	0.99	0.99	0.990000	1.98
118	5.99	5.99	5.990000	5.99
119	6.99	0.99	4.656667	13.97
120	7.99	0.99	4.490000	8.98
121	4.99	4.99	4.990000	4.99
122	4.99	0.99	2.990000	5.98
123	2.99	2.99	2.990000	2.99
124	5.99	0.99	3.990000	15.96
125	3.99	3.99	3.990000	3.99
126	4.99	4.99	4.990000	14.97
127	0.99	0.99	0.990000	1.98
128	5.99	2.99	4.490000	8.98
130	2.99	2.99	2.990000	5.98
131	7.99	2.99	5.323333	15.97
133	6.99	2.99	4.990000	9.98
134	6.99	0.99	4.240000	16.96
135	5.99	3.99	4.990000	9.98
136	2.99	2.99	2.990000	2.99
137	2.99	2.99	2.990000	2.99

customer_id	max_amount	min_amount	avg_amount	total_amount
138	2.99	0.99	1.990000	3.98
141	2.99	2.99	2.990000	2.99
142	9.99	0.99	6.656667	19.97
143	2.99	2.99	2.990000	5.98
144	2.99	2.99	2.990000	5.98
145	0.99	0.99	0.990000	0.99
146	7.99	4.99	6.490000	12.98
147	0.99	0.99	0.990000	1.98
148	4.99	4.99	4.990000	4.99
149	4.99	4.99	4.990000	4.99
150	3.99	2.99	3.656667	10.97
151	5.99	4.99	5.490000	10.98
152	4.99	4.99	4.990000	9.98
154	7.99	5.99	6.656667	19.97
155	2.99	2.99	2.990000	2.99
156	6.99	4.99	5.990000	11.98
157	4.99	0.99	2.990000	5.98
158	5.99	4.99	5.490000	10.98
159	3.99	0.99	2.490000	9.96
161	5.99	0.99	2.990000	17.94
162	4.99	1.99	3.990000	11.97
164	1.99	1.99	1.990000	1.99
165	4.99	4.99	4.990000	4.99
166	1.99	1.99	1.990000	1.99
167	4.99	2.99	3.656667	10.97
168	4.99	0.99	2.990000	5.98
169	4.99	3.99	4.490000	8.98
170	5.99	0.99	3.323333	9.97
171	9.99	9.99	9.990000	9.99
172	6.99	0.99	3.990000	11.97
173	4.99	2.99	3.990000	7.98
174	5.99	4.99	5.490000	10.98
176	7.99	0.99	4.390000	21.95
179	6.99	0.99	4.323333	12.97

customer_id	max_amount	min_amount	avg_amount	total_amount
180	2.99	2.99	2.990000	2.99
181	6.99	6.99	6.990000	6.99
182	3.99	0.99	2.490000	4.98
183	0.99	0.99	0.990000	0.99
184	4.99	1.99	3.323333	9.97
185	2.99	0.99	1.656667	4.97
186	1.99	0.99	1.490000	2.98
187	7.99	7.99	7.990000	7.99
189	5.99	5.99	5.990000	5.99
190	4.99	2.99	3.990000	7.98
191	4.99	2.99	3.990000	7.98
192	1.99	1.99	1.990000	1.99
193	2.99	0.99	1.990000	3.98
194	7.99	4.99	6.490000	12.98
196	11.99	1.99	5.740000	22.96
197	3.99	0.99	2.615000	20.92
198	4.99	0.99	3.390000	16.95
199	7.99	7.99	7.990000	7.99
200	9.99	9.99	9.990000	9.99
201	6.99	3.99	5.656667	16.97
203	0.99	0.99	0.990000	0.99
204	4.99	0.99	3.240000	12.96
207	6.99	0.99	2.990000	17.94
208	4.99	4.99	4.990000	4.99
209	9.99	0.99	4.656667	13.97
210	2.99	2.99	2.990000	2.99
211	4.99	4.99	4.990000	4.99
213	0.99	0.99	0.990000	0.99
214	3.99	0.99	2.590000	12.95
215	4.99	4.99	4.990000	9.98
216	4.99	4.99	4.990000	4.99
217	8.99	2.99	5.990000	11.98
219	0.99	0.99	0.990000	0.99
220	3.99	0.99	2.490000	4.98

customer_id	max_amount	min_amount	avg_amount	total_amount
221	4.99	4.99	4.990000	4.99
222	6.99	0.99	3.990000	19.95
223	2.99	2.99	2.990000	2.99
225	4.99	3.99	4.490000	8.98
227	4.99	3.99	4.490000	8.98
228	4.99	0.99	2.990000	5.98
230	4.99	0.99	2.990000	5.98
231	8.99	5.99	7.323333	21.97
232	4.99	3.99	4.490000	8.98
234	4.99	4.99	4.990000	4.99
235	2.99	0.99	1.990000	3.98
236	2.99	2.99	2.990000	8.97
237	4.99	0.99	2.990000	5.98
238	4.99	2.99	3.990000	7.98
239	7.99	2.99	5.656667	33.94
240	4.99	2.99	3.656667	10.97
241	7.99	3.99	5.990000	11.98
242	4.99	2.99	3.990000	11.97
243	4.99	4.99	4.990000	4.99
244	4.99	1.99	3.490000	6.98
245	8.99	0.99	4.823333	28.94
246	8.99	3.99	6.190000	30.95
247	6.99	3.99	5.323333	15.97
248	7.99	4.99	6.490000	12.98
249	6.99	2.99	4.740000	18.96
250	5.99	0.99	3.790000	18.95
251	4.99	1.99	3.323333	19.94
252	4.99	0.99	2.990000	5.98
253	6.99	0.99	3.656667	10.97
254	5.99	2.99	4.490000	8.98
256	4.99	0.99	2.990000	14.95
257	2.99	2.99	2.990000	8.97
259	6.99	2.99	5.323333	15.97
260	8.99	8.99	8.990000	8.99

customer_id	max_amount	min_amount	avg_amount	total_amount
261	6.99	0.99	4.240000	16.96
262	4.99	4.99	4.990000	4.99
263	4.99	0.99	2.990000	5.98
265	0.99	0.99	0.990000	0.99
266	2.99	1.99	2.490000	4.98
267	6.99	4.99	5.656667	16.97
269	6.99	0.99	3.156667	18.94
270	4.99	1.99	3.490000	6.98
271	8.99	8.99	8.990000	8.99
272	6.99	0.99	3.990000	15.96
273	3.99	0.99	2.490000	4.98
274	5.99	2.99	4.156667	24.94
275	2.99	2.99	2.990000	2.99
276	10.99	3.99	7.490000	14.98
277	6.99	6.99	6.990000	6.99
278	4.99	4.99	4.990000	4.99
279	2.99	0.99	1.990000	3.98
280	4.99	4.99	4.990000	4.99
281	2.99	2.99	2.990000	5.98
282	6.99	0.99	3.323333	9.97
284	6.99	0.99	2.990000	8.97
286	6.99	6.99	6.990000	6.99
287	2.99	0.99	2.323333	6.97
288	6.99	3.99	5.490000	21.96
290	2.99	2.99	2.990000	2.99
291	4.99	2.99	4.323333	12.97
292	0.99	0.99	0.990000	0.99
293	8.99	0.99	4.990000	14.97
294	1.99	1.99	1.990000	1.99
295	3.99	3.99	3.990000	3.99
296	5.99	2.99	4.740000	18.96
297	3.99	0.99	2.490000	4.98
298	3.99	3.99	3.990000	3.99
299	8.99	5.99	7.490000	14.98

customer_id	max_amount	min_amount	avg_amount	total_amount
300	4.99	0.99	3.323333	9.97
301	5.99	0.99	3.990000	11.97
302	5.99	4.99	5.490000	10.98
303	4.99	0.99	2.990000	8.97
304	10.99	0.99	4.990000	14.97
305	2.99	2.99	2.990000	2.99
306	6.99	3.99	5.490000	10.98
307	6.99	1.99	4.740000	18.96
308	3.99	3.99	3.990000	3.99
309	6.99	0.99	3.990000	7.98
310	0.99	0.99	0.990000	0.99
311	6.99	2.99	5.390000	26.95
312	6.99	0.99	4.490000	17.96
313	4.99	0.99	2.490000	9.96
314	5.99	4.99	5.490000	10.98
315	8.99	4.99	6.990000	13.98
316	8.99	1.99	5.323333	15.97
317	6.99	6.99	6.990000	6.99
318	9.99	9.99	9.990000	9.99
319	9.99	2.99	5.656667	16.97
321	5.99	4.99	5.323333	15.97
322	4.99	0.99	2.990000	5.98
323	5.99	2.99	4.656667	13.97
324	3.99	3.99	3.990000	3.99
325	5.99	5.99	5.990000	5.99
326	6.99	3.99	5.323333	15.97
327	6.99	6.99	6.990000	6.99
328	2.99	2.99	2.990000	2.99
330	7.99	3.99	5.990000	11.98
331	2.99	0.99	1.990000	3.98
332	6.99	3.99	5.490000	10.98
333	4.99	4.99	4.990000	4.99
334	8.99	6.99	7.990000	15.98
337	8.99	4.99	6.990000	20.97

customer_id	max_amount	min_amount	avg_amount	total_amount
338	0.99	0.99	0.990000	0.99
339	5.99	5.99	5.990000	5.99
343	3.99	3.99	3.990000	7.98
344	5.99	2.99	4.490000	8.98
345	0.99	0.99	0.990000	1.98
346	4.99	4.99	4.990000	9.98
348	0.99	0.99	0.990000	1.98
349	4.99	4.99	4.990000	4.99
350	4.99	4.99	4.990000	9.98
351	1.99	1.99	1.990000	1.99
352	2.99	2.99	2.990000	2.99
353	6.99	6.99	6.990000	6.99
354	1.99	0.99	1.323333	3.97
355	3.99	3.99	3.990000	3.99
356	4.99	4.99	4.990000	4.99
357	4.99	0.99	2.990000	8.97
358	4.99	4.99	4.990000	4.99
359	8.99	2.99	5.323333	15.97
360	4.99	0.99	2.990000	5.98
361	5.99	4.99	5.490000	10.98
362	4.99	4.99	4.990000	4.99
363	3.99	3.99	3.990000	3.99
364	5.99	5.99	5.990000	5.99
365	5.99	4.99	5.490000	10.98
366	6.99	6.99	6.990000	6.99
367	2.99	0.99	1.990000	3.98
368	5.99	2.99	4.490000	17.96
369	7.99	0.99	4.740000	18.96
371	6.99	0.99	4.323333	25.94
372	2.99	2.99	2.990000	5.98
373	4.99	4.99	4.990000	4.99
374	2.99	0.99	1.656667	4.97
375	8.99	2.99	5.490000	21.96
376	0.99	0.99	0.990000	0.99

customer_id	max_amount	min_amount	avg_amount	total_amount
378	0.99	0.99	0.990000	0.99
379	4.99	4.99	4.990000	9.98
380	3.99	3.99	3.990000	3.99
381	2.99	0.99	2.323333	6.97
382	2.99	2.99	2.990000	5.98
383	8.99	0.99	4.990000	9.98
384	4.99	0.99	2.990000	11.96
385	4.99	2.99	3.990000	7.98
386	7.99	7.99	7.990000	7.99
387	7.99	3.99	5.490000	21.96
388	4.99	4.99	4.990000	9.98
389	4.99	4.99	4.990000	4.99
390	4.99	4.99	4.990000	9.98
391	7.99	2.99	4.990000	24.95
393	4.99	0.99	2.990000	5.98
394	3.99	2.99	3.490000	6.98
396	5.99	5.99	5.990000	5.99
397	0.99	0.99	0.990000	0.99
398	4.99	4.99	4.990000	4.99
399	6.99	4.99	5.990000	17.97
400	6.99	1.99	4.740000	18.96
401	4.99	1.99	3.990000	11.97
402	1.99	1.99	1.990000	1.99
403	2.99	0.99	1.990000	3.98
404	5.99	5.99	5.990000	5.99
405	4.99	2.99	3.990000	7.98
406	0.99	0.99	0.990000	0.99
407	7.99	7.99	7.990000	7.99
408	5.99	2.99	4.323333	12.97
409	6.99	6.99	6.990000	6.99
411	4.99	1.99	3.490000	6.98
412	4.99	0.99	2.740000	10.96
413	4.99	4.99	4.990000	9.98
414	4.99	3.99	4.490000	8.98

customer_id	max_amount	min_amount	avg_amount	total_amount
415	4.99	4.99	4.990000	4.99
416	3.99	0.99	2.656667	7.97
417	8.99	4.99	6.323333	18.97
419	2.99	2.99	2.990000	2.99
420	4.99	4.99	4.990000	4.99
421	0.99	0.99	0.990000	1.98
422	0.99	0.99	0.990000	0.99
424	0.99	0.99	0.990000	0.99
425	5.99	5.99	5.990000	5.99
426	0.99	0.99	0.990000	0.99
427	6.99	6.99	6.990000	6.99
428	4.99	4.99	4.990000	4.99
429	7.99	2.99	5.390000	26.95
430	4.99	2.99	3.990000	7.98
431	2.99	2.99	2.990000	2.99
432	8.99	5.99	7.656667	22.97
433	10.99	8.99	9.990000	19.98
434	5.99	5.99	5.990000	5.99
435	7.99	4.99	6.490000	12.98
436	7.99	3.99	5.990000	17.97
437	5.99	2.99	4.656667	13.97
438	6.99	0.99	4.323333	12.97
439	9.99	0.99	4.656667	13.97
440	4.99	4.99	4.990000	4.99
441	4.99	4.99	4.990000	4.99
442	6.99	0.99	4.656667	13.97
443	4.99	4.99	4.990000	4.99
444	8.99	0.99	4.990000	9.98
445	2.99	2.99	2.990000	5.98
446	4.99	0.99	2.323333	6.97
447	2.99	0.99	1.990000	3.98
448	4.99	2.99	3.990000	7.98
449	7.99	4.99	6.323333	18.97
450	3.99	3.99	3.990000	3.99

customer_id	max_amount	min_amount	avg_amount	total_amount
451	2.99	0.99	2.323333	6.97
452	2.99	1.99	2.656667	7.97
454	7.99	7.99	7.990000	7.99
455	0.99	0.99	0.990000	1.98
456	4.99	4.99	4.990000	4.99
457	7.99	7.99	7.990000	7.99
459	2.99	2.99	2.990000	2.99
460	4.99	0.99	2.990000	11.96
461	6.99	6.99	6.990000	6.99
462	3.99	2.99	3.490000	6.98
463	1.99	1.99	1.990000	1.99
464	3.99	1.99	2.990000	5.98
465	0.99	0.99	0.990000	0.99
466	2.99	2.99	2.990000	2.99
467	4.99	4.99	4.990000	4.99
468	6.99	0.99	4.190000	20.95
469	7.99	0.99	3.790000	18.95
470	2.99	2.99	2.990000	2.99
471	2.99	2.99	2.990000	2.99
472	4.99	0.99	2.490000	9.96
473	4.99	2.99	3.990000	11.97
474	7.99	7.99	7.990000	7.99
475	4.99	0.99	2.990000	5.98
476	4.99	2.99	3.990000	7.98
477	2.99	2.99	2.990000	2.99
479	7.99	3.99	5.990000	11.98
480	9.99	0.99	5.990000	17.97
481	5.99	5.99	5.990000	5.99
482	8.99	0.99	4.323333	12.97
483	6.99	6.99	6.990000	6.99
484	4.99	2.99	3.656667	10.97
485	2.99	2.99	2.990000	2.99
486	8.99	0.99	4.323333	12.97
489	4.99	2.99	3.990000	7.98

customer_id	max_amount	min_amount	avg_amount	total_amount
490	6.99	4.99	5.990000	11.98
491	2.99	0.99	1.990000	3.98
492	2.99	2.99	2.990000	2.99
493	7.99	7.99	7.990000	7.99
494	4.99	4.99	4.990000	4.99
495	4.99	4.99	4.990000	9.98
496	4.99	0.99	2.990000	5.98
497	7.99	7.99	7.990000	7.99
498	8.99	2.99	4.990000	14.97
499	2.99	2.99	2.990000	2.99
500	8.99	0.99	6.323333	18.97
501	1.99	0.99	1.490000	2.98
502	2.99	0.99	1.990000	7.96
503	5.99	1.99	3.990000	15.96
504	5.99	4.99	5.323333	15.97
505	2.99	2.99	2.990000	5.98
506	8.99	0.99	4.132857	28.93
507	4.99	0.99	2.990000	5.98
508	2.99	2.99	2.990000	5.98
509	8.99	4.99	6.990000	13.98
510	8.99	4.99	6.656667	19.97
511	3.99	2.99	3.490000	6.98
513	4.99	4.99	4.990000	4.99
514	4.99	4.99	4.990000	4.99
515	8.99	6.99	7.990000	15.98
516	3.99	1.99	2.990000	5.98
517	4.99	4.99	4.990000	4.99
518	2.99	2.99	2.990000	2.99
519	3.99	3.99	3.990000	3.99
520	6.99	6.99	6.990000	6.99
522	5.99	5.99	5.990000	5.99
523	4.99	0.99	2.990000	5.98
524	4.99	0.99	2.990000	5.98
525	5.99	5.99	5.990000	5.99

customer_id	max_amount	min_amount	avg_amount	total_amount
526	4.99	2.99	4.323333	12.97
528	5.99	0.99	3.590000	17.95
529	2.99	2.99	2.990000	2.99
530	0.99	0.99	0.990000	0.99
531	4.99	2.99	3.990000	7.98
532	2.99	2.99	2.990000	2.99
533	5.99	0.99	2.990000	8.97
534	5.99	0.99	3.490000	6.98
535	4.99	0.99	3.240000	12.96
536	6.99	0.99	3.990000	7.98
537	4.99	4.99	4.990000	4.99
538	4.99	2.99	3.990000	7.98
539	4.99	0.99	2.990000	5.98
541	7.99	4.99	6.490000	12.98
542	4.99	4.99	4.990000	9.98
543	6.99	1.99	4.490000	8.98
544	2.99	2.99	2.990000	5.98
545	3.99	0.99	2.490000	4.98
546	6.99	5.99	6.490000	12.98
547	8.99	0.99	3.990000	11.97
548	6.99	3.99	5.323333	15.97
549	4.99	0.99	3.740000	14.96
550	7.99	7.99	7.990000	7.99
551	7.99	0.99	4.190000	20.95
552	0.99	0.99	0.990000	0.99
553	4.99	4.99	4.990000	4.99
554	2.99	2.99	2.990000	5.98
556	5.99	0.99	3.656667	10.97
557	4.99	4.99	4.990000	9.98
560	2.99	2.99	2.990000	2.99
561	4.99	4.99	4.990000	9.98
562	5.99	2.99	3.990000	11.97
563	5.99	4.99	5.490000	10.98
564	5.99	2.99	4.490000	8.98

customer_id	max_amount	min_amount	avg_amount	total_amount
565	6.99	0.99	3.990000	7.98
566	5.99	4.99	5.490000	10.98
569	4.99	1.99	4.190000	20.95
570	7.99	7.99	7.990000	7.99
571	9.99	3.99	6.990000	13.98
572	7.99	7.99	7.990000	7.99
573	2.99	2.99	2.990000	2.99
574	0.99	0.99	0.990000	0.99
575	4.99	0.99	3.390000	16.95
576	2.99	0.99	1.990000	3.98
577	5.99	0.99	3.490000	6.98
578	0.99	0.99	0.990000	0.99
580	0.99	0.99	0.990000	0.99
581	4.99	4.99	4.990000	9.98
582	0.99	0.99	0.990000	0.99
584	4.99	4.99	4.990000	14.97
586	8.99	4.99	6.990000	13.98
587	4.99	0.99	2.990000	5.98
588	4.99	2.99	3.990000	7.98
589	4.99	0.99	3.656667	10.97
590	3.99	3.99	3.990000	3.99
593	8.99	2.99	5.990000	11.98
594	8.99	0.99	5.490000	21.96
595	6.99	6.99	6.990000	6.99
596	6.99	0.99	3.823333	22.94
597	8.99	2.99	5.990000	11.98
599	4.99	4.99	4.990000	4.99

Exercise 7.2

```
result <- dbGetQuery(con, "
  SELECT customer_id,
    MAX(amount) AS max_amount,
    MIN(amount) AS min_amount,
    AVG(amount) AS avg_amount,
```

```

    SUM(amount) AS total_amount
  FROM payment
  GROUP BY customer_id
  HAVING COUNT(*) > 5;
")
knitr::kable(result)

```

customer_id	max_amount	min_amount	avg_amount	total_amount
19	9.99	0.99	4.490000	26.94
53	9.99	0.99	4.490000	26.94
109	7.99	0.99	3.990000	27.93
161	5.99	0.99	2.990000	17.94
197	3.99	0.99	2.615000	20.92
207	6.99	0.99	2.990000	17.94
239	7.99	2.99	5.656667	33.94
245	8.99	0.99	4.823333	28.94
251	4.99	1.99	3.323333	19.94
269	6.99	0.99	3.156667	18.94
274	5.99	2.99	4.156667	24.94
371	6.99	0.99	4.323333	25.94
506	8.99	0.99	4.132857	28.93
596	6.99	0.99	3.823333	22.94

```
dbDisconnect(con)
```