

# RWorksheet\_Leysa#2

Camilo Leysa

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#Problem 1# a.

```
Sequence <- -5:5  
print(Sequence)
```

```
## [1] -5 -4 -3 -2 -1 0 1 2 3 4 5
```

b.

```
x <-1:7  
print(x)
```

```
## [1] 1 2 3 4 5 6 7
```

#Problem 2#

```
seq_function <-seq(1,3, by=0.2)  
print(seq_function)
```

```
## [1] 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0
```

#Problem 3# a.

```
workers_age <- c(34,28,22,36,27,18,52,39,42,29,35,31,27,22,37,34,19,20,57,49,50,37,46,25,17,37,43,53,41)  
print(workers_age)
```

```
## [1] 34 28 22 36 27 18 52 39 42 29 35 31 27 22 37 34 19 20 57 49 50 37 46 25 17  
## [26] 37 43 53 41 51 35 24 33 41 53 40 18 44 38 41 48 27 39 19 30 61 54 58 26 18
```

```
third <- workers_age[3]  
print(third)
```

```
## [1] 22
```

b.

```
second_and_fourth <- workers_age[c(2,4)]
print(second_and_fourth)
```

```
## [1] 28 36
```

c.

```
access_all <- workers_age[-c(4,12)]
print(access_all)
```

```
## [1] 34 28 22 27 18 52 39 42 29 35 27 22 37 34 19 20 57 49 50 37 46 25 17 37 43
## [26] 53 41 51 35 24 33 41 53 40 18 44 38 41 48 27 39 19 30 61 54 58 26 18
```

#Problem 4# a.

```
x <- c("first"=3, "second"=0, "third"=9)
names(x)
```

```
## [1] "first" "second" "third"
```

```
print(x)
```

```
## first second third
##      3      0      9
```

```
result <- x[c("first", "third")]
print(result)
```

```
## first third
##      3      9
```

#Problem 5#

```
x <- -3:2
x[2] <- 0
x
```

```
## [1] -3  0 -1  0  1  2
```

#Problem 6# a.

```
months <- c("Jan", "Feb", "March", "Apr", "May", "June")
price_per_liter <- c(52.50,57.25,60.00,65.00,74.25, 54.00)
purchase_quantity_Liters<- c(25,30,40,50,10,45)
data_frame_diesel <-data.frame(Month=months,
Price_per_Liter=price_per_liter,
Purchase_Quantity_Liters= purchase_quantity_Liters)
print(data_frame_diesel)
```

```
##   Month Price_per_Liter Purchase_Quantity_Liters
## 1   Jan           52.50                25
## 2   Feb           57.25                30
## 3 March           60.00                40
## 4   Apr           65.00                50
## 5   May           74.25                10
## 6   June          54.00                45
```

b.

```
weighted.mean(purchase_quantity_Liters)
```

```
## [1] 33.33333
```

#Problem 7# a.

```
data <- c(length(rivers), sum(rivers), mean(rivers), median(rivers), var(rivers), sd(rivers), min(rivers),
data
```

```
## [1] 141.0000 83357.0000 591.1844 425.0000 243908.4086 493.8708
## [7] 135.0000 3710.0000
```

#Problem 8# a.

```
celebrity_ranking<-data.frame(Power_Ranking= c(1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22),
Celebrity_Name= c("Tom Cruise", "Rolling Stones", "Oprah Winfrey", "U2", "Tiger Woods", "Steven Spielberg",
Pay= c(67,90,225,110,90,332,302,41,52,88,55,44,55,40,233,34,40,47,75,25,39,45,32,40,31))
celebrity_ranking
```

```
##   Power_Ranking   Celebrity_Name Pay
## 1             1      Tom Cruise  67
## 2             2    Rolling Stones  90
## 3             3    Oprah Winfrey 225
## 4             4              U2 110
## 5             5      Tiger Woods  90
## 6             6  Steven Spielberg 332
## 7             7    Howard Stern 302
## 8             8        50 Cent  41
## 9             9 Cast of the Sopranos 52
## 10            10      Dan Brown  88
## 11            11  Bruce Springsteen 55
## 12            12    Donald Trump  44
## 13            13    Muhammad Ali  55
## 14            14    Paul McCartney 40
## 15            15    George Lucas 233
## 16            16    Elton John  34
## 17            17  David Letterman 40
## 18            18    Phil Mickelson 47
## 19            19    J.K Rowling  75
## 20            20    Bradd Pitt  25
```

```
## 21      21      Peter Jackson 39
## 22      22      Dr. Phil McGraw 45
## 23      23      Jay Lenon 32
## 24      24      Celine Dion 40
## 25      25      Kobe Bryant 31
```

b.

```
celebrity_ranking[celebrity_ranking$Celebrity_Name == "J.K Rowling", c("Power_Ranking", "Pay")] <- c(15)
print(celebrity_ranking)
```

```
##      Power_Ranking      Celebrity_Name Pay
## 1      1      Tom Cruise 67
## 2      2      Rolling Stones 90
## 3      3      Oprah Winfrey 225
## 4      4      U2 110
## 5      5      Tiger Woods 90
## 6      6      Steven Spielberg 332
## 7      7      Howard Stern 302
## 8      8      50 Cent 41
## 9      9      Cast of the Sopranos 52
## 10     10      Dan Brown 88
## 11     11      Bruce Springsteen 55
## 12     12      Donald Trump 44
## 13     13      Muhammad Ali 55
## 14     14      Paul McCartney 40
## 15     15      George Lucas 233
## 16     16      Elton John 34
## 17     17      David Letterman 40
## 18     18      Phil Mickelson 47
## 19     15      J.K Rowling 90
## 20     20      Bradd Pitt 25
## 21     21      Peter Jackson 39
## 22     22      Dr. Phil McGraw 45
## 23     23      Jay Lenon 32
## 24     24      Celine Dion 40
## 25     25      Kobe Bryant 31
```

c.

```
ranked_data <- read.csv("PowerRanking.csv")
print(ranked_data)
```

```
##      Power.Ranking      Celebrity.Name Pay
## 1      NA      NA      NA
## 2      1      Tom Cruise 67
## 3      2      Rolling Stones 90
## 4      3      Oprah Winfrey 225
## 5      4      U2 110
## 6      5      Tiger Woods 90
## 7      6      Steven Spielberg 332
## 8      7      Howard Stern 302
```

```
## 9      8      50 Cent  41
## 10     9 Cast of the Sopranos 52
## 11    10      Dan Brown 88
## 12    11 Bruce Springsteen 55
## 13    12      Donald Trump 44
## 14    13      Muhammad Ali 55
## 15    14      Paul McCartney 40
## 16    15      George Lucas 233
## 17    16      Elton John 34
## 18    17      David Letterman 40
## 19    18      Phil Mickelson 47
## 20    19      J.K Rowling 75
## 21    20      Bradd Pitt 25
## 22    21      Peter Jackson 39
## 23    22      Dr. Phil McGraw 45
## 24    23      Jay Lenon 32
## 25    24      Celine Dion 40
## 26    25      Kobe Bryant 31
```

d.

```
rows <- ranked_data[10:20,]
save(rows, file = "Ranks.RData")
print(rows)
```

```
##      Power.Ranking      Celebrity.Name Pay
## 10      9 Cast of the Sopranos 52
## 11     10      Dan Brown 88
## 12     11 Bruce Springsteen 55
## 13     12      Donald Trump 44
## 14     13      Muhammad Ali 55
## 15     14      Paul McCartney 40
## 16     15      George Lucas 233
## 17     16      Elton John 34
## 18     17      David Letterman 40
## 19     18      Phil Mickelson 47
## 20     19      J.K Rowling 75
```

#Problem 9# a.

```
library(openxlsx)
hotels_data <- read.xlsx("hotels-vienna.xlsx")
hotels_data
```

```
##      country city_actual rating_count center1label center2label
## 1  Austria      Vienna          36 City centre Donauturm
## 2  Austria      Vienna         189 City centre Donauturm
## 3  Austria      Vienna          53 City centre Donauturm
## 4  Austria      Vienna          55 City centre Donauturm
## 5  Austria      Vienna          33 City centre Donauturm
## 6  Austria      Vienna          25 City centre Donauturm
## 7  Austria      Vienna          57 City centre Donauturm
```

## 8	Austria	Vienna	161	City centre	Donauturm
## 9	Austria	Vienna	50	City centre	Donauturm
## 10	Austria	Vienna	NA	City centre	Donauturm
## 11	Austria	Vienna	203	City centre	Donauturm
## 12	Austria	Vienna	251	City centre	Donauturm
## 13	Austria	Vienna	142	City centre	Donauturm
## 14	Austria	Vienna	8	City centre	Donauturm
## 15	Austria	Vienna	NA	City centre	Donauturm
## 16	Austria	Vienna	18	City centre	Donauturm
## 17	Austria	Vienna	20	City centre	Donauturm
## 18	Austria	Vienna	77	City centre	Donauturm
## 19	Austria	Vienna	76	City centre	Donauturm
## 20	Austria	Vienna	NA	City centre	Donauturm
## 21	Austria	Vienna	5	City centre	Donauturm
## 22	Austria	Vienna	77	City centre	Donauturm
## 23	Austria	Vienna	193	City centre	Donauturm
## 24	Austria	Vienna	94	City centre	Donauturm
## 25	Austria	Vienna	1	City centre	Donauturm
## 26	Austria	Vienna	5	City centre	Donauturm
## 27	Austria	Vienna	178	City centre	Donauturm
## 28	Austria	Vienna	330	City centre	Donauturm
## 29	Austria	Vienna	6	City centre	Donauturm
## 30	Austria	Vienna	194	City centre	Donauturm
## 31	Austria	Vienna	9	City centre	Donauturm
## 32	Austria	Vienna	3	City centre	Donauturm
## 33	Austria	Vienna	1	City centre	Donauturm
## 34	Austria	Vienna	NA	City centre	Donauturm
## 35	Austria	Vienna	441	City centre	Donauturm
## 36	Austria	Vienna	1122	City centre	Donauturm
## 37	Austria	Vienna	362	City centre	Donauturm
## 38	Austria	Vienna	2	City centre	Donauturm
## 39	Austria	Vienna	525	City centre	Donauturm
## 40	Austria	Vienna	1	City centre	Donauturm
## 41	Austria	Vienna	113	City centre	Donauturm
## 42	Austria	Vienna	71	City centre	Donauturm
## 43	Austria	Vienna	1	City centre	Donauturm
## 44	Austria	Vienna	22	City centre	Donauturm
## 45	Austria	Vienna	366	City centre	Donauturm
## 46	Austria	Vienna	NA	City centre	Donauturm
## 47	Austria	Vienna	821	City centre	Donauturm
## 48	Austria	Vienna	16	City centre	Donauturm
## 49	Austria	Vienna	23	City centre	Donauturm
## 50	Austria	Vienna	38	City centre	Donauturm
## 51	Austria	Fischamend	366	City centre	Donauturm
## 52	Austria	Vienna	77	City centre	Donauturm
## 53	Austria	Vienna	27	City centre	Donauturm
## 54	Austria	Vienna	144	City centre	Donauturm
## 55	Austria	Vienna	184	City centre	Donauturm
## 56	Austria	Vienna	78	City centre	Donauturm
## 57	Austria	Vienna	319	City centre	Donauturm
## 58	Austria	Vienna	73	City centre	Donauturm
## 59	Austria	Vienna	81	City centre	Donauturm
## 60	Austria	Vienna	271	City centre	Donauturm
## 61	Austria	Vienna	211	City centre	Donauturm

## 62	Austria	Vienna	5	City centre	Donauturm
## 63	Austria	Vienna	316	City centre	Donauturm
## 64	Austria	Vienna	28	City centre	Donauturm
## 65	Austria	Vienna	336	City centre	Donauturm
## 66	Austria	Vienna	83	City centre	Donauturm
## 67	Austria	Vienna	NA	City centre	Donauturm
## 68	Austria	Vienna	88	City centre	Donauturm
## 69	Austria	Vienna	140	City centre	Donauturm
## 70	Austria	Vienna	391	City centre	Donauturm
## 71	Austria	Vienna	320	City centre	Donauturm
## 72	Austria	Vienna	21	City centre	Donauturm
## 73	Austria	Vienna	193	City centre	Donauturm
## 74	Austria	Vienna	75	City centre	Donauturm
## 75	Austria	Vienna	35	City centre	Donauturm
## 76	Austria	Vienna	NA	City centre	Donauturm
## 77	Austria	Vienna	NA	City centre	Donauturm
## 78	Austria	Vienna	505	City centre	Donauturm
## 79	Austria	Vienna	386	City centre	Donauturm
## 80	Austria	Vienna	109	City centre	Donauturm
## 81	Austria	Vienna	626	City centre	Donauturm
## 82	Austria	Vienna	334	City centre	Donauturm
## 83	Austria	Vienna	NA	City centre	Donauturm
## 84	Austria	Vienna	NA	City centre	Donauturm
## 85	Austria	Vienna	NA	City centre	Donauturm
## 86	Austria	Vienna	NA	City centre	Donauturm
## 87	Austria	Vienna	11	City centre	Donauturm
## 88	Austria	Vienna	150	City centre	Donauturm
## 89	Austria	Vienna	531	City centre	Donauturm
## 90	Austria	Vienna	253	City centre	Donauturm
## 91	Austria	Vienna	47	City centre	Donauturm
## 92	Austria	Vienna	19	City centre	Donauturm
## 93	Austria	Vienna	124	City centre	Donauturm
## 94	Austria	Vienna	115	City centre	Donauturm
## 95	Austria	Vienna	110	City centre	Donauturm
## 96	Austria	Vienna	16	City centre	Donauturm
## 97	Austria	Vienna	467	City centre	Donauturm
## 98	Austria	Vienna	NA	City centre	Donauturm
## 99	Austria	Vienna	650	City centre	Donauturm
## 100	Austria	Vienna	95	City centre	Donauturm
## 101	Austria	Vienna	564	City centre	Donauturm
## 102	Austria	Vienna	168	City centre	Donauturm
## 103	Austria	Vienna	NA	City centre	Donauturm
## 104	Austria	Vienna	175	City centre	Donauturm
## 105	Austria	Vienna	NA	City centre	Donauturm
## 106	Austria	Vienna	426	City centre	Donauturm
## 107	Austria	Vienna	1	City centre	Donauturm
## 108	Austria	Vienna	148	City centre	Donauturm
## 109	Austria	Vienna	163	City centre	Donauturm
## 110	Austria	Vienna	493	City centre	Donauturm
## 111	Austria	Vienna	56	City centre	Donauturm
## 112	Austria	Vienna	247	City centre	Donauturm
## 113	Austria	Vienna	169	City centre	Donauturm
## 114	Austria	Vienna	1	City centre	Donauturm
## 115	Austria	Vienna	599	City centre	Donauturm

## 116	Austria	Vienna	258	City centre	Donauturm
## 117	Austria	Vienna	703	City centre	Donauturm
## 118	Austria	Vienna	230	City centre	Donauturm
## 119	Austria	Vienna	112	City centre	Donauturm
## 120	Austria	Vienna	278	City centre	Donauturm
## 121	Austria	Vienna	NA	City centre	Donauturm
## 122	Austria	Vienna	81	City centre	Donauturm
## 123	Austria	Vienna	NA	City centre	Donauturm
## 124	Austria	Vienna	15	City centre	Donauturm
## 125	Austria	Vienna	203	City centre	Donauturm
## 126	Austria	Vienna	150	City centre	Donauturm
## 127	Austria	Vienna	NA	City centre	Donauturm
## 128	Austria	Vienna	NA	City centre	Donauturm
## 129	Austria	Vienna	404	City centre	Donauturm
## 130	Austria	Vienna	123	City centre	Donauturm
## 131	Austria	Vienna	653	City centre	Donauturm
## 132	Austria	Vienna	NA	City centre	Donauturm
## 133	Austria	Vienna	388	City centre	Donauturm
## 134	Austria	Vienna	1	City centre	Donauturm
## 135	Austria	Vienna	230	City centre	Donauturm
## 136	Austria	Vienna	69	City centre	Donauturm
## 137	Austria	Vienna	34	City centre	Donauturm
## 138	Austria	Vienna	6	City centre	Donauturm
## 139	Austria	Vienna	102	City centre	Donauturm
## 140	Austria	Vienna	65	City centre	Donauturm
## 141	Austria	Vienna	9	City centre	Donauturm
## 142	Austria	Vienna	11	City centre	Donauturm
## 143	Austria	Vienna	51	City centre	Donauturm
## 144	Austria	Vienna	298	City centre	Donauturm
## 145	Austria	Vienna	354	City centre	Donauturm
## 146	Austria	Vienna	92	City centre	Donauturm
## 147	Austria	Vienna	66	City centre	Donauturm
## 148	Austria	Vienna	NA	City centre	Donauturm
## 149	Austria	Vienna	128	City centre	Donauturm
## 150	Austria	Vienna	530	City centre	Donauturm
## 151	Austria	Vienna	342	City centre	Donauturm
## 152	Austria	Vienna	194	City centre	Donauturm
## 153	Austria	Vienna	1	City centre	Donauturm
## 154	Austria	Vienna	63	City centre	Donauturm
## 155	Austria	Vienna	67	City centre	Donauturm
## 156	Austria	Vienna	84	City centre	Donauturm
## 157	Austria	Vienna	30	City centre	Donauturm
## 158	Austria	Vienna	169	City centre	Donauturm
## 159	Austria	Vienna	65	City centre	Donauturm
## 160	Austria	Vienna	91	City centre	Donauturm
## 161	Austria	Vienna	1	City centre	Donauturm
## 162	Austria	Vienna	765	City centre	Donauturm
## 163	Austria	Vienna	80	City centre	Donauturm
## 164	Austria	Vienna	43	City centre	Donauturm
## 165	Austria	Vienna	78	City centre	Donauturm
## 166	Austria	Vienna	184	City centre	Donauturm
## 167	Austria	Vienna	276	City centre	Donauturm
## 168	Austria	Vienna	313	City centre	Donauturm
## 169	Austria	Vienna	323	City centre	Donauturm



## 170	Austria	Vienna	NA	City centre	Donauturm
## 171	Austria	Vienna	90	City centre	Donauturm
## 172	Austria	Vienna	140	City centre	Donauturm
## 173	Austria	Vienna	512	City centre	Donauturm
## 174	Austria	Vienna	NA	City centre	Donauturm
## 175	Austria	Vienna	340	City centre	Donauturm
## 176	Austria	Vienna	34	City centre	Donauturm
## 177	Austria	Vienna	26	City centre	Donauturm
## 178	Austria	Vienna	NA	City centre	Donauturm
## 179	Austria	Vienna	97	City centre	Donauturm
## 180	Austria	Vienna	11	City centre	Donauturm
## 181	Austria	Vienna	15	City centre	Donauturm
## 182	Austria	Vienna	84	City centre	Donauturm
## 183	Austria	Vienna	152	City centre	Donauturm
## 184	Austria	Vienna	3	City centre	Donauturm
## 185	Austria	Vienna	25	City centre	Donauturm
## 186	Austria	Vienna	181	City centre	Donauturm
## 187	Austria	Vienna	359	City centre	Donauturm
## 188	Austria	Vienna	160	City centre	Donauturm
## 189	Austria	Vienna	303	City centre	Donauturm
## 190	Austria	Vienna	254	City centre	Donauturm
## 191	Austria	Vienna	173	City centre	Donauturm
## 192	Austria	Vienna	114	City centre	Donauturm
## 193	Austria	Vienna	249	City centre	Donauturm
## 194	Austria	Vienna	1	City centre	Donauturm
## 195	Austria	Vienna	6	City centre	Donauturm
## 196	Austria	Vienna	13	City centre	Donauturm
## 197	Austria	Vienna	18	City centre	Donauturm
## 198	Austria	Vienna	497	City centre	Donauturm
## 199	Austria	Vienna	503	City centre	Donauturm
## 200	Austria	Vienna	70	City centre	Donauturm
## 201	Austria	Vienna	109	City centre	Donauturm
## 202	Austria	Vienna	171	City centre	Donauturm
## 203	Austria	Vienna	79	City centre	Donauturm
## 204	Austria	Vienna	13	City centre	Donauturm
## 205	Austria	Vienna	281	City centre	Donauturm
## 206	Austria	Vienna	108	City centre	Donauturm
## 207	Austria	Vienna	267	City centre	Donauturm
## 208	Austria	Vienna	183	City centre	Donauturm
## 209	Austria	Vienna	5	City centre	Donauturm
## 210	Austria	Vienna	136	City centre	Donauturm
## 211	Austria	Vienna	11	City centre	Donauturm
## 212	Austria	Vienna	242	City centre	Donauturm
## 213	Austria	Vienna	81	City centre	Donauturm
## 214	Austria	Vienna	16	City centre	Donauturm
## 215	Austria	Vienna	6	City centre	Donauturm
## 216	Austria	Vienna	122	City centre	Donauturm
## 217	Austria	Vienna	250	City centre	Donauturm
## 218	Austria	Vienna	603	City centre	Donauturm
## 219	Austria	Vienna	25	City centre	Donauturm
## 220	Austria	Vienna	52	City centre	Donauturm
## 221	Austria	Vienna	152	City centre	Donauturm
## 222	Austria	Vienna	293	City centre	Donauturm
## 223	Austria	Vienna	1	City centre	Donauturm

## 224	Austria	Vienna	84	City centre	Donauturm
## 225	Austria	Vienna	208	City centre	Donauturm
## 226	Austria	Vienna	29	City centre	Donauturm
## 227	Austria	Vienna	57	City centre	Donauturm
## 228	Austria	Vienna	267	City centre	Donauturm
## 229	Austria	Vienna	275	City centre	Donauturm
## 230	Austria	Vienna	23	City centre	Donauturm
## 231	Austria	Vienna	NA	City centre	Donauturm
## 232	Austria	Vienna	240	City centre	Donauturm
## 233	Austria	Vienna	374	City centre	Donauturm
## 234	Austria	Vienna	468	City centre	Donauturm
## 235	Austria	Vienna	422	City centre	Donauturm
## 236	Austria	Vienna	307	City centre	Donauturm
## 237	Austria	Vienna	2	City centre	Donauturm
## 238	Austria	Vienna	527	City centre	Donauturm
## 239	Austria	Vienna	637	City centre	Donauturm
## 240	Austria	Vienna	461	City centre	Donauturm
## 241	Austria	Vienna	3	City centre	Donauturm
## 242	Austria	Vienna	104	City centre	Donauturm
## 243	Austria	Vienna	90	City centre	Donauturm
## 244	Austria	Vienna	75	City centre	Donauturm
## 245	Austria	Vienna	139	City centre	Donauturm
## 246	Austria	Vienna	NA	City centre	Donauturm
## 247	Austria	Vienna	41	City centre	Donauturm
## 248	Austria	Vienna	122	City centre	Donauturm
## 249	Austria	Vienna	6	City centre	Donauturm
## 250	Austria	Vienna	NA	City centre	Donauturm
## 251	Austria	Vienna	137	City centre	Donauturm
## 252	Austria	Vienna	144	City centre	Donauturm
## 253	Austria	Vienna	80	City centre	Donauturm
## 254	Austria	Vienna	11	City centre	Donauturm
## 255	Austria	Vienna	58	City centre	Donauturm
## 256	Austria	Vienna	NA	City centre	Donauturm
## 257	Austria	Vienna	303	City centre	Donauturm
## 258	Austria	Vienna	NA	City centre	Donauturm
## 259	Austria	Vienna	82	City centre	Donauturm
## 260	Austria	Vienna	248	City centre	Donauturm
## 261	Austria	Vienna	151	City centre	Donauturm
## 262	Austria	Vienna	7	City centre	Donauturm
## 263	Austria	Vienna	2	City centre	Donauturm
## 264	Austria	Vienna	3	City centre	Donauturm
## 265	Austria	Vienna	85	City centre	Donauturm
## 266	Austria	Vienna	3	City centre	Donauturm
## 267	Austria	Vienna	258	City centre	Donauturm
## 268	Austria	Vienna	13	City centre	Donauturm
## 269	Austria	Vienna	95	City centre	Donauturm
## 270	Austria	Vienna	44	City centre	Donauturm
## 271	Austria	Vienna	125	City centre	Donauturm
## 272	Austria	Vienna	5	City centre	Donauturm
## 273	Austria	Vienna	161	City centre	Donauturm
## 274	Austria	Vienna	210	City centre	Donauturm
## 275	Austria	Vienna	264	City centre	Donauturm
## 276	Austria	Vienna	49	City centre	Donauturm
## 277	Austria	Vienna	162	City centre	Donauturm

## 278 Austria	Vienna	581	City centre	Donauturm
## 279 Austria	Vienna	55	City centre	Donauturm
## 280 Austria	Vienna	39	City centre	Donauturm
## 281 Austria	Vienna	484	City centre	Donauturm
## 282 Austria	Vienna	NA	City centre	Donauturm
## 283 Austria	Vienna	NA	City centre	Donauturm
## 284 Austria	Vienna	10	City centre	Donauturm
## 285 Austria	Vienna	45	City centre	Donauturm
## 286 Austria	Vienna	98	City centre	Donauturm
## 287 Austria	Vienna	239	City centre	Donauturm
## 288 Austria	Vienna	170	City centre	Donauturm
## 289 Austria	Vienna	100	City centre	Donauturm
## 290 Austria	Vienna	310	City centre	Donauturm
## 291 Austria	Vienna	305	City centre	Donauturm
## 292 Austria	Vienna	105	City centre	Donauturm
## 293 Austria	Vienna	6	City centre	Donauturm
## 294 Austria	Vienna	1	City centre	Donauturm
## 295 Austria	Vienna	141	City centre	Donauturm
## 296 Austria	Vienna	14	City centre	Donauturm
## 297 Austria	Vienna	6	City centre	Donauturm
## 298 Austria	Vienna	328	City centre	Donauturm
## 299 Austria	Vienna	123	City centre	Donauturm
## 300 Austria	Vienna	181	City centre	Donauturm
## 301 Austria	Vienna	77	City centre	Donauturm
## 302 Austria	Vienna	308	City centre	Donauturm
## 303 Austria	Vienna	54	City centre	Donauturm
## 304 Austria	Vienna	544	City centre	Donauturm
## 305 Austria	Vienna	359	City centre	Donauturm
## 306 Austria	Vienna	3	City centre	Donauturm
## 307 Austria	Vienna	NA	City centre	Donauturm
## 308 Austria	Vienna	98	City centre	Donauturm
## 309 Austria	Vienna	54	City centre	Donauturm
## 310 Austria	Vienna	22	City centre	Donauturm
## 311 Austria	Vienna	4	City centre	Donauturm
## 312 Austria	Vienna	69	City centre	Donauturm
## 313 Austria	Vienna	17	City centre	Donauturm
## 314 Austria	Vienna	83	City centre	Donauturm
## 315 Austria	Vienna	36	City centre	Donauturm
## 316 Austria	Vienna	NA	City centre	Donauturm
## 317 Austria	Vienna	153	City centre	Donauturm
## 318 Austria	Vienna	136	City centre	Donauturm
## 319 Austria	Vienna	17	City centre	Donauturm
## 320 Austria	Vienna	156	City centre	Donauturm
## 321 Austria	Vienna	81	City centre	Donauturm
## 322 Austria	Vienna	40	City centre	Donauturm
## 323 Austria	Vienna	54	City centre	Donauturm
## 324 Austria	Vienna	13	City centre	Donauturm
## 325 Austria	Vienna	225	City centre	Donauturm
## 326 Austria	Vienna	144	City centre	Donauturm
## 327 Austria	Vienna	2	City centre	Donauturm
## 328 Austria	Vienna	525	City centre	Donauturm
## 329 Austria	Vienna	113	City centre	Donauturm
## 330 Austria	Vienna	10	City centre	Donauturm
## 331 Austria	Vienna	2	City centre	Donauturm

## 332	Austria	Vienna	78	City centre	Donauturm
## 333	Austria	Vienna	69	City centre	Donauturm
## 334	Austria	Vienna	314	City centre	Donauturm
## 335	Austria	Vienna	134	City centre	Donauturm
## 336	Austria	Vienna	38	City centre	Donauturm
## 337	Austria	Vienna	65	City centre	Donauturm
## 338	Austria	Vienna	92	City centre	Donauturm
## 339	Austria	Vienna	100	City centre	Donauturm
## 340	Austria	Vienna	910	City centre	Donauturm
## 341	Austria	Vienna	79	City centre	Donauturm
## 342	Austria	Vienna	1541	City centre	Donauturm
## 343	Austria	Vienna	183	City centre	Donauturm
## 344	Austria	Vienna	30	City centre	Donauturm
## 345	Austria	Vienna	24	City centre	Donauturm
## 346	Austria	Vienna	18	City centre	Donauturm
## 347	Austria	Vienna	140	City centre	Donauturm
## 348	Austria	Vienna	14	City centre	Donauturm
## 349	Austria	Vienna	8	City centre	Donauturm
## 350	Austria	Schwechat	333	City centre	Donauturm
## 351	Austria	Schwechat	923	City centre	Donauturm
## 352	Austria	Schwechat	122	City centre	Donauturm
## 353	Austria	Schwechat	26	City centre	Donauturm
## 354	Austria	Schwechat	73	City centre	Donauturm
## 355	Austria	Schwechat	161	City centre	Donauturm
## 356	Austria	Schwechat	39	City centre	Donauturm
## 357	Austria	Vienna	NA	City centre	Donauturm
## 358	Austria	Vienna	2	City centre	Donauturm
## 359	Austria	Vienna	16	City centre	Donauturm
## 360	Austria	Vienna	124	City centre	Donauturm
## 361	Austria	Vienna	9	City centre	Donauturm
## 362	Austria	Vienna	33	City centre	Donauturm
## 363	Austria	Vienna	16	City centre	Donauturm
## 364	Austria	Vienna	57	City centre	Donauturm
## 365	Austria	Vienna	21	City centre	Donauturm
## 366	Austria	Vienna	160	City centre	Donauturm
## 367	Austria	Vienna	985	City centre	Donauturm
## 368	Austria	Vienna	69	City centre	Donauturm
## 369	Austria	Vienna	51	City centre	Donauturm
## 370	Austria	Vienna	NA	City centre	Donauturm
## 371	Austria	Vienna	72	City centre	Donauturm
## 372	Austria	Vienna	65	City centre	Donauturm
## 373	Austria	Vienna	147	City centre	Donauturm
## 374	Austria	Vienna	45	City centre	Donauturm
## 375	Austria	Vienna	50	City centre	Donauturm
## 376	Austria	Vienna	27	City centre	Donauturm
## 377	Austria	Vienna	2	City centre	Donauturm
## 378	Austria	Vienna	12	City centre	Donauturm
## 379	Austria	Vienna	26	City centre	Donauturm
## 380	Austria	Vienna	28	City centre	Donauturm
## 381	Austria	Vienna	30	City centre	Donauturm
## 382	Austria	Vienna	1	City centre	Donauturm
## 383	Austria	Vienna	12	City centre	Donauturm
## 384	Austria	Vienna	171	City centre	Donauturm
## 385	Austria	Vienna	34	City centre	Donauturm

##	386	Austria	Vienna	69	City centre	Donauturm		
##	387	Austria	Vienna	84	City centre	Donauturm		
##	388	Austria	Vienna	212	City centre	Donauturm		
##	389	Austria	Vienna	15	City centre	Donauturm		
##	390	Austria	Vienna	12	City centre	Donauturm		
##	391	Austria	Vienna	89	City centre	Donauturm		
##	392	Austria	Vienna	74	City centre	Donauturm		
##	393	Austria	Vienna	3	City centre	Donauturm		
##	394	Austria	Vienna	44	City centre	Donauturm		
##	395	Austria	Vienna	6	City centre	Donauturm		
##	396	Austria	Vienna	3	City centre	Donauturm		
##	397	Austria	Vienna	2	City centre	Donauturm		
##	398	Austria	Vienna	44	City centre	Donauturm		
##	399	Austria	Vienna	35	City centre	Donauturm		
##	400	Austria	Voesendorf	38	City centre	Donauturm		
##	401	Austria	Voesendorf	115	City centre	Donauturm		
##	402	Austria	Vienna	186	City centre	Donauturm		
##	403	Austria	Vienna	27	City centre	Donauturm		
##	404	Austria	Vienna	45	City centre	Donauturm		
##	405	Austria	Vienna	168	City centre	Donauturm		
##	406	Austria	Vienna	1	City centre	Donauturm		
##	407	Austria	Vienna	77	City centre	Donauturm		
##	408	Austria	Vienna	72	City centre	Donauturm		
##	409	Austria	Vienna	158	City centre	Donauturm		
##	410	Austria	Vienna	15	City centre	Donauturm		
##	411	Austria	Vienna	291	City centre	Donauturm		
##	412	Austria	Vienna	317	City centre	Donauturm		
##	413	Austria	Vienna	193	City centre	Donauturm		
##	414	Austria	Vienna	280	City centre	Donauturm		
##	415	Austria	Vienna	47	City centre	Donauturm		
##	416	Austria	Vienna	7	City centre	Donauturm		
##	417	Austria	Vienna	125	City centre	Donauturm		
##	418	Austria	Vienna	34	City centre	Donauturm		
##	419	Austria	Vienna	112	City centre	Donauturm		
##	420	Austria	Vienna	1	City centre	Donauturm		
##	421	Austria	Vienna	77	City centre	Donauturm		
##	422	Austria	Vienna	572	City centre	Donauturm		
##	423	Austria	Vienna	53	City centre	Donauturm		
##	424	Austria	Vienna	2	City centre	Donauturm		
##	425	Austria	Vienna	145	City centre	Donauturm		
##	426	Austria	Vienna	112	City centre	Donauturm		
##	427	Austria	Vienna	169	City centre	Donauturm		
##	428	Austria	Vienna	80	City centre	Donauturm		
##		neighbourhood	price	city	stars	ratingta	ratingta_count	scarce_room
##	1	17. Hernals	81	Vienna	4.0	4.5	216	1
##	2	17. Hernals	81	Vienna	4.0	3.5	708	0
##	3	Alsergrund	85	Vienna	4.0	3.5	629	0
##	4	Alsergrund	83	Vienna	3.0	4.0	52	0
##	5	Alsergrund	82	Vienna	4.0	3.5	219	1
##	6	Alsergrund	229	Vienna	5.0	4.5	27	1
##	7	Alsergrund	103	Vienna	4.0	3.5	251	1
##	8	Alsergrund	150	Vienna	4.0	4.5	617	0
##	9	Alsergrund	80	Vienna	2.0	3.5	146	1
##	10	Alsergrund	153	Vienna	3.0	NA	NA	1

## 11	Alsergrund	60	Vienna	4.0	4.0	359	1
## 12	Alsergrund	128	Vienna	4.0	4.0	829	0
## 13	Alsergrund	100	Vienna	4.0	4.0	55	1
## 14	Alsergrund	143	Vienna	2.0	NA	NA	1
## 15	Alsergrund	106	Vienna	2.5	2.0	74	1
## 16	Alsergrund	85	Vienna	4.0	4.0	62	0
## 17	Alsergrund	77	Vienna	3.0	3.5	97	0
## 18	Alsergrund	78	Vienna	3.0	3.5	120	1
## 19	Alsergrund	78	Vienna	3.0	3.5	161	1
## 20	Donaustadt	260	Vienna	3.5	5.0	2	1
## 21	Donaustadt	158	Vienna	3.0	4.5	72	1
## 22	Donaustadt	77	Vienna	3.0	4.0	158	1
## 23	Donaustadt	77	Vienna	3.0	3.0	91	0
## 24	Donaustadt	95	Vienna	4.0	4.0	228	0
## 25	Donaustadt	156	Vienna	3.0	NA	NA	1
## 26	Donaustadt	145	Vienna	3.0	4.5	205	1
## 27	Donaustadt	208	Vienna	4.0	4.0	1085	1
## 28	Donaustadt	87	Vienna	3.0	3.5	423	1
## 29	Favoriten	131	Vienna	2.0	NA	NA	1
## 30	Favoriten	54	Vienna	3.0	4.0	522	0
## 31	Favoriten	139	Vienna	2.0	3.0	17	1
## 32	Favoriten	184	Vienna	2.0	NA	NA	1
## 33	Favoriten	127	Vienna	3.0	NA	NA	1
## 34	Favoriten	95	Vienna	3.0	NA	NA	1
## 35	Favoriten	99	Vienna	3.5	4.5	630	0
## 36	Favoriten	75	Vienna	3.5	4.5	573	0
## 37	Favoriten	76	Vienna	3.0	4.0	269	0
## 38	Favoriten	130	Vienna	2.0	NA	NA	1
## 39	Favoriten	91	Vienna	4.0	4.5	741	0
## 40	Favoriten	135	Vienna	2.0	NA	NA	1
## 41	Favoriten	56	Vienna	2.0	3.0	183	1
## 42	Favoriten	27	Vienna	2.0	3.5	216	1
## 43	Favoriten	88	Vienna	3.0	NA	NA	1
## 44	Favoriten	133	Vienna	2.0	NA	NA	1
## 45	Favoriten	33	Vienna	2.0	3.5	491	0
## 46	Favoriten	116	Vienna	3.5	NA	NA	0
## 47	Favoriten	71	Vienna	4.0	4.0	31	0
## 48	Favoriten	90	Vienna	3.5	NA	NA	1
## 49	Favoriten	84	Vienna	4.0	NA	NA	1
## 50	Favoriten	63	Vienna	3.0	NA	NA	0
## 51	Fischamend	59	Vienna	3.0	2.5	243	0
## 52	Graben	113	Vienna	3.0	4.0	259	0
## 53	Graben	218	Vienna	4.5	NA	NA	1
## 54	Graben	299	Vienna	5.0	4.5	702	1
## 55	Innere Stadt	156	Vienna	3.0	4.5	1347	1
## 56	Innere Stadt	513	Vienna	5.0	5.0	1126	1
## 57	Innere Stadt	133	Vienna	4.0	4.0	466	1
## 58	Innere Stadt	123	Vienna	4.0	3.5	47	1
## 59	Innere Stadt	219	Vienna	4.0	4.5	392	1
## 60	Innere Stadt	152	Vienna	4.0	4.0	261	0
## 61	Innere Stadt	115	Vienna	4.0	4.5	211	1
## 62	Innere Stadt	806	Vienna	5.0	4.5	114	0
## 63	Innere Stadt	138	Vienna	4.0	4.5	463	0
## 64	Innere Stadt	95	Vienna	3.0	NA	NA	1

## 65	Innere Stadt	146	Vienna	4.0	4.0	714	0
## 66	Innere Stadt	103	Vienna	3.0	4.0	159	0
## 67	Innere Stadt	125	Vienna	3.5	NA	NA	1
## 68	Innere Stadt	98	Vienna	3.0	3.5	66	1
## 69	Innere Stadt	121	Vienna	3.5	4.5	557	1
## 70	Innere Stadt	149	Vienna	4.0	4.0	1516	0
## 71	Innere Stadt	120	Vienna	3.0	3.5	515	0
## 72	Innere Stadt	157	Vienna	3.0	4.5	146	1
## 73	Innere Stadt	261	Vienna	5.0	5.0	945	1
## 74	Innere Stadt	145	Vienna	3.5	4.0	48	1
## 75	Innere Stadt	275	Vienna	4.0	4.0	16	1
## 76	Innere Stadt	253	Vienna	3.5	NA	NA	1
## 77	Innere Stadt	209	Vienna	4.0	NA	NA	1
## 78	Innere Stadt	112	Vienna	4.0	4.0	607	0
## 79	Innere Stadt	138	Vienna	4.0	4.0	273	0
## 80	Innere Stadt	84	Vienna	3.0	4.0	171	1
## 81	Innere Stadt	199	Vienna	4.5	4.5	3171	0
## 82	Innere Stadt	203	Vienna	5.0	4.5	917	0
## 83	Innere Stadt	116	Vienna	3.0	3.0	4	1
## 84	Innere Stadt	107	Vienna	3.5	NA	NA	1
## 85	Innere Stadt	127	Vienna	3.5	NA	NA	1
## 86	Innere Stadt	104	Vienna	3.5	NA	NA	1
## 87	Innere Stadt	168	Vienna	3.5	3.5	4	1
## 88	Innere Stadt	544	Vienna	5.0	4.5	1178	0
## 89	Innere Stadt	252	Vienna	5.0	4.5	1050	0
## 90	Innere Stadt	323	Vienna	5.0	4.5	1168	0
## 91	Innere Stadt	158	Vienna	3.0	4.0	232	1
## 92	Innere Stadt	156	Vienna	3.5	NA	NA	1
## 93	Innere Stadt	218	Vienna	4.0	5.0	1112	1
## 94	Innere Stadt	218	Vienna	4.0	4.5	475	0
## 95	Innere Stadt	135	Vienna	3.0	3.5	162	0
## 96	Innere Stadt	219	Vienna	2.0	NA	NA	1
## 97	Innere Stadt	179	Vienna	4.0	4.5	423	1
## 98	Innere Stadt	511	Vienna	3.5	NA	NA	1
## 99	Innere Stadt	157	Vienna	4.0	4.5	1380	0
## 100	Innere Stadt	146	Vienna	4.0	4.5	770	1
## 101	Innere Stadt	200	Vienna	5.0	4.0	1850	0
## 102	Innere Stadt	157	Vienna	4.0	4.0	392	1
## 103	Innere Stadt	138	Vienna	4.0	NA	NA	1
## 104	Innere Stadt	108	Vienna	3.0	3.5	234	1
## 105	Innere Stadt	290	Vienna	3.5	NA	NA	1
## 106	Innere Stadt	127	Vienna	4.0	4.0	840	0
## 107	Innere Stadt	114	Vienna	3.0	NA	NA	1
## 108	Innere Stadt	163	Vienna	4.0	4.0	388	1
## 109	Innere Stadt	116	Vienna	4.0	4.5	212	1
## 110	Innere Stadt	226	Vienna	5.0	4.5	2985	0
## 111	Innere Stadt	231	Vienna	4.0	4.5	282	0
## 112	Innere Stadt	116	Vienna	4.0	4.5	1274	1
## 113	Innere Stadt	76	Vienna	3.0	4.0	167	1
## 114	Innere Stadt	135	Vienna	3.5	NA	NA	1
## 115	Innere Stadt	184	Vienna	5.0	4.5	1330	0
## 116	Innere Stadt	384	Vienna	5.0	5.0	1207	0
## 117	Innere Stadt	166	Vienna	4.0	4.0	1592	1
## 118	Innere Stadt	187	Vienna	5.0	4.0	468	0

## 119	Innere Stadt	371	Vienna	5.0	4.5	1319	0
## 120	Innere Stadt	156	Vienna	4.0	4.5	272	1
## 121	Innere Stadt	220	Vienna	3.5	NA	NA	1
## 122	Innere Stadt	169	Vienna	4.0	4.5	561	1
## 123	Innere Stadt	103	Vienna	3.0	NA	NA	1
## 124	Innere Stadt	266	Vienna	5.0	NA	NA	1
## 125	Innere Stadt	131	Vienna	3.0	4.0	338	1
## 126	Innere Stadt	168	Vienna	4.0	4.5	154	1
## 127	Innere Stadt	101	Vienna	3.0	NA	NA	1
## 128	Innere Stadt	364	Vienna	3.5	NA	NA	1
## 129	Innere Stadt	242	Vienna	4.0	4.5	2165	0
## 130	Innere Stadt	223	Vienna	4.0	3.5	276	1
## 131	Innere Stadt	149	Vienna	4.0	4.5	930	1
## 132	Innere Stadt	232	Vienna	3.5	NA	NA	1
## 133	Innere Stadt	114	Vienna	4.0	4.0	836	0
## 134	Innere Stadt	253	Vienna	3.5	NA	NA	1
## 135	Innere Stadt	163	Vienna	4.0	4.5	203	1
## 136	Innere Stadt	116	Vienna	3.0	4.5	774	1
## 137	Innere Stadt	139	Vienna	4.0	3.5	54	1
## 138	Innere Stadt	91	Vienna	3.5	NA	NA	1
## 139	Josefstadt	79	Vienna	3.0	3.5	127	1
## 140	Josefstadt	66	Vienna	4.0	3.5	85	1
## 141	Josefstadt	100	Vienna	3.0	4.0	17	1
## 142	Josefstadt	75	Vienna	2.5	3.5	33	1
## 143	Josefstadt	73	Vienna	2.0	3.0	87	1
## 144	Josefstadt	127	Vienna	5.0	4.0	876	1
## 145	Josefstadt	110	Vienna	3.0	4.0	419	0
## 146	Josefstadt	88	Vienna	3.0	4.0	509	1
## 147	Josefstadt	59	Vienna	3.0	4.0	88	0
## 148	Josefstadt	355	Vienna	4.0	NA	NA	1
## 149	Josefstadt	59	Vienna	3.0	4.0	967	1
## 150	Josefstadt	119	Vienna	4.0	4.0	1358	0
## 151	Josefstadt	152	Vienna	4.0	4.0	1461	0
## 152	Josefstadt	102	Vienna	4.0	4.0	346	0
## 153	Josefstadt	363	Vienna	3.5	NA	NA	1
## 154	Josefstadt	54	Vienna	3.0	3.0	85	1
## 155	Josefstadt	101	Vienna	3.0	4.0	44	1
## 156	Josefstadt	75	Vienna	2.0	4.5	304	1
## 157	Josefstadt	73	Vienna	2.0	4.0	103	1
## 158	Josefstadt	94	Vienna	3.0	4.0	452	1
## 159	Josefstadt	64	Vienna	4.0	4.0	251	1
## 160	Josefstadt	81	Vienna	3.5	3.5	260	0
## 161	Josefstadt	162	Vienna	3.0	NA	NA	1
## 162	Josefstadt	115	Vienna	4.0	4.5	2150	0
## 163	Josefstadt	101	Vienna	4.0	4.5	90	1
## 164	Josefstadt	68	Vienna	3.0	3.5	182	1
## 165	Kaerntner Strasse	354	Vienna	5.0	4.5	1504	0
## 166	Kaerntner Strasse	153	Vienna	4.0	4.0	700	1
## 167	Kaerntner Strasse	202	Vienna	5.0	4.0	615	1
## 168	Kaerntner Strasse	169	Vienna	4.0	4.0	760	1
## 169	Kaerntner Strasse	182	Vienna	4.0	4.5	327	0
## 170	Kaerntner Strasse	193	Vienna	3.0	NA	NA	1
## 171	Kaerntner Strasse	138	Vienna	4.0	4.5	408	1
## 172	Kaerntner Strasse	527	Vienna	5.0	5.0	1748	1



## 173	Kaerntner Strasse	142	Vienna	4.0	4.0	837	0
## 174	Kaerntner Strasse	98	Vienna	3.5	NA	NA	1
## 175	Landstrasse	110	Vienna	4.0	4.5	2718	0
## 176	Landstrasse	82	Vienna	3.5	4.0	25	1
## 177	Landstrasse	91	Vienna	3.5	NA	NA	1
## 178	Landstrasse	150	Vienna	3.5	NA	NA	1
## 179	Landstrasse	83	Vienna	3.5	4.5	35	1
## 180	Landstrasse	95	Vienna	4.5	NA	NA	1
## 181	Landstrasse	131	Vienna	3.0	NA	NA	0
## 182	Landstrasse	162	Vienna	4.0	5.0	610	1
## 183	Landstrasse	177	Vienna	5.0	4.0	2015	0
## 184	Landstrasse	122	Vienna	2.0	NA	NA	1
## 185	Landstrasse	79	Vienna	3.0	NA	NA	1
## 186	Landstrasse	82	Vienna	4.0	4.0	395	0
## 187	Landstrasse	82	Vienna	4.0	4.0	717	1
## 188	Landstrasse	66	Vienna	3.0	3.5	203	0
## 189	Landstrasse	169	Vienna	4.0	4.0	1208	0
## 190	Landstrasse	59	Vienna	3.0	3.5	189	1
## 191	Landstrasse	109	Vienna	4.0	4.0	666	0
## 192	Landstrasse	104	Vienna	3.0	3.0	72	1
## 193	Landstrasse	145	Vienna	3.5	4.5	730	0
## 194	Landstrasse	58	Vienna	3.5	NA	NA	1
## 195	Landstrasse	107	Vienna	4.0	NA	NA	1
## 196	Landstrasse	85	Vienna	3.0	3.5	183	1
## 197	Landstrasse	184	Vienna	4.0	4.0	5	1
## 198	Landstrasse	137	Vienna	4.5	4.0	1060	0
## 199	Landstrasse	116	Vienna	4.5	4.5	1591	0
## 200	Landstrasse	157	Vienna	2.0	3.5	52	0
## 201	Landstrasse	110	Vienna	3.0	3.5	529	1
## 202	Landstrasse	134	Vienna	4.0	4.5	343	1
## 203	Landstrasse	79	Vienna	4.0	3.5	77	1
## 204	Landstrasse	143	Vienna	3.0	NA	NA	1
## 205	Landstrasse	132	Vienna	4.0	4.0	1403	0
## 206	Landstrasse	68	Vienna	4.0	4.0	162	1
## 207	Leopoldstadt	128	Vienna	4.0	4.0	1437	0
## 208	Leopoldstadt	99	Vienna	3.0	4.5	491	0
## 209	Leopoldstadt	149	Vienna	2.0	NA	NA	1
## 210	Leopoldstadt	86	Vienna	4.0	3.5	326	0
## 211	Leopoldstadt	155	Vienna	3.0	4.0	28	0
## 212	Leopoldstadt	63	Vienna	3.0	3.0	183	1
## 213	Leopoldstadt	157	Vienna	2.0	3.5	12	0
## 214	Leopoldstadt	134	Vienna	3.5	4.5	70	1
## 215	Leopoldstadt	141	Vienna	5.0	NA	NA	1
## 216	Leopoldstadt	79	Vienna	3.0	4.0	290	0
## 217	Leopoldstadt	138	Vienna	4.0	4.0	1023	0
## 218	Leopoldstadt	113	Vienna	4.0	4.5	1516	1
## 219	Leopoldstadt	171	Vienna	3.0	NA	NA	1
## 220	Leopoldstadt	56	Vienna	2.0	4.0	1666	0
## 221	Leopoldstadt	84	Vienna	3.0	4.0	1249	0
## 222	Leopoldstadt	72	Vienna	2.0	4.5	302	0
## 223	Leopoldstadt	587	Vienna	5.0	5.0	7	1
## 224	Leopoldstadt	68	Vienna	3.0	4.0	129	1
## 225	Leopoldstadt	102	Vienna	3.5	4.0	281	0
## 226	Leopoldstadt	96	Vienna	3.0	3.5	7	1

## 227	Leopoldstadt	81	Vienna	1.0	3.5	141	0
## 228	Leopoldstadt	82	Vienna	3.0	4.0	727	0
## 229	Leopoldstadt	66	Vienna	3.0	4.0	407	1
## 230	Leopoldstadt	87	Vienna	3.0	4.0	51	1
## 231	Leopoldstadt	364	Vienna	4.0	NA	NA	1
## 232	Leopoldstadt	240	Vienna	5.0	4.5	2098	0
## 233	Leopoldstadt	113	Vienna	3.0	4.5	1686	0
## 234	Leopoldstadt	106	Vienna	3.0	4.5	1449	1
## 235	Leopoldstadt	89	Vienna	3.0	4.0	1580	0
## 236	Leopoldstadt	61	Vienna	2.0	4.0	1027	0
## 237	Leopoldstadt	92	Vienna	3.5	NA	NA	1
## 238	Leopoldstadt	106	Vienna	4.0	4.0	739	1
## 239	Leopoldstadt	100	Vienna	4.0	4.0	584	1
## 240	Leopoldstadt	75	Vienna	3.0	4.0	827	0
## 241	Leopoldstadt	84	Vienna	3.0	4.0	92	1
## 242	Leopoldstadt	151	Vienna	4.0	4.5	1272	0
## 243	Leopoldstadt	87	Vienna	3.0	3.5	314	0
## 244	Leopoldstadt	117	Vienna	4.0	4.5	836	1
## 245	Leopoldstadt	120	Vienna	4.0	4.0	807	0
## 246	Leopoldstadt	132	Vienna	3.5	NA	NA	1
## 247	Leopoldstadt	68	Vienna	2.5	4.0	85	0
## 248	Margareten	383	Vienna	3.0	4.0	382	1
## 249	Margareten	160	Vienna	4.0	NA	NA	1
## 250	Margareten	135	Vienna	2.0	NA	NA	1
## 251	Margareten	111	Vienna	4.5	4.5	659	0
## 252	Margareten	174	Vienna	4.0	4.5	1650	0
## 253	Margareten	63	Vienna	3.0	3.5	335	0
## 254	Margareten	73	Vienna	3.0	NA	NA	1
## 255	Margareten	100	Vienna	3.5	4.5	15	0
## 256	Margareten	162	Vienna	3.5	NA	NA	1
## 257	Margareten	86	Vienna	4.0	3.5	1708	0
## 258	Margareten	103	Vienna	3.0	NA	NA	1
## 259	Margareten	67	Vienna	3.0	4.0	909	0
## 260	Margareten	129	Vienna	4.0	4.0	372	0
## 261	Margareten	80	Vienna	3.0	4.0	161	1
## 262	Margareten	131	Vienna	2.0	NA	NA	1
## 263	Margareten	150	Vienna	3.5	NA	NA	1
## 264	Mariahilf	159	Vienna	3.0	NA	NA	1
## 265	Mariahilf	86	Vienna	3.0	4.0	383	1
## 266	Mariahilf	96	Vienna	2.0	NA	NA	1
## 267	Mariahilf	131	Vienna	4.0	4.0	682	0
## 268	Mariahilf	103	Vienna	4.0	NA	NA	1
## 269	Mariahilf	85	Vienna	2.0	4.0	618	0
## 270	Mariahilf	80	Vienna	3.0	3.5	170	0
## 271	Mariahilf	93	Vienna	4.0	4.0	410	1
## 272	Mariahilf	81	Vienna	3.5	NA	NA	1
## 273	Mariahilf	77	Vienna	3.0	4.0	2102	0
## 274	Mariahilf	140	Vienna	4.0	5.0	1495	1
## 275	Mariahilf	99	Vienna	4.0	4.0	1228	1
## 276	Mariahilf	75	Vienna	4.0	4.0	151	1
## 277	Mariahilf	105	Vienna	4.0	4.5	716	0
## 278	Mariahilf	100	Vienna	3.5	4.5	1414	0
## 279	Mariahilf	89	Vienna	3.0	4.0	67	1
## 280	Mariahilf	82	Vienna	3.0	3.5	78	0

## 281	Mariahilf	82	Vienna	4.0	4.0	1150	0
## 282	Mariahilf	88	Vienna	3.0	NA	NA	1
## 283	Mariahilf	150	Vienna	3.0	NA	NA	1
## 284	Mariahilf	134	Vienna	2.0	NA	NA	1
## 285	Mariahilf	87	Vienna	4.0	4.0	290	0
## 286	Mariahilf	100	Vienna	4.0	3.5	372	0
## 287	Mariahilf	84	Vienna	4.0	4.0	561	0
## 288	Mariahilf	52	Vienna	2.0	4.0	112	1
## 289	Neubau	98	Vienna	4.0	4.0	650	1
## 290	Neubau	333	Vienna	5.0	5.0	1523	0
## 291	Neubau	99	Vienna	3.0	4.0	1171	0
## 292	Neubau	77	Vienna	3.0	4.0	98	1
## 293	Neubau	160	Vienna	3.5	NA	NA	1
## 294	Neubau	160	Vienna	3.5	NA	NA	1
## 295	Neubau	76	Vienna	3.0	3.5	265	0
## 296	Neubau	89	Vienna	3.0	4.0	36	1
## 297	Neubau	113	Vienna	3.0	NA	NA	1
## 298	Neubau	110	Vienna	4.0	4.5	2436	0
## 299	Neubau	184	Vienna	4.0	4.5	2431	0
## 300	Neubau	33	Vienna	2.0	3.5	308	0
## 301	Neubau	1012	Vienna	3.0	4.0	364	1
## 302	Neubau	99	Vienna	4.0	4.0	612	0
## 303	Neubau	122	Vienna	3.0	4.0	143	1
## 304	Neubau	122	Vienna	4.0	4.0	978	0
## 305	Neubau	105	Vienna	4.0	4.0	816	0
## 306	Neubau	98	Vienna	4.0	NA	NA	1
## 307	Neubau	92	Vienna	3.5	NA	NA	1
## 308	Neubau	109	Vienna	4.0	4.0	582	0
## 309	Neubau	105	Vienna	3.0	4.5	412	1
## 310	Ottakring	133	Vienna	2.0	NA	NA	1
## 311	Ottakring	133	Vienna	2.5	NA	NA	1
## 312	Ottakring	52	Vienna	3.0	3.5	193	0
## 313	Ottakring	134	Vienna	2.0	NA	NA	1
## 314	Ottakring	80	Vienna	4.0	4.0	265	0
## 315	Rudolfsheim-Funfhaus	91	Vienna	2.0	4.0	42	1
## 316	Rudolfsheim-Funfhaus	129	Vienna	4.0	NA	NA	1
## 317	Rudolfsheim-Funfhaus	47	Vienna	2.0	3.5	549	1
## 318	Rudolfsheim-Funfhaus	70	Vienna	4.0	3.5	1020	0
## 319	Rudolfsheim-Funfhaus	88	Vienna	3.5	NA	NA	1
## 320	Rudolfsheim-Funfhaus	136	Vienna	3.0	4.5	1452	0
## 321	Rudolfsheim-Funfhaus	80	Vienna	3.0	4.0	464	1
## 322	Rudolfsheim-Funfhaus	131	Vienna	2.0	NA	NA	1
## 323	Rudolfsheim-Funfhaus	81	Vienna	3.0	4.5	635	1
## 324	Rudolfsheim-Funfhaus	133	Vienna	2.0	NA	NA	0
## 325	Rudolfsheim-Funfhaus	66	Vienna	4.0	3.5	388	1
## 326	Rudolfsheim-Funfhaus	77	Vienna	3.0	4.0	241	0
## 327	Rudolfsheim-Funfhaus	121	Vienna	3.0	NA	NA	1
## 328	Rudolfsheim-Funfhaus	69	Vienna	4.0	3.5	399	0
## 329	Rudolfsheim-Funfhaus	83	Vienna	3.0	4.0	260	0
## 330	Rudolfsheim-Funfhaus	53	Vienna	2.0	4.5	604	1
## 331	Rudolfsheim-Funfhaus	133	Vienna	3.5	NA	NA	1
## 332	Rudolfsheim-Funfhaus	77	Vienna	4.0	3.0	212	0
## 333	Rudolfsheim-Funfhaus	48	Vienna	2.0	4.5	945	1
## 334	Rudolfsheim-Funfhaus	142	Vienna	4.5	4.0	831	0

## 335	Rudolfsheim-Funfhaus	121	Vienna	4.0	4.0	7	0
## 336	Schonbrunn	68	Vienna	3.0	4.0	116	1
## 337	Schonbrunn	63	Vienna	3.0	3.5	199	0
## 338	Schonbrunn	101	Vienna	3.0	4.5	187	0
## 339	Schonbrunn	75	Vienna	4.0	3.5	309	0
## 340	Schonbrunn	156	Vienna	4.0	4.0	1122	0
## 341	Schonbrunn	56	Vienna	3.0	4.0	177	0
## 342	Schonbrunn	82	Vienna	3.5	4.5	1245	0
## 343	Schonbrunn	82	Vienna	4.0	4.0	1148	0
## 344	Schonbrunn	106	Vienna	3.0	3.0	69	1
## 345	Schonbrunn	85	Vienna	3.0	3.0	114	1
## 346	Schonbrunn	83	Vienna	3.5	NA	NA	1
## 347	Schonbrunn	92	Vienna	4.0	4.0	753	0
## 348	Schonbrunn	169	Vienna	3.0	NA	NA	1
## 349	Schonbrunn	77	Vienna	3.0	4.5	79	1
## 350	Schwechat	92	Vienna	3.0	4.0	196	0
## 351	Schwechat	166	Vienna	4.0	4.0	2400	0
## 352	Schwechat	137	Vienna	4.0	3.5	191	1
## 353	Schwechat	99	Vienna	3.0	3.5	191	0
## 354	Schwechat	140	Vienna	4.0	4.0	127	1
## 355	Schwechat	80	Vienna	3.0	3.5	247	0
## 356	Schwechat	91	Vienna	3.0	3.5	161	0
## 357	Vienna	105	Vienna	3.5	NA	NA	1
## 358	Vienna	130	Vienna	2.0	NA	NA	1
## 359	Vienna	110	Vienna	3.0	4.5	29	1
## 360	Vienna	117	Vienna	4.0	4.0	192	0
## 361	Vienna	106	Vienna	4.0	4.0	12	1
## 362	Vienna	66	Vienna	3.0	3.5	129	0
## 363	Vienna	266	Vienna	5.0	5.0	2	1
## 364	Vienna	58	Vienna	2.0	3.5	1051	0
## 365	Vienna	81	Vienna	3.5	3.0	12	1
## 366	Vienna	109	Vienna	4.0	3.5	386	0
## 367	Vienna	114	Vienna	4.5	4.5	2454	0
## 368	Vienna	125	Vienna	3.5	4.0	261	0
## 369	Vienna	69	Vienna	3.0	3.5	53	1
## 370	Vienna	69	Vienna	3.0	NA	NA	1
## 371	Vienna	97	Vienna	4.0	4.0	277	0
## 372	Vienna	74	Vienna	4.0	4.0	73	1
## 373	Vienna	69	Vienna	4.0	3.5	320	0
## 374	Vienna	83	Vienna	4.0	3.5	121	0
## 375	Vienna	50	Vienna	3.0	4.0	12	0
## 376	Vienna	130	Vienna	2.0	3.5	36	0
## 377	Vienna	134	Vienna	3.0	NA	NA	1
## 378	Vienna	134	Vienna	3.0	NA	NA	1
## 379	Vienna	77	Vienna	3.0	3.5	21	1
## 380	Vienna	102	Vienna	3.0	4.5	204	0
## 381	Vienna	56	Vienna	3.5	3.5	88	1
## 382	Vienna	185	Vienna	3.0	NA	NA	1
## 383	Vienna	130	Vienna	3.0	4.0	20	1
## 384	Vienna	78	Vienna	3.0	4.0	811	0
## 385	Vienna	76	Vienna	3.0	4.0	61	1
## 386	Vienna	68	Vienna	4.0	3.5	87	1
## 387	Vienna	116	Vienna	4.0	4.0	493	0
## 388	Vienna	172	Vienna	4.0	4.0	401	1

## 389	Vienna	80	Vienna	2.0	3.5	187	1	
## 390	Vienna	87	Vienna	3.0	4.0	30	1	
## 391	Vienna	90	Vienna	3.0	3.0	78	1	
## 392	Vienna	100	Vienna	3.5	4.0	282	1	
## 393	Vienna	173	Vienna	2.0	NA	NA	1	
## 394	Vienna	92	Vienna	2.0	3.5	35	1	
## 395	Vienna	133	Vienna	2.0	NA	NA	1	
## 396	Vienna	134	Vienna	3.5	NA	NA	1	
## 397	Vienna	209	Vienna	3.0	NA	NA	1	
## 398	Vienna	66	Vienna	3.0	NA	NA	1	
## 399	Vienna	114	Vienna	4.0	5.0	12	1	
## 400	Voesendorf	89	Vienna	4.0	3.0	73	0	
## 401	Voesendorf	92	Vienna	4.0	3.5	545	0	
## 402	Wahring	84	Vienna	3.0	4.5	982	0	
## 403	Wahring	124	Vienna	2.0	2.5	26	1	
## 404	Wahring	185	Vienna	4.0	4.0	142	1	
## 405	Wahring	85	Vienna	4.0	3.5	553	0	
## 406	Wahring	133	Vienna	2.0	NA	NA	1	
## 407	Wieden	110	Vienna	3.5	4.5	116	0	
## 408	Wieden	86	Vienna	3.0	4.0	89	0	
## 409	Wieden	118	Vienna	4.0	4.0	436	0	
## 410	Wieden	126	Vienna	3.5	NA	NA	1	
## 411	Wieden	92	Vienna	3.0	4.0	688	0	
## 412	Wieden	197	Vienna	4.0	4.5	1840	1	
## 413	Wieden	39	Vienna	2.5	3.5	69	1	
## 414	Wieden	135	Vienna	4.0	4.0	1121	0	
## 415	Wieden	125	Vienna	4.0	4.5	229	0	
## 416	Wieden	67	Vienna	2.0	4.5	1583	0	
## 417	Wieden	134	Vienna	4.0	4.5	615	0	
## 418	Wieden	91	Vienna	3.0	3.5	383	1	
## 419	Wieden	110	Vienna	3.0	4.0	263	0	
## 420	Wieden	84	Vienna	3.5	NA	NA	1	
## 421	Wieden	100	Vienna	3.0	4.0	149	1	
## 422	Wieden	95	Vienna	4.0	4.0	1003	1	
## 423	Wieden	73	Vienna	3.0	3.0	293	1	
## 424	Wieden	109	Vienna	3.0	3.0	14	1	
## 425	Wieden	185	Vienna	5.0	4.0	740	0	
## 426	Wieden	100	Vienna	4.0	4.5	1006	1	
## 427	Wieden	58	Vienna	3.0	3.0	135	0	
## 428	Wieden	110	Vienna	3.5	NA	NA	1	
##	hotel_id	offer	offer_cat	year	month	weekend	holiday	distance
## 1	21894	1	15-50% offer	2017	11	0	0	2.7
## 2	21897	1	1-15% offer	2017	11	0	0	1.7
## 3	21901	1	15-50% offer	2017	11	0	0	1.4
## 4	21902	1	15-50% offer	2017	11	0	0	1.7
## 5	21903	1	15-50% offer	2017	11	0	0	1.2
## 6	21904	1	1-15% offer	2017	11	0	0	0.9
## 7	21906	0	0% no offer	2017	11	0	0	0.9
## 8	21907	0	0% no offer	2017	11	0	0	1.0
## 9	21908	1	1-15% offer	2017	11	0	0	0.7
## 10	21910	1	15-50% offer	2017	11	0	0	1.5
## 11	21912	1	1-15% offer	2017	11	0	0	1.1
## 12	21913	0	0% no offer	2017	11	0	0	0.8
## 13	21914	1	15-50% offer	2017	11	0	0	1.0

## 14	21915	1	15-50%	offer	2017	11	0	0	1.2
## 15	21916	0	0%	no offer	2017	11	0	0	0.7
## 16	21917	1	1-15%	offer	2017	11	0	0	1.7
## 17	21918	1	15-50%	offer	2017	11	0	0	0.9
## 18	21919	1	15-50%	offer	2017	11	0	0	0.8
## 19	21920	0	0%	no offer	2017	11	0	0	0.9
## 20	21921	0	0%	no offer	2017	11	0	0	3.4
## 21	21922	0	0%	no offer	2017	11	0	0	3.4
## 22	21924	0	0%	no offer	2017	11	0	0	4.2
## 23	21925	1	50%-75%	offer	2017	11	0	0	3.9
## 24	21926	1	15-50%	offer	2017	11	0	0	3.6
## 25	21927	0	0%	no offer	2017	11	0	0	3.8
## 26	21928	0	0%	no offer	2017	11	0	0	3.5
## 27	21930	0	0%	no offer	2017	11	0	0	2.9
## 28	21933	0	0%	no offer	2017	11	0	0	3.4
## 29	21934	1	15-50%	offer	2017	11	0	0	2.3
## 30	21935	1	50%-75%	offer	2017	11	0	0	2.0
## 31	21936	1	15-50%	offer	2017	11	0	0	2.4
## 32	21937	1	15-50%	offer	2017	11	0	0	2.8
## 33	21938	1	15-50%	offer	2017	11	0	0	2.9
## 34	21939	0	0%	no offer	2017	11	0	0	2.5
## 35	21940	0	0%	no offer	2017	11	0	0	1.7
## 36	21941	1	15-50%	offer	2017	11	0	0	1.7
## 37	21943	1	15-50%	offer	2017	11	0	0	2.1
## 38	21945	1	15-50%	offer	2017	11	0	0	2.5
## 39	21946	0	0%	no offer	2017	11	0	0	1.9
## 40	21947	1	15-50%	offer	2017	11	0	0	2.4
## 41	21948	0	0%	no offer	2017	11	0	0	2.0
## 42	21949	0	0%	no offer	2017	11	0	0	2.7
## 43	21950	1	1-15%	offer	2017	11	0	0	2.3
## 44	21951	1	15-50%	offer	2017	11	0	0	2.5
## 45	21956	0	0%	no offer	2017	11	0	0	1.8
## 46	21958	0	0%	no offer	2017	11	0	0	2.0
## 47	21959	1	1-15%	offer	2017	11	0	0	1.7
## 48	21960	1	1-15%	offer	2017	11	0	0	2.7
## 49	21962	1	15-50%	offer	2017	11	0	0	1.9
## 50	21963	1	15-50%	offer	2017	11	0	0	2.3
## 51	21964	1	15-50%	offer	2017	11	0	0	13.0
## 52	21965	1	15-50%	offer	2017	11	0	0	0.2
## 53	21966	1	1-15%	offer	2017	11	0	0	0.1
## 54	21967	1	50%-75%	offer	2017	11	0	0	0.1
## 55	21968	1	1-15%	offer	2017	11	0	0	0.3
## 56	21969	1	15-50%	offer	2017	11	0	0	0.3
## 57	21970	1	15-50%	offer	2017	11	0	0	0.3
## 58	21971	1	15-50%	offer	2017	11	0	0	0.5
## 59	21972	1	1-15%	offer	2017	11	0	0	0.3
## 60	21973	1	15-50%	offer	2017	11	0	0	0.3
## 61	21975	1	15-50%	offer	2017	11	0	0	0.1
## 62	21976	1	15-50%	offer	2017	11	0	0	0.3
## 63	21977	1	15-50%	offer	2017	11	0	0	0.2
## 64	21979	0	0%	no offer	2017	11	0	0	0.4
## 65	21980	0	0%	no offer	2017	11	0	0	0.1
## 66	21981	0	0%	no offer	2017	11	0	0	0.7
## 67	21983	0	0%	no offer	2017	11	0	0	0.5

## 68	21984	0	0% no offer	2017	11	0	0	0.5
## 69	21985	1	15-50% offer	2017	11	0	0	0.3
## 70	21986	1	1-15% offer	2017	11	0	0	0.2
## 71	21987	1	1-15% offer	2017	11	0	0	0.3
## 72	21988	1	1-15% offer	2017	11	0	0	0.4
## 73	21989	1	15-50% offer	2017	11	0	0	0.3
## 74	21990	1	15-50% offer	2017	11	0	0	0.7
## 75	21991	1	15-50% offer	2017	11	0	0	0.2
## 76	21992	0	0% no offer	2017	11	0	0	0.2
## 77	21993	0	0% no offer	2017	11	0	0	0.2
## 78	21995	1	15-50% offer	2017	11	0	0	0.2
## 79	21996	1	15-50% offer	2017	11	0	0	0.3
## 80	21997	1	1-15% offer	2017	11	0	0	0.4
## 81	21998	1	50%-75% offer	2017	11	0	0	0.3
## 82	21999	1	15-50% offer	2017	11	0	0	0.3
## 83	22001	0	0% no offer	2017	11	0	0	0.2
## 84	22002	0	0% no offer	2017	11	0	0	0.2
## 85	22003	0	0% no offer	2017	11	0	0	0.2
## 86	22004	0	0% no offer	2017	11	0	0	0.2
## 87	22005	1	15-50% offer	2017	11	0	0	0.2
## 88	22006	0	0% no offer	2017	11	0	0	0.5
## 89	22007	1	1-15% offer	2017	11	0	0	0.5
## 90	22008	1	15-50% offer	2017	11	0	0	0.5
## 91	22009	0	0% no offer	2017	11	0	0	0.3
## 92	22010	1	15-50% offer	2017	11	0	0	0.2
## 93	22011	1	50%-75% offer	2017	11	0	0	0.2
## 94	22012	1	15-50% offer	2017	11	0	0	0.1
## 95	22013	1	15-50% offer	2017	11	0	0	0.3
## 96	22014	1	15-50% offer	2017	11	0	0	0.6
## 97	22016	0	0% no offer	2017	11	0	0	0.5
## 98	22017	1	1-15% offer	2017	11	0	0	0.5
## 99	22018	1	1-15% offer	2017	11	0	0	0.7
## 100	22019	0	0% no offer	2017	11	0	0	0.3
## 101	22020	1	15-50% offer	2017	11	0	0	0.4
## 102	22021	0	0% no offer	2017	11	0	0	0.1
## 103	22022	0	0% no offer	2017	11	0	0	0.3
## 104	22023	1	15-50% offer	2017	11	0	0	0.3
## 105	22025	0	0% no offer	2017	11	0	0	0.2
## 106	22026	1	15-50% offer	2017	11	0	0	0.8
## 107	22027	0	0% no offer	2017	11	0	0	0.7
## 108	22028	0	0% no offer	2017	11	0	0	0.4
## 109	22029	1	15-50% offer	2017	11	0	0	0.2
## 110	22030	1	15-50% offer	2017	11	0	0	0.5
## 111	22031	1	15-50% offer	2017	11	0	0	0.1
## 112	22032	1	15-50% offer	2017	11	0	0	0.4
## 113	22033	1	15-50% offer	2017	11	0	0	0.4
## 114	22034	0	0% no offer	2017	11	0	0	0.3
## 115	22035	1	15-50% offer	2017	11	0	0	0.6
## 116	22036	1	15-50% offer	2017	11	0	0	0.6
## 117	22037	1	15-50% offer	2017	11	0	0	0.6
## 118	22038	1	15-50% offer	2017	11	0	0	0.5
## 119	22039	1	1-15% offer	2017	11	0	0	0.5
## 120	22040	0	0% no offer	2017	11	0	0	0.1
## 121	22041	0	0% no offer	2017	11	0	0	0.3

## 122	22042	0	0% no offer	2017	11	0	0	0.3
## 123	22043	0	0% no offer	2017	11	0	0	0.3
## 124	22044	0	0% no offer	2017	11	0	0	0.3
## 125	22045	1	15-50% offer	2017	11	0	0	0.1
## 126	22046	0	0% no offer	2017	11	0	0	0.2
## 127	22047	0	0% no offer	2017	11	0	0	0.2
## 128	22049	0	0% no offer	2017	11	0	0	0.2
## 129	22050	1	1-15% offer	2017	11	0	0	0.0
## 130	22051	0	0% no offer	2017	11	0	0	0.5
## 131	22052	1	15-50% offer	2017	11	0	0	0.3
## 132	22053	0	0% no offer	2017	11	0	0	0.2
## 133	22054	1	15-50% offer	2017	11	0	0	0.5
## 134	22055	0	0% no offer	2017	11	0	0	0.1
## 135	22057	1	15-50% offer	2017	11	0	0	0.3
## 136	22059	1	15-50% offer	2017	11	0	0	0.4
## 137	22061	1	1-15% offer	2017	11	0	0	0.2
## 138	22063	0	0% no offer	2017	11	0	0	0.2
## 139	22064	1	1-15% offer	2017	11	0	0	1.4
## 140	22065	1	15-50% offer	2017	11	0	0	1.1
## 141	22066	1	1-15% offer	2017	11	0	0	1.1
## 142	22067	1	1-15% offer	2017	11	0	0	1.3
## 143	22068	0	0% no offer	2017	11	0	0	1.2
## 144	22069	1	1-15% offer	2017	11	0	0	0.8
## 145	22071	1	15-50% offer	2017	11	0	0	0.9
## 146	22072	1	15-50% offer	2017	11	0	0	0.9
## 147	22073	1	15-50% offer	2017	11	0	0	1.2
## 148	22074	0	0% no offer	2017	11	0	0	1.6
## 149	22075	1	50%-75% offer	2017	11	0	0	1.6
## 150	22076	1	1-15% offer	2017	11	0	0	0.9
## 151	22077	1	1-15% offer	2017	11	0	0	0.9
## 152	22078	1	1-15% offer	2017	11	0	0	1.0
## 153	22079	1	1-15% offer	2017	11	0	0	1.5
## 154	22080	1	15-50% offer	2017	11	0	0	1.1
## 155	22081	1	15-50% offer	2017	11	0	0	1.1
## 156	22082	1	15-50% offer	2017	11	0	0	0.9
## 157	22083	1	1-15% offer	2017	11	0	0	0.9
## 158	22084	1	15-50% offer	2017	11	0	0	1.0
## 159	22085	1	15-50% offer	2017	11	0	0	1.1
## 160	22086	1	15-50% offer	2017	11	0	0	1.0
## 161	22087	1	15-50% offer	2017	11	0	0	1.6
## 162	22088	1	15-50% offer	2017	11	0	0	0.9
## 163	22089	1	15-50% offer	2017	11	0	0	1.2
## 164	22090	1	15-50% offer	2017	11	0	0	0.9
## 165	22092	1	1-15% offer	2017	11	0	0	0.4
## 166	22093	1	15-50% offer	2017	11	0	0	0.2
## 167	22094	1	15-50% offer	2017	11	0	0	0.2
## 168	22095	1	1-15% offer	2017	11	0	0	0.3
## 169	22097	1	1-15% offer	2017	11	0	0	0.5
## 170	22098	0	0% no offer	2017	11	0	0	0.1
## 171	22099	1	1-15% offer	2017	11	0	0	0.2
## 172	22100	1	1-15% offer	2017	11	0	0	0.4
## 173	22101	1	15-50% offer	2017	11	0	0	0.1
## 174	22102	0	0% no offer	2017	11	0	0	0.4
## 175	22104	1	1-15% offer	2017	11	0	0	0.6



## 176	22107	1	15-50%	offer	2017	11	0	0	1.9
## 177	22108	1	15-50%	offer	2017	11	0	0	0.9
## 178	22109	0	0%	no offer	2017	11	0	0	1.6
## 179	22110	1	15-50%	offer	2017	11	0	0	1.7
## 180	22111	1	15-50%	offer	2017	11	0	0	1.8
## 181	22112	1	15-50%	offer	2017	11	0	0	1.4
## 182	22113	1	15-50%	offer	2017	11	0	0	1.1
## 183	22114	1	50%-75%	offer	2017	11	0	0	0.5
## 184	22115	1	1-15%	offer	2017	11	0	0	1.5
## 185	22116	0	0%	no offer	2017	11	0	0	1.6
## 186	22117	1	15-50%	offer	2017	11	0	0	1.4
## 187	22118	1	1-15%	offer	2017	11	0	0	1.7
## 188	22119	1	15-50%	offer	2017	11	0	0	1.8
## 189	22120	0	0%	no offer	2017	11	0	0	0.8
## 190	22122	0	0%	no offer	2017	11	0	0	0.8
## 191	22123	0	0%	no offer	2017	11	0	0	1.5
## 192	22125	0	0%	no offer	2017	11	0	0	0.7
## 193	22126	1	15-50%	offer	2017	11	0	0	0.9
## 194	22127	0	0%	no offer	2017	11	0	0	1.4
## 195	22129	1	15-50%	offer	2017	11	0	0	1.3
## 196	22130	1	50%-75%	offer	2017	11	0	0	0.8
## 197	22131	1	1-15%	offer	2017	11	0	0	0.7
## 198	22132	1	15-50%	offer	2017	11	0	0	1.0
## 199	22134	1	1-15%	offer	2017	11	0	0	1.1
## 200	22135	1	15-50%	offer	2017	11	0	0	1.1
## 201	22136	0	0%	no offer	2017	11	0	0	1.3
## 202	22138	1	15-50%	offer	2017	11	0	0	0.6
## 203	22140	0	0%	no offer	2017	11	0	0	1.3
## 204	22141	0	0%	no offer	2017	11	0	0	1.4
## 205	22142	1	15-50%	offer	2017	11	0	0	1.0
## 206	22143	1	50%-75%	offer	2017	11	0	0	1.3
## 207	22144	1	15-50%	offer	2017	11	0	0	0.6
## 208	22145	0	0%	no offer	2017	11	0	0	1.5
## 209	22148	1	15-50%	offer	2017	11	0	0	0.9
## 210	22149	1	50%-75%	offer	2017	11	0	0	1.8
## 211	22150	0	0%	no offer	2017	11	0	0	1.9
## 212	22152	1	1-15%	offer	2017	11	0	0	1.0
## 213	22153	1	15-50%	offer	2017	11	0	0	0.6
## 214	22155	1	15-50%	offer	2017	11	0	0	0.6
## 215	22156	1	1-15%	offer	2017	11	0	0	1.7
## 216	22157	1	15-50%	offer	2017	11	0	0	0.9
## 217	22158	0	0%	no offer	2017	11	0	0	0.5
## 218	22159	1	15-50%	offer	2017	11	0	0	1.0
## 219	22160	1	15-50%	offer	2017	11	0	0	1.5
## 220	22161	1	1-15%	offer	2017	11	0	0	1.5
## 221	22162	1	15-50%	offer	2017	11	0	0	1.5
## 222	22163	1	15-50%	offer	2017	11	0	0	1.1
## 223	22164	1	15-50%	offer	2017	11	0	0	0.7
## 224	22165	1	15-50%	offer	2017	11	0	0	0.9
## 225	22166	1	50%-75%	offer	2017	11	0	0	1.5
## 226	22167	1	15-50%	offer	2017	11	0	0	1.5
## 227	22168	0	0%	no offer	2017	11	0	0	0.9
## 228	22169	1	15-50%	offer	2017	11	0	0	1.6
## 229	22170	1	15-50%	offer	2017	11	0	0	1.1

## 230	22171	1	15-50%	offer	2017	11	0	0	0.8
## 231	22173	0	0%	no offer	2017	11	0	0	0.6
## 232	22175	1	15-50%	offer	2017	11	0	0	0.4
## 233	22176	1	15-50%	offer	2017	11	0	0	0.8
## 234	22177	1	15-50%	offer	2017	11	0	0	1.0
## 235	22179	1	15-50%	offer	2017	11	0	0	1.6
## 236	22180	1	50%-75%	offer	2017	11	0	0	0.9
## 237	22181	0	0%	no offer	2017	11	0	0	0.8
## 238	22182	1	15-50%	offer	2017	11	0	0	0.8
## 239	22183	1	15-50%	offer	2017	11	0	0	0.8
## 240	22184	1	15-50%	offer	2017	11	0	0	0.7
## 241	22185	0	0%	no offer	2017	11	0	0	0.8
## 242	22187	0	0%	no offer	2017	11	0	0	0.5
## 243	22188	0	0%	no offer	2017	11	0	0	0.9
## 244	22189	0	0%	no offer	2017	11	0	0	0.5
## 245	22190	1	50%-75%	offer	2017	11	0	0	1.9
## 246	22191	0	0%	no offer	2017	11	0	0	0.8
## 247	22192	0	0%	no offer	2017	11	0	0	0.9
## 248	22193	0	0%	no offer	2017	11	0	0	1.9
## 249	22194	1	1-15%	offer	2017	11	0	0	1.6
## 250	22195	0	0%	no offer	2017	11	0	0	2.0
## 251	22196	1	15-50%	offer	2017	11	0	0	2.0
## 252	22198	0	0%	no offer	2017	11	0	0	1.5
## 253	22199	1	15-50%	offer	2017	11	0	0	2.0
## 254	22200	0	0%	no offer	2017	11	0	0	1.4
## 255	22201	0	0%	no offer	2017	11	0	0	1.5
## 256	22202	0	0%	no offer	2017	11	0	0	1.7
## 257	22203	1	1-15%	offer	2017	11	0	0	1.4
## 258	22204	0	0%	no offer	2017	11	0	0	1.9
## 259	22205	1	15-50%	offer	2017	11	0	0	1.8
## 260	22206	1	1-15%	offer	2017	11	0	0	1.3
## 261	22208	1	50%-75%	offer	2017	11	0	0	1.9
## 262	22209	1	15-50%	offer	2017	11	0	0	1.9
## 263	22210	1	1-15%	offer	2017	11	0	0	1.6
## 264	22211	1	15-50%	offer	2017	11	0	0	1.1
## 265	22212	0	0%	no offer	2017	11	0	0	1.3
## 266	22213	0	0%	no offer	2017	11	0	0	0.9
## 267	22214	1	1-15%	offer	2017	11	0	0	0.7
## 268	22215	1	15-50%	offer	2017	11	0	0	2.0
## 269	22217	1	15-50%	offer	2017	11	0	0	1.0
## 270	22218	0	0%	no offer	2017	11	0	0	1.4
## 271	22219	1	15-50%	offer	2017	11	0	0	1.1
## 272	22221	1	15-50%	offer	2017	11	0	0	1.8
## 273	22222	1	1-15%	offer	2017	11	0	0	1.9
## 274	22223	1	15-50%	offer	2017	11	0	0	0.8
## 275	22224	1	15-50%	offer	2017	11	0	0	1.0
## 276	22225	0	0%	no offer	2017	11	0	0	1.1
## 277	22226	1	15-50%	offer	2017	11	0	0	1.4
## 278	22227	1	15-50%	offer	2017	11	0	0	1.7
## 279	22228	1	15-50%	offer	2017	11	0	0	1.0
## 280	22229	1	15-50%	offer	2017	11	0	0	1.1
## 281	22230	0	0%	no offer	2017	11	0	0	1.8
## 282	22231	1	15-50%	offer	2017	11	0	0	1.8
## 283	22233	0	0%	no offer	2017	11	0	0	1.6

## 284	22234	1	1-15%	offer	2017	11	0	0	1.6
## 285	22235	1	15-50%	offer	2017	11	0	0	1.9
## 286	22236	1	15-50%	offer	2017	11	0	0	1.6
## 287	22237	1	15-50%	offer	2017	11	0	0	1.6
## 288	22238	1	15-50%	offer	2017	11	0	0	0.9
## 289	22239	1	15-50%	offer	2017	11	0	0	0.8
## 290	22240	1	1-15%	offer	2017	11	0	0	0.7
## 291	22241	0	0%	no offer	2017	11	0	0	1.8
## 292	22243	1	15-50%	offer	2017	11	0	0	1.5
## 293	22244	1	1-15%	offer	2017	11	0	0	1.6
## 294	22245	1	1-15%	offer	2017	11	0	0	1.6
## 295	22246	1	1-15%	offer	2017	11	0	0	1.6
## 296	22247	1	15-50%	offer	2017	11	0	0	1.6
## 297	22248	0	0%	no offer	2017	11	0	0	0.8
## 298	22249	1	15-50%	offer	2017	11	0	0	0.9
## 299	22250	1	50%-75%	offer	2017	11	0	0	1.0
## 300	22251	1	50%-75%	offer	2017	11	0	0	1.7
## 301	22252	1	1-15%	offer	2017	11	0	0	1.0
## 302	22253	1	15-50%	offer	2017	11	0	0	1.7
## 303	22254	1	1-15%	offer	2017	11	0	0	0.8
## 304	22255	1	1-15%	offer	2017	11	0	0	1.7
## 305	22256	0	0%	no offer	2017	11	0	0	1.7
## 306	22257	1	15-50%	offer	2017	11	0	0	1.7
## 307	22258	0	0%	no offer	2017	11	0	0	1.4
## 308	22259	1	15-50%	offer	2017	11	0	0	1.4
## 309	22260	1	15-50%	offer	2017	11	0	0	1.2
## 310	22265	1	15-50%	offer	2017	11	0	0	2.0
## 311	22266	0	0%	no offer	2017	11	0	0	2.3
## 312	22268	1	15-50%	offer	2017	11	0	0	3.1
## 313	22269	1	15-50%	offer	2017	11	0	0	1.8
## 314	22271	1	15-50%	offer	2017	11	0	0	4.1
## 315	22272	0	0%	no offer	2017	11	0	0	2.9
## 316	22273	1	1-15%	offer	2017	11	0	0	2.6
## 317	22274	0	0%	no offer	2017	11	0	0	1.9
## 318	22275	1	15-50%	offer	2017	11	0	0	1.8
## 319	22276	1	1-15%	offer	2017	11	0	0	2.3
## 320	22277	1	15-50%	offer	2017	11	0	0	1.9
## 321	22279	1	15-50%	offer	2017	11	0	0	2.1
## 322	22280	1	15-50%	offer	2017	11	0	0	2.3
## 323	22281	1	1-15%	offer	2017	11	0	0	2.4
## 324	22284	1	15-50%	offer	2017	11	0	0	2.5
## 325	22285	1	1-15%	offer	2017	11	0	0	3.6
## 326	22286	1	1-15%	offer	2017	11	0	0	2.8
## 327	22287	0	0%	no offer	2017	11	0	0	1.8
## 328	22288	1	1-15%	offer	2017	11	0	0	2.1
## 329	22289	1	15-50%	offer	2017	11	0	0	2.1
## 330	22290	0	0%	no offer	2017	11	0	0	1.9
## 331	22291	1	15-50%	offer	2017	11	0	0	2.7
## 332	22293	1	15-50%	offer	2017	11	0	0	1.8
## 333	22294	0	0%	no offer	2017	11	0	0	2.0
## 334	22295	1	50%-75%	offer	2017	11	0	0	2.9
## 335	22296	1	1-15%	offer	2017	11	0	0	1.7
## 336	22299	1	15-50%	offer	2017	11	0	0	3.6
## 337	22300	0	0%	no offer	2017	11	0	0	2.0

## 338	22301	0	0% no offer	2017	11	0	0	2.1
## 339	22302	1	15-50% offer	2017	11	0	0	2.6
## 340	22303	0	0% no offer	2017	11	0	0	3.6
## 341	22304	1	15-50% offer	2017	11	0	0	3.7
## 342	22306	1	15-50% offer	2017	11	0	0	2.4
## 343	22307	1	15-50% offer	2017	11	0	0	2.6
## 344	22309	0	0% no offer	2017	11	0	0	4.1
## 345	22310	1	1-15% offer	2017	11	0	0	3.1
## 346	22311	1	15-50% offer	2017	11	0	0	2.6
## 347	22312	1	1-15% offer	2017	11	0	0	2.9
## 348	22314	0	0% no offer	2017	11	0	0	2.3
## 349	22315	1	15-50% offer	2017	11	0	0	2.7
## 350	22317	0	0% no offer	2017	11	0	0	11.0
## 351	22318	1	1-15% offer	2017	11	0	0	11.0
## 352	22319	0	0% no offer	2017	11	0	0	7.7
## 353	22320	0	0% no offer	2017	11	0	0	7.7
## 354	22321	0	0% no offer	2017	11	0	0	7.8
## 355	22322	0	0% no offer	2017	11	0	0	6.3
## 356	22323	0	0% no offer	2017	11	0	0	6.7
## 357	22324	1	1-15% offer	2017	11	0	0	4.3
## 358	22325	0	0% no offer	2017	11	0	0	2.6
## 359	22326	1	1-15% offer	2017	11	0	0	4.7
## 360	22328	0	0% no offer	2017	11	0	0	2.0
## 361	22330	0	0% no offer	2017	11	0	0	5.4
## 362	22331	0	0% no offer	2017	11	0	0	3.9
## 363	22332	1	1-15% offer	2017	11	0	0	3.5
## 364	22333	0	0% no offer	2017	11	0	0	2.4
## 365	22334	1	1-15% offer	2017	11	0	0	3.7
## 366	22335	1	1-15% offer	2017	11	0	0	3.5
## 367	22336	1	50%-75% offer	2017	11	0	0	2.3
## 368	22337	1	1-15% offer	2017	11	0	0	2.3
## 369	22338	1	1-15% offer	2017	11	0	0	1.7
## 370	22339	0	0% no offer	2017	11	0	0	2.6
## 371	22340	1	15-50% offer	2017	11	0	0	3.1
## 372	22341	1	15-50% offer	2017	11	0	0	4.8
## 373	22342	1	15-50% offer	2017	11	0	0	3.7
## 374	22343	1	15-50% offer	2017	11	0	0	3.9
## 375	22344	1	15-50% offer	2017	11	0	0	3.9
## 376	22345	1	15-50% offer	2017	11	0	0	4.7
## 377	22346	1	1-15% offer	2017	11	0	0	3.7
## 378	22347	1	15-50% offer	2017	11	0	0	6.9
## 379	22348	0	0% no offer	2017	11	0	0	3.7
## 380	22349	0	0% no offer	2017	11	0	0	5.3
## 381	22350	1	1-15% offer	2017	11	0	0	2.5
## 382	22351	1	15-50% offer	2017	11	0	0	2.7
## 383	22353	0	0% no offer	2017	11	0	0	6.6
## 384	22354	0	0% no offer	2017	11	0	0	3.2
## 385	22355	1	1-15% offer	2017	11	0	0	3.3
## 386	22356	1	1-15% offer	2017	11	0	0	4.5
## 387	22358	1	15-50% offer	2017	11	0	0	2.7
## 388	22359	1	1-15% offer	2017	11	0	0	2.2
## 389	22361	0	0% no offer	2017	11	0	0	5.2
## 390	22362	0	0% no offer	2017	11	0	0	2.4
## 391	22363	1	1-15% offer	2017	11	0	0	4.6

##	392	22364	1	15-50% offer	2017	11	0	0	2.7
##	393	22365	1	15-50% offer	2017	11	0	0	3.1
##	394	22366	0	0% no offer	2017	11	0	0	2.5
##	395	22369	1	15-50% offer	2017	11	0	0	2.6
##	396	22370	1	50%-75% offer	2017	11	0	0	5.1
##	397	22371	1	15-50% offer	2017	11	0	0	5.2
##	398	22372	1	75%+ offer	2017	11	0	0	1.6
##	399	22373	1	50%-75% offer	2017	11	0	0	1.4
##	400	22377	0	0% no offer	2017	11	0	0	7.0
##	401	22378	0	0% no offer	2017	11	0	0	7.1
##	402	22380	1	15-50% offer	2017	11	0	0	1.9
##	403	22381	1	15-50% offer	2017	11	0	0	1.8
##	404	22382	0	0% no offer	2017	11	0	0	2.1
##	405	22384	1	1-15% offer	2017	11	0	0	3.0
##	406	22385	1	15-50% offer	2017	11	0	0	1.9
##	407	22386	0	0% no offer	2017	11	0	0	1.6
##	408	22387	0	0% no offer	2017	11	0	0	1.6
##	409	22388	0	0% no offer	2017	11	0	0	1.0
##	410	22389	1	1-15% offer	2017	11	0	0	0.9
##	411	22390	1	15-50% offer	2017	11	0	0	1.3
##	412	22391	1	15-50% offer	2017	11	0	0	0.8
##	413	22393	0	0% no offer	2017	11	0	0	1.3
##	414	22394	0	0% no offer	2017	11	0	0	1.2
##	415	22395	1	15-50% offer	2017	11	0	0	1.2
##	416	22396	0	0% no offer	2017	11	0	0	1.0
##	417	22397	1	1-15% offer	2017	11	0	0	0.8
##	418	22398	1	15-50% offer	2017	11	0	0	0.9
##	419	22399	0	0% no offer	2017	11	0	0	0.8
##	420	22400	0	0% no offer	2017	11	0	0	0.9
##	421	22401	1	1-15% offer	2017	11	0	0	1.2
##	422	22402	1	1-15% offer	2017	11	0	0	1.5
##	423	22403	1	1-15% offer	2017	11	0	0	1.5
##	424	22404	1	50%-75% offer	2017	11	0	0	1.5
##	425	22406	1	15-50% offer	2017	11	0	0	0.8
##	426	22407	0	0% no offer	2017	11	0	0	1.0
##	427	22408	1	15-50% offer	2017	11	0	0	1.4
##	428	22409	1	1-15% offer	2017	11	0	0	0.7
##		distance_alter		accommodation_type		nnights		rating	
##	1	4.4		Apartment		1		4.4	
##	2	3.8		Hotel		1		3.9	
##	3	2.5		Hotel		1		3.7	
##	4	2.5		Hotel		1		4.0	
##	5	2.8		Hotel		1		3.9	
##	6	3.0		Apartment		1		4.8	
##	7	2.4		Hotel		1		3.9	
##	8	2.7		Hotel		1		4.6	
##	9	2.7		Hotel		1		3.5	
##	10	2.7		Apartment		1		NA	
##	11	2.7		Hotel		1		4.1	
##	12	2.9		Hotel		1		4.0	
##	13	2.3		Apartment		1		4.5	
##	14	2.3		Apartment		1		3.7	
##	15	2.6		Hotel		1		NA	
##	16	2.6		Hotel		1		4.1	

## 17	2.8	Hotel	1	3.7
## 18	2.8	Hotel	1	3.9
## 19	2.8	Hotel	1	4.0
## 20	0.6	Apartment	1	NA
## 21	0.6	Apartment	1	4.8
## 22	1.5	Hotel	1	3.9
## 23	1.9	Hotel	1	2.7
## 24	1.2	Hotel	1	4.3
## 25	1.2	Apartment	1	3.0
## 26	0.8	Bed and breakfast	1	3.5
## 27	0.6	Hotel	1	4.1
## 28	0.9	Hotel	1	3.7
## 29	4.9	Apartment	1	3.5
## 30	4.5	Hotel	1	3.5
## 31	5.0	Apartment	1	3.0
## 32	5.3	Apartment	1	3.2
## 33	5.2	Apartment	1	1.0
## 34	5.1	Apartment	1	NA
## 35	4.2	Hotel	1	4.4
## 36	4.1	Hotel	1	4.4
## 37	4.6	Hotel	1	4.4
## 38	5.1	Apartment	1	3.0
## 39	4.2	Hotel	1	4.5
## 40	5.0	Apartment	1	3.0
## 41	4.5	Hotel	1	2.0
## 42	5.1	Hostel	1	3.7
## 43	4.6	Apartment	1	3.0
## 44	4.8	Apartment	1	3.5
## 45	4.3	Hotel	1	3.4
## 46	4.4	Apartment	1	NA
## 47	4.2	Hotel	1	4.0
## 48	5.3	Apartment	1	3.5
## 49	4.3	Apartment	1	4.1
## 50	4.7	Guest House	1	4.3
## 51	13.0	Hotel	1	3.0
## 52	2.9	Hotel	1	4.4
## 53	2.9	Apartment	1	4.1
## 54	2.8	Hotel	1	4.5
## 55	2.6	Hotel	1	4.5
## 56	2.8	Hotel	1	4.8
## 57	2.6	Hotel	1	4.3
## 58	3.1	Hotel	1	4.1
## 59	3.0	Hotel	1	4.5
## 60	3.0	Hotel	1	4.3
## 61	2.7	Hotel	1	4.3
## 62	2.8	Hotel	1	4.5
## 63	2.6	Hotel	1	4.5
## 64	2.5	Apartment	1	3.7
## 65	2.9	Hotel	1	4.4
## 66	3.1	Pension	1	4.0
## 67	3.3	Apartment	1	NA
## 68	2.6	Hotel	1	3.7
## 69	2.5	Hotel	1	4.5
## 70	2.6	Hotel	1	4.0

## 71	2.5	Hotel	1	3.9
## 72	2.9	Hotel	1	4.4
## 73	3.1	Hotel	1	4.8
## 74	3.4	Apartment	1	4.1
## 75	2.6	Apartment	1	4.3
## 76	2.9	Apartment	1	NA
## 77	2.9	Apartment	1	NA
## 78	2.9	Hotel	1	4.0
## 79	2.5	Hotel	1	4.3
## 80	2.6	Pension	1	4.0
## 81	2.9	Hotel	1	4.5
## 82	2.9	Hotel	1	4.4
## 83	2.7	Vacation home Condo	1	NA
## 84	2.7	Apartment	1	NA
## 85	2.7	Apartment	1	NA
## 86	2.7	Apartment	1	NA
## 87	2.6	Apartment	1	4.0
## 88	3.2	Hotel	1	4.8
## 89	3.2	Hotel	1	4.6
## 90	3.2	Hotel	1	4.5
## 91	3.1	Hotel	1	4.3
## 92	2.7	Apartment	1	4.0
## 93	2.6	Hotel	1	4.6
## 94	2.7	Hotel	1	4.5
## 95	2.6	Hotel	1	3.9
## 96	2.6	Apartment	1	4.0
## 97	3.3	Hotel	1	4.4
## 98	3.3	Apartment	1	NA
## 99	3.5	Hotel	1	4.5
## 100	2.8	Hotel	1	4.5
## 101	2.9	Hotel	1	4.3
## 102	2.8	Hotel	1	4.1
## 103	2.6	Apartment	1	NA
## 104	2.5	Hotel	1	3.5
## 105	2.6	Apartment	1	NA
## 106	3.1	Hotel	1	4.0
## 107	3.0	Guest House	1	3.0
## 108	2.7	Hotel	1	4.1
## 109	2.8	Apart-hotel	1	4.5
## 110	3.3	Hotel	1	4.3
## 111	2.7	Hotel	1	4.4
## 112	2.6	Hotel	1	4.4
## 113	2.6	Guest House	1	3.7
## 114	2.6	Apartment	1	1.0
## 115	2.7	Hotel	1	4.5
## 116	2.5	Hotel	1	4.8
## 117	2.8	Hotel	1	4.3
## 118	3.1	Hotel	1	4.1
## 119	3.1	Hotel	1	4.6
## 120	2.7	Pension	1	4.4
## 121	2.5	Apartment	1	NA
## 122	2.5	Hotel	1	4.5
## 123	2.7	Apartment	1	NA
## 124	2.6	Apartment	1	4.5

## 125	2.9	Pension	1	3.9
## 126	2.8	Apartment	1	4.6
## 127	2.6	Apartment	1	NA
## 128	3.0	Apartment	1	NA
## 129	2.8	Hotel	1	4.8
## 130	2.4	Hotel	1	3.5
## 131	2.7	Hotel	1	4.4
## 132	2.7	Apartment	1	NA
## 133	2.3	Hotel	1	4.0
## 134	2.8	Apartment	1	2.0
## 135	2.6	Apart-hotel	1	4.4
## 136	3.1	Pension	1	4.1
## 137	2.9	Hotel	1	3.5
## 138	2.7	Apartment	1	3.2
## 139	3.6	Hotel	1	3.5
## 140	3.2	Pension	1	3.7
## 141	3.2	Apartment	1	3.0
## 142	3.4	Pension	1	3.0
## 143	3.3	Pension	1	3.5
## 144	3.4	Hotel	1	4.1
## 145	3.4	Hotel	1	4.1
## 146	3.3	Hotel	1	4.4
## 147	3.5	Pension	1	3.7
## 148	3.8	Apartment	1	NA
## 149	3.7	Hotel	1	3.9
## 150	3.4	Hotel	1	4.0
## 151	3.4	Hotel	1	4.3
## 152	3.4	Hotel	1	4.0
## 153	3.5	Apartment	1	5.0
## 154	3.4	Hotel	1	3.2
## 155	3.3	Apartment	1	4.0
## 156	3.5	Hotel	1	4.0
## 157	3.5	Hotel	1	3.9
## 158	3.4	Hotel	1	4.1
## 159	3.3	Pension	1	3.5
## 160	3.3	Apart-hotel	1	3.7
## 161	4.0	Apartment	1	4.0
## 162	3.5	Hotel	1	4.5
## 163	3.8	Apartment	1	4.4
## 164	3.2	Hotel	1	3.7
## 165	3.2	Hotel	1	4.5
## 166	3.0	Hotel	1	4.1
## 167	3.0	Hotel	1	4.3
## 168	3.1	Hotel	1	4.1
## 169	3.3	Hotel	1	4.5
## 170	2.9	Apartment	1	NA
## 171	3.0	Pension	1	4.1
## 172	3.1	Hotel	1	4.8
## 173	2.8	Hotel	1	4.4
## 174	3.1	Apartment	1	NA
## 175	3.2	Hotel	1	4.3
## 176	3.2	Apartment	1	4.1
## 177	2.4	Apartment	1	2.5
## 178	3.0	Apartment	1	NA



## 179	3.0	Apartment	1	4.4
## 180	3.1	Apartment	1	4.0
## 181	2.8	Apartment	1	3.7
## 182	2.8	Bed and breakfast	1	4.8
## 183	3.0	Hotel	1	4.3
## 184	3.6	Apartment	1	4.0
## 185	3.7	Apartment	1	2.0
## 186	3.1	Hotel	1	4.0
## 187	3.3	Hotel	1	4.1
## 188	3.4	Hotel	1	3.9
## 189	2.7	Hotel	1	4.1
## 190	2.7	Guest House	1	3.7
## 191	3.8	Hotel	1	4.1
## 192	2.6	Hotel	1	3.4
## 193	2.5	Hotel	1	4.3
## 194	3.6	Apartment	1	2.0
## 195	3.4	Vacation home Condo	1	4.3
## 196	2.1	Hotel	1	3.5
## 197	2.2	Apartment	1	4.5
## 198	3.3	Hotel	1	4.1
## 199	3.3	Hotel	1	4.5
## 200	3.3	Apartment	1	3.7
## 201	3.3	Hotel	1	3.7
## 202	3.0	Hotel	1	4.3
## 203	3.3	Hotel	1	3.7
## 204	3.3	Apartment	1	4.5
## 205	3.2	Hotel	1	4.1
## 206	3.5	Apartment	1	4.0
## 207	2.3	Hotel	1	4.1
## 208	1.6	Hotel	1	4.5
## 209	1.9	Apartment	1	2.2
## 210	1.0	Hotel	1	4.0
## 211	1.4	Apartment	1	4.1
## 212	1.9	Hotel	1	3.4
## 213	2.3	Apartment	1	3.7
## 214	2.2	Hotel	1	4.0
## 215	1.4	Apartment	1	4.3
## 216	1.9	Hotel	1	3.7
## 217	2.3	Hotel	1	4.0
## 218	1.8	Hotel	1	4.5
## 219	1.3	Apartment	1	3.5
## 220	1.4	Hotel	1	3.5
## 221	1.4	Hotel	1	3.9
## 222	2.0	Hotel	1	4.0
## 223	2.2	Hotel	1	1.0
## 224	2.1	Hotel	1	4.0
## 225	1.4	Hotel	1	3.9
## 226	1.4	Apartment	1	3.4
## 227	1.9	Hotel	1	3.7
## 228	1.7	Hotel	1	4.1
## 229	1.7	Hotel	1	4.0
## 230	2.2	Apartment	1	3.9
## 231	2.3	Apartment	1	NA
## 232	2.4	Hotel	1	4.5

## 233	2.1	Hotel	1	4.5
## 234	1.9	Hotel	1	4.5
## 235	1.2	Hotel	1	4.1
## 236	2.2	Hotel	1	4.0
## 237	2.3	Apartment	1	4.5
## 238	2.0	Hotel	1	4.1
## 239	2.0	Hotel	1	4.0
## 240	2.2	Hotel	1	4.1
## 241	2.2	Hotel	1	2.2
## 242	2.3	Hotel	1	4.6
## 243	1.9	Hotel	1	3.5
## 244	2.3	Hotel	1	4.4
## 245	1.9	Hotel	1	4.5
## 246	2.1	Apartment	1	NA
## 247	1.9	Hotel	1	3.9
## 248	4.7	Hotel	1	4.0
## 249	4.4	Apartment	1	4.3
## 250	4.8	Apartment	1	NA
## 251	4.8	Hotel	1	4.5
## 252	4.3	Hotel	1	4.3
## 253	4.7	Hotel	1	3.5
## 254	4.2	Apartment	1	4.3
## 255	4.3	Hotel	1	4.5
## 256	4.4	Apartment	1	NA
## 257	4.2	Hotel	1	3.9
## 258	4.7	Guest House	1	NA
## 259	4.5	Hotel	1	4.0
## 260	4.1	Hotel	1	4.1
## 261	4.6	Apartment	1	4.1
## 262	4.7	Apartment	1	3.2
## 263	4.3	Apartment	1	5.0
## 264	3.9	Apartment	1	4.6
## 265	4.1	Hotel	1	4.0
## 266	3.6	Hotel	1	3.7
## 267	3.4	Hotel	1	4.1
## 268	4.7	Apartment	1	4.1
## 269	3.8	Hotel	1	4.0
## 270	4.2	Hotel	1	3.9
## 271	3.9	Hotel	1	4.0
## 272	4.6	Apartment	1	4.5
## 273	4.6	Hotel	1	4.0
## 274	3.6	Hotel	1	4.8
## 275	3.8	Hotel	1	4.0
## 276	3.9	Pension	1	4.1
## 277	4.1	Hotel	1	4.4
## 278	4.4	Hotel	1	4.5
## 279	3.8	Pension	1	3.7
## 280	3.9	Hotel	1	3.9
## 281	4.5	Hotel	1	3.9
## 282	4.5	Apartment	1	NA
## 283	4.4	Apartment	1	NA
## 284	4.4	Apartment	1	3.7
## 285	4.7	Hotel	1	3.5
## 286	4.3	Hotel	1	3.7

## 287	4.3	Hotel	1	4.3
## 288	3.7	Hotel	1	3.7
## 289	3.5	Hotel	1	3.7
## 290	3.4	Hotel	1	4.9
## 291	4.4	Hotel	1	4.1
## 292	4.1	Bed and breakfast	1	4.0
## 293	4.3	Apartment	1	4.6
## 294	4.3	Apartment	1	5.0
## 295	4.2	Hotel	1	3.5
## 296	4.1	Bed and breakfast	1	4.4
## 297	3.6	Hotel	1	3.7
## 298	3.6	Hotel	1	4.4
## 299	3.7	Hotel	1	4.6
## 300	4.2	Hotel	1	3.2
## 301	3.8	Hotel	1	4.3
## 302	4.4	Hotel	1	4.1
## 303	3.5	Hotel	1	3.9
## 304	4.3	Hotel	1	4.3
## 305	4.3	Hotel	1	4.0
## 306	4.2	Apartment	1	5.0
## 307	4.1	Apartment	1	NA
## 308	4.0	Hotel	1	4.0
## 309	3.9	Hotel	1	4.1
## 310	4.4	Apartment	1	3.2
## 311	4.6	Apartment	1	4.3
## 312	5.2	Hotel	1	3.5
## 313	4.1	Apartment	1	3.7
## 314	6.0	Hotel	1	4.0
## 315	5.3	Hotel	1	4.0
## 316	5.2	Apartment	1	NA
## 317	4.6	Hostel	1	3.7
## 318	4.4	Hotel	1	3.9
## 319	4.9	Apartment	1	2.2
## 320	4.5	Hotel	1	4.5
## 321	4.8	Hotel	1	4.1
## 322	4.9	Apartment	1	3.9
## 323	4.9	Hotel	1	4.1
## 324	5.1	Apartment	1	3.7
## 325	6.1	Hotel	1	3.7
## 326	5.5	Hotel	1	4.0
## 327	4.4	Apartment	1	4.5
## 328	4.8	Hotel	1	3.7
## 329	4.8	Hotel	1	4.1
## 330	4.6	Hostel	1	4.1
## 331	5.3	Apartment	1	4.0
## 332	4.5	Hotel	1	3.9
## 333	4.7	Hostel	1	4.5
## 334	5.5	Hotel	1	4.3
## 335	4.3	Hotel	1	3.9
## 336	6.2	Hotel	1	3.5
## 337	4.8	Hotel	1	3.7
## 338	4.9	Hotel	1	4.5
## 339	5.4	Hotel	1	3.7
## 340	6.2	Hotel	1	4.3

## 341	6.3	Hotel	1	3.5
## 342	5.2	Hotel	1	4.5
## 343	5.4	Hotel	1	4.4
## 344	6.8	Hotel	1	3.7
## 345	5.9	Hotel	1	2.7
## 346	5.4	Hotel	1	4.5
## 347	5.6	Hotel	1	4.1
## 348	5.1	Apartment	1	4.3
## 349	5.4	Guest House	1	3.5
## 350	11.0	Hotel	1	4.3
## 351	11.0	Hotel	1	4.0
## 352	7.9	Hotel	1	3.7
## 353	7.9	Hotel	1	3.7
## 354	8.0	Hotel	1	3.5
## 355	6.9	Hotel	1	3.2
## 356	8.2	Hotel	1	3.5
## 357	6.7	Apartment	1	NA
## 358	5.4	Apartment	1	4.0
## 359	7.0	Pension	1	4.3
## 360	3.4	Hotel	1	4.0
## 361	8.1	Pension	1	4.1
## 362	6.4	Hotel	1	3.7
## 363	1.3	Apartment	1	4.6
## 364	3.7	Hotel	1	3.5
## 365	6.4	Hotel	1	4.1
## 366	6.2	Hotel	1	4.0
## 367	1.9	Hotel	1	4.3
## 368	1.1	Apartment-hotel	1	4.4
## 369	1.8	Guest House	1	3.7
## 370	2.3	Apartment	1	NA
## 371	5.9	Hotel	1	4.0
## 372	7.3	Hotel	1	3.9
## 373	6.4	Hotel	1	3.7
## 374	6.6	Hotel	1	4.0
## 375	6.6	Hotel	1	3.9
## 376	7.4	Apartment	1	3.2
## 377	6.2	Apartment	1	3.0
## 378	9.6	Apartment	1	4.0
## 379	5.0	Hotel	1	4.0
## 380	7.6	Hotel	1	4.0
## 381	5.2	Apartment	1	3.2
## 382	5.4	Apartment	1	3.0
## 383	9.4	Hotel	1	4.4
## 384	4.5	Hotel	1	4.3
## 385	4.6	Hotel	1	3.7
## 386	5.2	Hotel	1	4.0
## 387	3.7	Hotel	1	4.0
## 388	3.8	Hotel	1	4.1
## 389	7.6	Hostel	1	3.2
## 390	3.9	Hotel	1	4.0
## 391	7.4	Hotel	1	3.0
## 392	4.2	Hotel	1	4.4
## 393	4.6	Apartment	1	3.2
## 394	4.1	Pension	1	3.2

## 395	5.3	Apartment	1	3.7
## 396	7.7	Apartment	1	3.2
## 397	7.8	Apartment	1	4.0
## 398	1.8	Apartment	1	4.4
## 399	2.2	Apartment	1	4.9
## 400	9.7	Hotel	1	3.5
## 401	9.9	Hotel	1	3.7
## 402	2.7	Hotel	1	4.4
## 403	3.2	Apartment	1	3.5
## 404	3.0	Hotel	1	4.4
## 405	3.2	Hotel	1	4.0
## 406	3.1	Apartment	1	4.0
## 407	4.0	Hotel	1	4.5
## 408	4.0	Hotel	1	4.3
## 409	3.6	Hotel	1	4.1
## 410	3.6	Hotel	1	4.5
## 411	3.9	Hotel	1	4.3
## 412	3.5	Hotel	1	4.8
## 413	4.0	Guest House	1	3.5
## 414	3.9	Hotel	1	4.5
## 415	3.7	Hotel	1	4.4
## 416	3.8	Hostel	1	3.4
## 417	3.5	Hotel	1	4.5
## 418	3.7	Hotel	1	3.5
## 419	3.6	Hotel	1	3.9
## 420	3.6	Apartment	1	5.0
## 421	3.7	Hotel	1	4.0
## 422	3.9	Hotel	1	4.1
## 423	4.0	Hotel	1	3.4
## 424	3.8	Apartment	1	5.0
## 425	3.6	Hotel	1	4.3
## 426	3.7	Hotel	1	4.4
## 427	4.1	Hotel	1	3.2
## 428	3.5	Apartment	1	4.0

b.

```
dim(hotels_data)
```

```
## [1] 428 24
```

c.

```
selected_dataset <- hotels_data[,c("country", "neighbourhood", "price", "stars", "accommodation_type", "rating")]
selected_dataset
```

##	country	neighbourhood	price	stars	accommodation_type	rating
## 1	Austria	17. Hernals	81	4.0	Apartment	4.4
## 2	Austria	17. Hernals	81	4.0	Hotel	3.9
## 3	Austria	Alsergrund	85	4.0	Hotel	3.7
## 4	Austria	Alsergrund	83	3.0	Hotel	4.0
## 5	Austria	Alsergrund	82	4.0	Hotel	3.9

## 6	Austria	Alsergrund	229	5.0	Apartment	4.8
## 7	Austria	Alsergrund	103	4.0	Hotel	3.9
## 8	Austria	Alsergrund	150	4.0	Hotel	4.6
## 9	Austria	Alsergrund	80	2.0	Hotel	3.5
## 10	Austria	Alsergrund	153	3.0	Apartment	NA
## 11	Austria	Alsergrund	60	4.0	Hotel	4.1
## 12	Austria	Alsergrund	128	4.0	Hotel	4.0
## 13	Austria	Alsergrund	100	4.0	Apartment	4.5
## 14	Austria	Alsergrund	143	2.0	Apartment	3.7
## 15	Austria	Alsergrund	106	2.5	Hotel	NA
## 16	Austria	Alsergrund	85	4.0	Hotel	4.1
## 17	Austria	Alsergrund	77	3.0	Hotel	3.7
## 18	Austria	Alsergrund	78	3.0	Hotel	3.9
## 19	Austria	Alsergrund	78	3.0	Hotel	4.0
## 20	Austria	Donaustadt	260	3.5	Apartment	NA
## 21	Austria	Donaustadt	158	3.0	Apartment	4.8
## 22	Austria	Donaustadt	77	3.0	Hotel	3.9
## 23	Austria	Donaustadt	77	3.0	Hotel	2.7
## 24	Austria	Donaustadt	95	4.0	Hotel	4.3
## 25	Austria	Donaustadt	156	3.0	Apartment	3.0
## 26	Austria	Donaustadt	145	3.0	Bed and breakfast	3.5
## 27	Austria	Donaustadt	208	4.0	Hotel	4.1
## 28	Austria	Donaustadt	87	3.0	Hotel	3.7
## 29	Austria	Favoriten	131	2.0	Apartment	3.5
## 30	Austria	Favoriten	54	3.0	Hotel	3.5
## 31	Austria	Favoriten	139	2.0	Apartment	3.0
## 32	Austria	Favoriten	184	2.0	Apartment	3.2
## 33	Austria	Favoriten	127	3.0	Apartment	1.0
## 34	Austria	Favoriten	95	3.0	Apartment	NA
## 35	Austria	Favoriten	99	3.5	Hotel	4.4
## 36	Austria	Favoriten	75	3.5	Hotel	4.4
## 37	Austria	Favoriten	76	3.0	Hotel	4.4
## 38	Austria	Favoriten	130	2.0	Apartment	3.0
## 39	Austria	Favoriten	91	4.0	Hotel	4.5
## 40	Austria	Favoriten	135	2.0	Apartment	3.0
## 41	Austria	Favoriten	56	2.0	Hotel	2.0
## 42	Austria	Favoriten	27	2.0	Hostel	3.7
## 43	Austria	Favoriten	88	3.0	Apartment	3.0
## 44	Austria	Favoriten	133	2.0	Apartment	3.5
## 45	Austria	Favoriten	33	2.0	Hotel	3.4
## 46	Austria	Favoriten	116	3.5	Apartment	NA
## 47	Austria	Favoriten	71	4.0	Hotel	4.0
## 48	Austria	Favoriten	90	3.5	Apartment	3.5
## 49	Austria	Favoriten	84	4.0	Apartment	4.1
## 50	Austria	Favoriten	63	3.0	Guest House	4.3
## 51	Austria	Fischamend	59	3.0	Hotel	3.0
## 52	Austria	Graben	113	3.0	Hotel	4.4
## 53	Austria	Graben	218	4.5	Apartment	4.1
## 54	Austria	Graben	299	5.0	Hotel	4.5
## 55	Austria	Innere Stadt	156	3.0	Hotel	4.5
## 56	Austria	Innere Stadt	513	5.0	Hotel	4.8
## 57	Austria	Innere Stadt	133	4.0	Hotel	4.3
## 58	Austria	Innere Stadt	123	4.0	Hotel	4.1
## 59	Austria	Innere Stadt	219	4.0	Hotel	4.5

## 60	Austria	Innere Stadt	152	4.0	Hotel	4.3
## 61	Austria	Innere Stadt	115	4.0	Hotel	4.3
## 62	Austria	Innere Stadt	806	5.0	Hotel	4.5
## 63	Austria	Innere Stadt	138	4.0	Hotel	4.5
## 64	Austria	Innere Stadt	95	3.0	Apartment	3.7
## 65	Austria	Innere Stadt	146	4.0	Hotel	4.4
## 66	Austria	Innere Stadt	103	3.0	Pension	4.0
## 67	Austria	Innere Stadt	125	3.5	Apartment	NA
## 68	Austria	Innere Stadt	98	3.0	Hotel	3.7
## 69	Austria	Innere Stadt	121	3.5	Hotel	4.5
## 70	Austria	Innere Stadt	149	4.0	Hotel	4.0
## 71	Austria	Innere Stadt	120	3.0	Hotel	3.9
## 72	Austria	Innere Stadt	157	3.0	Hotel	4.4
## 73	Austria	Innere Stadt	261	5.0	Hotel	4.8
## 74	Austria	Innere Stadt	145	3.5	Apartment	4.1
## 75	Austria	Innere Stadt	275	4.0	Apartment	4.3
## 76	Austria	Innere Stadt	253	3.5	Apartment	NA
## 77	Austria	Innere Stadt	209	4.0	Apartment	NA
## 78	Austria	Innere Stadt	112	4.0	Hotel	4.0
## 79	Austria	Innere Stadt	138	4.0	Hotel	4.3
## 80	Austria	Innere Stadt	84	3.0	Pension	4.0
## 81	Austria	Innere Stadt	199	4.5	Hotel	4.5
## 82	Austria	Innere Stadt	203	5.0	Hotel	4.4
## 83	Austria	Innere Stadt	116	3.0	Vacation home Condo	NA
## 84	Austria	Innere Stadt	107	3.5	Apartment	NA
## 85	Austria	Innere Stadt	127	3.5	Apartment	NA
## 86	Austria	Innere Stadt	104	3.5	Apartment	NA
## 87	Austria	Innere Stadt	168	3.5	Apartment	4.0
## 88	Austria	Innere Stadt	544	5.0	Hotel	4.8
## 89	Austria	Innere Stadt	252	5.0	Hotel	4.6
## 90	Austria	Innere Stadt	323	5.0	Hotel	4.5
## 91	Austria	Innere Stadt	158	3.0	Hotel	4.3
## 92	Austria	Innere Stadt	156	3.5	Apartment	4.0
## 93	Austria	Innere Stadt	218	4.0	Hotel	4.6
## 94	Austria	Innere Stadt	218	4.0	Hotel	4.5
## 95	Austria	Innere Stadt	135	3.0	Hotel	3.9
## 96	Austria	Innere Stadt	219	2.0	Apartment	4.0
## 97	Austria	Innere Stadt	179	4.0	Hotel	4.4
## 98	Austria	Innere Stadt	511	3.5	Apartment	NA
## 99	Austria	Innere Stadt	157	4.0	Hotel	4.5
## 100	Austria	Innere Stadt	146	4.0	Hotel	4.5
## 101	Austria	Innere Stadt	200	5.0	Hotel	4.3
## 102	Austria	Innere Stadt	157	4.0	Hotel	4.1
## 103	Austria	Innere Stadt	138	4.0	Apartment	NA
## 104	Austria	Innere Stadt	108	3.0	Hotel	3.5
## 105	Austria	Innere Stadt	290	3.5	Apartment	NA
## 106	Austria	Innere Stadt	127	4.0	Hotel	4.0
## 107	Austria	Innere Stadt	114	3.0	Guest House	3.0
## 108	Austria	Innere Stadt	163	4.0	Hotel	4.1
## 109	Austria	Innere Stadt	116	4.0	Apart-hotel	4.5
## 110	Austria	Innere Stadt	226	5.0	Hotel	4.3
## 111	Austria	Innere Stadt	231	4.0	Hotel	4.4
## 112	Austria	Innere Stadt	116	4.0	Hotel	4.4
## 113	Austria	Innere Stadt	76	3.0	Guest House	3.7

## 114	Austria	Innere Stadt	135	3.5	Apartment	1.0
## 115	Austria	Innere Stadt	184	5.0	Hotel	4.5
## 116	Austria	Innere Stadt	384	5.0	Hotel	4.8
## 117	Austria	Innere Stadt	166	4.0	Hotel	4.3
## 118	Austria	Innere Stadt	187	5.0	Hotel	4.1
## 119	Austria	Innere Stadt	371	5.0	Hotel	4.6
## 120	Austria	Innere Stadt	156	4.0	Pension	4.4
## 121	Austria	Innere Stadt	220	3.5	Apartment	NA
## 122	Austria	Innere Stadt	169	4.0	Hotel	4.5
## 123	Austria	Innere Stadt	103	3.0	Apartment	NA
## 124	Austria	Innere Stadt	266	5.0	Apartment	4.5
## 125	Austria	Innere Stadt	131	3.0	Pension	3.9
## 126	Austria	Innere Stadt	168	4.0	Apartment	4.6
## 127	Austria	Innere Stadt	101	3.0	Apartment	NA
## 128	Austria	Innere Stadt	364	3.5	Apartment	NA
## 129	Austria	Innere Stadt	242	4.0	Hotel	4.8
## 130	Austria	Innere Stadt	223	4.0	Hotel	3.5
## 131	Austria	Innere Stadt	149	4.0	Hotel	4.4
## 132	Austria	Innere Stadt	232	3.5	Apartment	NA
## 133	Austria	Innere Stadt	114	4.0	Hotel	4.0
## 134	Austria	Innere Stadt	253	3.5	Apartment	2.0
## 135	Austria	Innere Stadt	163	4.0	Apart-hotel	4.4
## 136	Austria	Innere Stadt	116	3.0	Pension	4.1
## 137	Austria	Innere Stadt	139	4.0	Hotel	3.5
## 138	Austria	Innere Stadt	91	3.5	Apartment	3.2
## 139	Austria	Josefstadt	79	3.0	Hotel	3.5
## 140	Austria	Josefstadt	66	4.0	Pension	3.7
## 141	Austria	Josefstadt	100	3.0	Apartment	3.0
## 142	Austria	Josefstadt	75	2.5	Pension	3.0
## 143	Austria	Josefstadt	73	2.0	Pension	3.5
## 144	Austria	Josefstadt	127	5.0	Hotel	4.1
## 145	Austria	Josefstadt	110	3.0	Hotel	4.1
## 146	Austria	Josefstadt	88	3.0	Hotel	4.4
## 147	Austria	Josefstadt	59	3.0	Pension	3.7
## 148	Austria	Josefstadt	355	4.0	Apartment	NA
## 149	Austria	Josefstadt	59	3.0	Hotel	3.9
## 150	Austria	Josefstadt	119	4.0	Hotel	4.0
## 151	Austria	Josefstadt	152	4.0	Hotel	4.3
## 152	Austria	Josefstadt	102	4.0	Hotel	4.0
## 153	Austria	Josefstadt	363	3.5	Apartment	5.0
## 154	Austria	Josefstadt	54	3.0	Hotel	3.2
## 155	Austria	Josefstadt	101	3.0	Apartment	4.0
## 156	Austria	Josefstadt	75	2.0	Hotel	4.0
## 157	Austria	Josefstadt	73	2.0	Hotel	3.9
## 158	Austria	Josefstadt	94	3.0	Hotel	4.1
## 159	Austria	Josefstadt	64	4.0	Pension	3.5
## 160	Austria	Josefstadt	81	3.5	Apart-hotel	3.7
## 161	Austria	Josefstadt	162	3.0	Apartment	4.0
## 162	Austria	Josefstadt	115	4.0	Hotel	4.5
## 163	Austria	Josefstadt	101	4.0	Apartment	4.4
## 164	Austria	Josefstadt	68	3.0	Hotel	3.7
## 165	Austria	Kaerntner Strasse	354	5.0	Hotel	4.5
## 166	Austria	Kaerntner Strasse	153	4.0	Hotel	4.1
## 167	Austria	Kaerntner Strasse	202	5.0	Hotel	4.3



## 168	Austria	Kaerntner Strasse	169	4.0	Hotel	4.1
## 169	Austria	Kaerntner Strasse	182	4.0	Hotel	4.5
## 170	Austria	Kaerntner Strasse	193	3.0	Apartment	NA
## 171	Austria	Kaerntner Strasse	138	4.0	Pension	4.1
## 172	Austria	Kaerntner Strasse	527	5.0	Hotel	4.8
## 173	Austria	Kaerntner Strasse	142	4.0	Hotel	4.4
## 174	Austria	Kaerntner Strasse	98	3.5	Apartment	NA
## 175	Austria	Landstrasse	110	4.0	Hotel	4.3
## 176	Austria	Landstrasse	82	3.5	Apartment	4.1
## 177	Austria	Landstrasse	91	3.5	Apartment	2.5
## 178	Austria	Landstrasse	150	3.5	Apartment	NA
## 179	Austria	Landstrasse	83	3.5	Apartment	4.4
## 180	Austria	Landstrasse	95	4.5	Apartment	4.0
## 181	Austria	Landstrasse	131	3.0	Apartment	3.7
## 182	Austria	Landstrasse	162	4.0	Bed and breakfast	4.8
## 183	Austria	Landstrasse	177	5.0	Hotel	4.3
## 184	Austria	Landstrasse	122	2.0	Apartment	4.0
## 185	Austria	Landstrasse	79	3.0	Apartment	2.0
## 186	Austria	Landstrasse	82	4.0	Hotel	4.0
## 187	Austria	Landstrasse	82	4.0	Hotel	4.1
## 188	Austria	Landstrasse	66	3.0	Hotel	3.9
## 189	Austria	Landstrasse	169	4.0	Hotel	4.1
## 190	Austria	Landstrasse	59	3.0	Guest House	3.7
## 191	Austria	Landstrasse	109	4.0	Hotel	4.1
## 192	Austria	Landstrasse	104	3.0	Hotel	3.4
## 193	Austria	Landstrasse	145	3.5	Hotel	4.3
## 194	Austria	Landstrasse	58	3.5	Apartment	2.0
## 195	Austria	Landstrasse	107	4.0	Vacation home Condo	4.3
## 196	Austria	Landstrasse	85	3.0	Hotel	3.5
## 197	Austria	Landstrasse	184	4.0	Apartment	4.5
## 198	Austria	Landstrasse	137	4.5	Hotel	4.1
## 199	Austria	Landstrasse	116	4.5	Hotel	4.5
## 200	Austria	Landstrasse	157	2.0	Apartment	3.7
## 201	Austria	Landstrasse	110	3.0	Hotel	3.7
## 202	Austria	Landstrasse	134	4.0	Hotel	4.3
## 203	Austria	Landstrasse	79	4.0	Hotel	3.7
## 204	Austria	Landstrasse	143	3.0	Apartment	4.5
## 205	Austria	Landstrasse	132	4.0	Hotel	4.1
## 206	Austria	Landstrasse	68	4.0	Apartment	4.0
## 207	Austria	Leopoldstadt	128	4.0	Hotel	4.1
## 208	Austria	Leopoldstadt	99	3.0	Hotel	4.5
## 209	Austria	Leopoldstadt	149	2.0	Apartment	2.2
## 210	Austria	Leopoldstadt	86	4.0	Hotel	4.0
## 211	Austria	Leopoldstadt	155	3.0	Apartment	4.1
## 212	Austria	Leopoldstadt	63	3.0	Hotel	3.4
## 213	Austria	Leopoldstadt	157	2.0	Apartment	3.7
## 214	Austria	Leopoldstadt	134	3.5	Hotel	4.0
## 215	Austria	Leopoldstadt	141	5.0	Apartment	4.3
## 216	Austria	Leopoldstadt	79	3.0	Hotel	3.7
## 217	Austria	Leopoldstadt	138	4.0	Hotel	4.0
## 218	Austria	Leopoldstadt	113	4.0	Hotel	4.5
## 219	Austria	Leopoldstadt	171	3.0	Apartment	3.5
## 220	Austria	Leopoldstadt	56	2.0	Hotel	3.5
## 221	Austria	Leopoldstadt	84	3.0	Hotel	3.9

## 222	Austria	Leopoldstadt	72	2.0	Hotel	4.0
## 223	Austria	Leopoldstadt	587	5.0	Hotel	1.0
## 224	Austria	Leopoldstadt	68	3.0	Hotel	4.0
## 225	Austria	Leopoldstadt	102	3.5	Hotel	3.9
## 226	Austria	Leopoldstadt	96	3.0	Apartment	3.4
## 227	Austria	Leopoldstadt	81	1.0	Hotel	3.7
## 228	Austria	Leopoldstadt	82	3.0	Hotel	4.1
## 229	Austria	Leopoldstadt	66	3.0	Hotel	4.0
## 230	Austria	Leopoldstadt	87	3.0	Apartment	3.9
## 231	Austria	Leopoldstadt	364	4.0	Apartment	NA
## 232	Austria	Leopoldstadt	240	5.0	Hotel	4.5
## 233	Austria	Leopoldstadt	113	3.0	Hotel	4.5
## 234	Austria	Leopoldstadt	106	3.0	Hotel	4.5
## 235	Austria	Leopoldstadt	89	3.0	Hotel	4.1
## 236	Austria	Leopoldstadt	61	2.0	Hotel	4.0
## 237	Austria	Leopoldstadt	92	3.5	Apartment	4.5
## 238	Austria	Leopoldstadt	106	4.0	Hotel	4.1
## 239	Austria	Leopoldstadt	100	4.0	Hotel	4.0
## 240	Austria	Leopoldstadt	75	3.0	Hotel	4.1
## 241	Austria	Leopoldstadt	84	3.0	Hotel	2.2
## 242	Austria	Leopoldstadt	151	4.0	Hotel	4.6
## 243	Austria	Leopoldstadt	87	3.0	Hotel	3.5
## 244	Austria	Leopoldstadt	117	4.0	Hotel	4.4
## 245	Austria	Leopoldstadt	120	4.0	Hotel	4.5
## 246	Austria	Leopoldstadt	132	3.5	Apartment	NA
## 247	Austria	Leopoldstadt	68	2.5	Hotel	3.9
## 248	Austria	Margareten	383	3.0	Hotel	4.0
## 249	Austria	Margareten	160	4.0	Apartment	4.3
## 250	Austria	Margareten	135	2.0	Apartment	NA
## 251	Austria	Margareten	111	4.5	Hotel	4.5
## 252	Austria	Margareten	174	4.0	Hotel	4.3
## 253	Austria	Margareten	63	3.0	Hotel	3.5
## 254	Austria	Margareten	73	3.0	Apartment	4.3
## 255	Austria	Margareten	100	3.5	Hotel	4.5
## 256	Austria	Margareten	162	3.5	Apartment	NA
## 257	Austria	Margareten	86	4.0	Hotel	3.9
## 258	Austria	Margareten	103	3.0	Guest House	NA
## 259	Austria	Margareten	67	3.0	Hotel	4.0
## 260	Austria	Margareten	129	4.0	Hotel	4.1
## 261	Austria	Margareten	80	3.0	Apartment	4.1
## 262	Austria	Margareten	131	2.0	Apartment	3.2
## 263	Austria	Margareten	150	3.5	Apartment	5.0
## 264	Austria	Mariahilf	159	3.0	Apartment	4.6
## 265	Austria	Mariahilf	86	3.0	Hotel	4.0
## 266	Austria	Mariahilf	96	2.0	Hotel	3.7
## 267	Austria	Mariahilf	131	4.0	Hotel	4.1
## 268	Austria	Mariahilf	103	4.0	Apartment	4.1
## 269	Austria	Mariahilf	85	2.0	Hotel	4.0
## 270	Austria	Mariahilf	80	3.0	Hotel	3.9
## 271	Austria	Mariahilf	93	4.0	Hotel	4.0
## 272	Austria	Mariahilf	81	3.5	Apartment	4.5
## 273	Austria	Mariahilf	77	3.0	Hotel	4.0
## 274	Austria	Mariahilf	140	4.0	Hotel	4.8
## 275	Austria	Mariahilf	99	4.0	Hotel	4.0

## 276 Austria	Mariahilf	75	4.0	Pension	4.1
## 277 Austria	Mariahilf	105	4.0	Hotel	4.4
## 278 Austria	Mariahilf	100	3.5	Hotel	4.5
## 279 Austria	Mariahilf	89	3.0	Pension	3.7
## 280 Austria	Mariahilf	82	3.0	Hotel	3.9
## 281 Austria	Mariahilf	82	4.0	Hotel	3.9
## 282 Austria	Mariahilf	88	3.0	Apartment	NA
## 283 Austria	Mariahilf	150	3.0	Apartment	NA
## 284 Austria	Mariahilf	134	2.0	Apartment	3.7
## 285 Austria	Mariahilf	87	4.0	Hotel	3.5
## 286 Austria	Mariahilf	100	4.0	Hotel	3.7
## 287 Austria	Mariahilf	84	4.0	Hotel	4.3
## 288 Austria	Mariahilf	52	2.0	Hotel	3.7
## 289 Austria	Neubau	98	4.0	Hotel	3.7
## 290 Austria	Neubau	333	5.0	Hotel	4.9
## 291 Austria	Neubau	99	3.0	Hotel	4.1
## 292 Austria	Neubau	77	3.0	Bed and breakfast	4.0
## 293 Austria	Neubau	160	3.5	Apartment	4.6
## 294 Austria	Neubau	160	3.5	Apartment	5.0
## 295 Austria	Neubau	76	3.0	Hotel	3.5
## 296 Austria	Neubau	89	3.0	Bed and breakfast	4.4
## 297 Austria	Neubau	113	3.0	Hotel	3.7
## 298 Austria	Neubau	110	4.0	Hotel	4.4
## 299 Austria	Neubau	184	4.0	Hotel	4.6
## 300 Austria	Neubau	33	2.0	Hotel	3.2
## 301 Austria	Neubau	1012	3.0	Hotel	4.3
## 302 Austria	Neubau	99	4.0	Hotel	4.1
## 303 Austria	Neubau	122	3.0	Hotel	3.9
## 304 Austria	Neubau	122	4.0	Hotel	4.3
## 305 Austria	Neubau	105	4.0	Hotel	4.0
## 306 Austria	Neubau	98	4.0	Apartment	5.0
## 307 Austria	Neubau	92	3.5	Apartment	NA
## 308 Austria	Neubau	109	4.0	Hotel	4.0
## 309 Austria	Neubau	105	3.0	Hotel	4.1
## 310 Austria	Ottakring	133	2.0	Apartment	3.2
## 311 Austria	Ottakring	133	2.5	Apartment	4.3
## 312 Austria	Ottakring	52	3.0	Hotel	3.5
## 313 Austria	Ottakring	134	2.0	Apartment	3.7
## 314 Austria	Ottakring	80	4.0	Hotel	4.0
## 315 Austria	Rudolfsheim-Funfhaus	91	2.0	Hotel	4.0
## 316 Austria	Rudolfsheim-Funfhaus	129	4.0	Apartment	NA
## 317 Austria	Rudolfsheim-Funfhaus	47	2.0	Hostel	3.7
## 318 Austria	Rudolfsheim-Funfhaus	70	4.0	Hotel	3.9
## 319 Austria	Rudolfsheim-Funfhaus	88	3.5	Apartment	2.2
## 320 Austria	Rudolfsheim-Funfhaus	136	3.0	Hotel	4.5
## 321 Austria	Rudolfsheim-Funfhaus	80	3.0	Hotel	4.1
## 322 Austria	Rudolfsheim-Funfhaus	131	2.0	Apartment	3.9
## 323 Austria	Rudolfsheim-Funfhaus	81	3.0	Hotel	4.1
## 324 Austria	Rudolfsheim-Funfhaus	133	2.0	Apartment	3.7
## 325 Austria	Rudolfsheim-Funfhaus	66	4.0	Hotel	3.7
## 326 Austria	Rudolfsheim-Funfhaus	77	3.0	Hotel	4.0
## 327 Austria	Rudolfsheim-Funfhaus	121	3.0	Apartment	4.5
## 328 Austria	Rudolfsheim-Funfhaus	69	4.0	Hotel	3.7
## 329 Austria	Rudolfsheim-Funfhaus	83	3.0	Hotel	4.1

##	330	Austria	Rudolfsheim-Funfhaus	53	2.0	Hostel	4.1
##	331	Austria	Rudolfsheim-Funfhaus	133	3.5	Apartment	4.0
##	332	Austria	Rudolfsheim-Funfhaus	77	4.0	Hotel	3.9
##	333	Austria	Rudolfsheim-Funfhaus	48	2.0	Hostel	4.5
##	334	Austria	Rudolfsheim-Funfhaus	142	4.5	Hotel	4.3
##	335	Austria	Rudolfsheim-Funfhaus	121	4.0	Hotel	3.9
##	336	Austria	Schonbrunn	68	3.0	Hotel	3.5
##	337	Austria	Schonbrunn	63	3.0	Hotel	3.7
##	338	Austria	Schonbrunn	101	3.0	Hotel	4.5
##	339	Austria	Schonbrunn	75	4.0	Hotel	3.7
##	340	Austria	Schonbrunn	156	4.0	Hotel	4.3
##	341	Austria	Schonbrunn	56	3.0	Hotel	3.5
##	342	Austria	Schonbrunn	82	3.5	Hotel	4.5
##	343	Austria	Schonbrunn	82	4.0	Hotel	4.4
##	344	Austria	Schonbrunn	106	3.0	Hotel	3.7
##	345	Austria	Schonbrunn	85	3.0	Hotel	2.7
##	346	Austria	Schonbrunn	83	3.5	Hotel	4.5
##	347	Austria	Schonbrunn	92	4.0	Hotel	4.1
##	348	Austria	Schonbrunn	169	3.0	Apartment	4.3
##	349	Austria	Schonbrunn	77	3.0	Guest House	3.5
##	350	Austria	Schwechat	92	3.0	Hotel	4.3
##	351	Austria	Schwechat	166	4.0	Hotel	4.0
##	352	Austria	Schwechat	137	4.0	Hotel	3.7
##	353	Austria	Schwechat	99	3.0	Hotel	3.7
##	354	Austria	Schwechat	140	4.0	Hotel	3.5
##	355	Austria	Schwechat	80	3.0	Hotel	3.2
##	356	Austria	Schwechat	91	3.0	Hotel	3.5
##	357	Austria	Vienna	105	3.5	Apartment	NA
##	358	Austria	Vienna	130	2.0	Apartment	4.0
##	359	Austria	Vienna	110	3.0	Pension	4.3
##	360	Austria	Vienna	117	4.0	Hotel	4.0
##	361	Austria	Vienna	106	4.0	Pension	4.1
##	362	Austria	Vienna	66	3.0	Hotel	3.7
##	363	Austria	Vienna	266	5.0	Apartment	4.6
##	364	Austria	Vienna	58	2.0	Hotel	3.5
##	365	Austria	Vienna	81	3.5	Hotel	4.1
##	366	Austria	Vienna	109	4.0	Hotel	4.0
##	367	Austria	Vienna	114	4.5	Hotel	4.3
##	368	Austria	Vienna	125	3.5	Apart-hotel	4.4
##	369	Austria	Vienna	69	3.0	Guest House	3.7
##	370	Austria	Vienna	69	3.0	Apartment	NA
##	371	Austria	Vienna	97	4.0	Hotel	4.0
##	372	Austria	Vienna	74	4.0	Hotel	3.9
##	373	Austria	Vienna	69	4.0	Hotel	3.7
##	374	Austria	Vienna	83	4.0	Hotel	4.0
##	375	Austria	Vienna	50	3.0	Hotel	3.9
##	376	Austria	Vienna	130	2.0	Apartment	3.2
##	377	Austria	Vienna	134	3.0	Apartment	3.0
##	378	Austria	Vienna	134	3.0	Apartment	4.0
##	379	Austria	Vienna	77	3.0	Hotel	4.0
##	380	Austria	Vienna	102	3.0	Hotel	4.0
##	381	Austria	Vienna	56	3.5	Apartment	3.2
##	382	Austria	Vienna	185	3.0	Apartment	3.0
##	383	Austria	Vienna	130	3.0	Hotel	4.4

## 384 Austria	Vienna	78	3.0	Hotel	4.3
## 385 Austria	Vienna	76	3.0	Hotel	3.7
## 386 Austria	Vienna	68	4.0	Hotel	4.0
## 387 Austria	Vienna	116	4.0	Hotel	4.0
## 388 Austria	Vienna	172	4.0	Hotel	4.1
## 389 Austria	Vienna	80	2.0	Hostel	3.2
## 390 Austria	Vienna	87	3.0	Hotel	4.0
## 391 Austria	Vienna	90	3.0	Hotel	3.0
## 392 Austria	Vienna	100	3.5	Hotel	4.4
## 393 Austria	Vienna	173	2.0	Apartment	3.2
## 394 Austria	Vienna	92	2.0	Pension	3.2
## 395 Austria	Vienna	133	2.0	Apartment	3.7
## 396 Austria	Vienna	134	3.5	Apartment	3.2
## 397 Austria	Vienna	209	3.0	Apartment	4.0
## 398 Austria	Vienna	66	3.0	Apartment	4.4
## 399 Austria	Vienna	114	4.0	Apartment	4.9
## 400 Austria	Voessendorf	89	4.0	Hotel	3.5
## 401 Austria	Voessendorf	92	4.0	Hotel	3.7
## 402 Austria	Wahring	84	3.0	Hotel	4.4
## 403 Austria	Wahring	124	2.0	Apartment	3.5
## 404 Austria	Wahring	185	4.0	Hotel	4.4
## 405 Austria	Wahring	85	4.0	Hotel	4.0
## 406 Austria	Wahring	133	2.0	Apartment	4.0
## 407 Austria	Wieden	110	3.5	Hotel	4.5
## 408 Austria	Wieden	86	3.0	Hotel	4.3
## 409 Austria	Wieden	118	4.0	Hotel	4.1
## 410 Austria	Wieden	126	3.5	Hotel	4.5
## 411 Austria	Wieden	92	3.0	Hotel	4.3
## 412 Austria	Wieden	197	4.0	Hotel	4.8
## 413 Austria	Wieden	39	2.5	Guest House	3.5
## 414 Austria	Wieden	135	4.0	Hotel	4.5
## 415 Austria	Wieden	125	4.0	Hotel	4.4
## 416 Austria	Wieden	67	2.0	Hostel	3.4
## 417 Austria	Wieden	134	4.0	Hotel	4.5
## 418 Austria	Wieden	91	3.0	Hotel	3.5
## 419 Austria	Wieden	110	3.0	Hotel	3.9
## 420 Austria	Wieden	84	3.5	Apartment	5.0
## 421 Austria	Wieden	100	3.0	Hotel	4.0
## 422 Austria	Wieden	95	4.0	Hotel	4.1
## 423 Austria	Wieden	73	3.0	Hotel	3.4
## 424 Austria	Wieden	109	3.0	Apartment	5.0
## 425 Austria	Wieden	185	5.0	Hotel	4.3
## 426 Austria	Wieden	100	4.0	Hotel	4.4
## 427 Austria	Wieden	58	3.0	Hotel	3.2
## 428 Austria	Wieden	110	3.5	Apartment	4.0

d.

```
save(selected_dataset, file = "new.RData")
load("new.RData")
```

e.

```
head(selected_dataset)
```

```
##   country neighbourhood price stars accommodation_type rating
## 1 Austria    17. Hernals    81     4           Apartment    4.4
## 2 Austria    17. Hernals    81     4             Hotel    3.9
## 3 Austria    Alsergrund    85     4             Hotel    3.7
## 4 Austria    Alsergrund    83     3             Hotel    4.0
## 5 Austria    Alsergrund    82     4             Hotel    3.9
## 6 Austria    Alsergrund   229     5           Apartment    4.8
```

```
tail(selected_dataset)
```

```
##   country neighbourhood price stars accommodation_type rating
## 423 Austria      Wieden     73    3.0             Hotel    3.4
## 424 Austria      Wieden    109    3.0           Apartment    5.0
## 425 Austria      Wieden    185    5.0             Hotel    4.3
## 426 Austria      Wieden    100    4.0             Hotel    4.4
## 427 Austria      Wieden     58    3.0             Hotel    3.2
## 428 Austria      Wieden    110    3.5           Apartment    4.0
```

#Problem 10# a.

```
vegetables <- c("Carrot", "Onion", "Garlic", "Eggplant", "Potato", "Lettuce", "Squash", "Cabbage", "Amp
```

b.

```
vegetables <- c(vegetables, "Okra", "Spinach")
vegetables
```

```
## [1] "Carrot" "Onion" "Garlic" "Eggplant" "Potato" "Lettuce"
## [7] "Squash" "Cabbage" "Ampalaya" "Pumpkin" "Okra" "Spinach"
```

```
length(vegetables)
```

```
## [1] 12
```

c.

```
added_veg <- append(vegetables, c("Peas", "Bamboo Shoots", "Seaweed", "Cucumber"), after=5)
added_veg
```

```
## [1] "Carrot" "Onion" "Garlic" "Eggplant"
## [5] "Potato" "Peas" "Bamboo Shoots" "Seaweed"
## [9] "Cucumber" "Lettuce" "Squash" "Cabbage"
## [13] "Ampalaya" "Pumpkin" "Okra" "Spinach"
```

```
length(added_veg)
```

```
## [1] 16
```

d.

```
remove_veg <- added_veg[-c(5,10,15)]  
remove_veg
```

```
## [1] "Carrot"      "Onion"        "Garlic"       "Eggplant"  
## [5] "Peas"        "Bamboo Shoots" "Seaweed"      "Cucumber"  
## [9] "Squash"      "Cabbage"      "Ampalaya"     "Pumpkin"  
## [13] "Spinach"
```

```
length(remove_veg)
```

```
## [1] 13
```