

Lab04

● Graded

Student

Sangwon Ji

Total Points

7 / 7 pts

Question 1

1		5 / 5 pts
1.1	a	1 / 1 pt
	✓ - 0 pts Correct	
1.2	b	1 / 1 pt
	✓ - 0 pts Correct	
1.3	c	1 / 1 pt
	✓ - 0 pts Correct	
1.4	d	1 / 1 pt
	✓ - 0 pts Correct	
1.5	e	1 / 1 pt
	✓ - 0 pts Correct	

Question 2

2		1 / 1 pt
	✓ - 0 pts Correct	

Question 3

3		1 / 1 pt
	✓ - 0 pts Correct	

No questions assigned to the following page.

LAB 4

STAT 131A

Welcome to the lab 4. In this lab, you will

- 1) implement a permutation test;
- 2) implement a T-test;
- 3) illustrate the difference between a T-distribution and the standard normal distribution;

We will continue to use the rent price dataset from the lab 2.

Read in data:

```
craigslist <- read.csv("craigslist.csv",
                        header = TRUE)
```

Replicate

To repeat things in R, there is a more convenient and efficient way than using for loop. The function `replicate` is designed for evaluating an expression repeatedly. For example, to get a vector of length 50 where each element is generated independently from the sum of five normal distributed samples:

```
set.seed(20170209)
example1 <- replicate(50, sum(rnorm(5)))
```

The equivalence of the above code using for loops will be:

```
# create a vector of length 0 to store the results
example2 <- c()
# calculate for 50 times
for (i in 1:50){
  # concatenate the calculated sum of normal samples to the end of `results` vector
  example2 <- c(example2, sum(rnorm(5)))
}
```

The first argument of `replicate` function is the number of replications. And the second argument is an expression which will be evaluated repeatedly, which usually involves random sampling and simulation. (Otherwise, you would get a vector of one identical number. That's useless!) Sometimes, the things you want to replicate can not finish on one line, and then you may need to use the big bracket such as the following. Elements in the `example3` vector would be the value of the last expression in the bracket. (Since we set the same seed for `example1` and `example3`, you may want to compare the value of them to see what happened.)

```
set.seed(20170209)
example3 <- replicate(50, {
  a <- rnorm(5)
  b <- 5
  sum(a) + b    # return the value
})
```

Question assigned to the following page: [1.1](#)

Permutation test

Exercise 1

You will do a permutation test to compare the average one bedroom apartment rent price in Berkeley and Palo Alto.

- (a) Subset the dataset to only consider one bedroom apartments in Berkeley and Palo Alto.

```
# insert code here save the data frame of one bedroom postings
# in Berkeley and Palo Alto as
# 'subset'

subset = subset(craigslist, location %in% c("berkeley", "palo alto") & brs == 1)
subset

##          time price size brs
## 2 2016-09-27 18:53:00 1090 400 1
## 3 2016-09-27 17:29:00 3275 706 1
## 5 2016-09-27 17:25:00 2491 735 1
## 6 2016-09-27 17:25:00 2825 716 1
## 7 2016-09-27 17:14:00 2825 716 1
## 8 2016-09-27 17:13:00 2925 787 1
## 10 2016-09-27 16:44:00 1800 550 1
## 13 2016-09-27 16:21:00 2800 960 1
## 14 2016-09-27 16:14:00 3325 864 1
## 16 2016-09-27 15:57:00 1850 560 1
## 17 2016-09-27 15:46:00 700 NA 1
## 19 2016-09-27 15:24:00 1250 100 1
## 22 2016-09-27 15:14:00 1800 NA 1
## 24 2016-09-27 14:09:00 1750 NA 1
## 26 2016-09-27 14:07:00 2795 NA 1
## 33 2016-09-27 13:03:00 2745 NA 1
## 34 2016-09-27 13:01:00 2345 NA 1
## 35 2016-09-27 13:01:00 1785 NA 1
## 38 2016-09-27 12:32:00 2835 851 1
## 39 2016-09-27 12:27:00 2195 550 1
## 40 2016-09-27 12:26:00 2825 868 1
## 41 2016-09-27 12:26:00 2925 787 1
## 42 2016-09-27 12:26:00 2900 709 1
## 43 2016-09-27 12:26:00 2925 787 1
## 44 2016-09-27 12:26:00 2825 868 1
## 45 2016-09-27 12:26:00 2925 787 1
## 46 2016-09-27 12:26:00 2925 787 1
## 47 2016-09-27 12:26:00 2825 716 1
## 48 2016-09-27 12:26:00 2825 716 1
## 49 2016-09-27 12:26:00 2925 787 1
## 50 2016-09-27 12:26:00 2925 787 1
## 51 2016-09-27 12:26:00 2925 787 1
## 52 2016-09-27 12:26:00 2825 868 1
## 53 2016-09-27 12:26:00 2900 709 1
## 54 2016-09-27 12:26:00 2900 709 1
## 55 2016-09-27 12:26:00 2900 709 1
## 56 2016-09-27 12:26:00 2825 868 1
## 57 2016-09-27 12:26:00 2825 716 1
## 58 2016-09-27 12:26:00 2900 709 1
```

No questions assigned to the following page.

## 59	2016-09-27	12:26:00	2925	787	1
## 60	2016-09-27	12:26:00	2900	709	1
## 62	2016-09-27	12:20:00	2095	500	1
## 63	2016-09-27	12:12:00	2900	709	1
## 64	2016-09-27	12:12:00	2825	787	1
## 65	2016-09-27	12:12:00	2825	716	1
## 66	2016-09-27	12:12:00	2925	787	1
## 69	2016-09-27	11:50:00	3275	706	1
## 73	2016-09-27	11:39:00	1850	500	1
## 77	2016-09-27	11:10:00	1897	370	1
## 78	2016-09-27	11:03:00	1860	465	1
## 79	2016-09-27	10:47:00	2025	NA	1
## 80	2016-09-27	10:46:00	2950	NA	1
## 84	2016-09-27	10:17:00	2250	NA	1
## 85	2016-09-27	10:17:00	3275	706	1
## 89	2016-09-27	09:37:00	2450	NA	1
## 90	2016-09-27	09:31:00	2355	632	1
## 91	2016-09-27	09:28:00	2825	716	1
## 92	2016-09-27	09:28:00	2925	787	1
## 93	2016-09-27	09:24:00	1650	NA	1
## 96	2016-09-27	09:15:00	2750	1100	1
## 99	2016-09-26	21:09:00	2500	650	1
## 100	2016-09-26	19:56:00	2195	450	1
## 102	2016-09-26	18:53:00	2400	NA	1
## 103	2016-09-26	17:37:00	1495	400	1
## 105	2016-09-26	17:08:00	2825	716	1
## 106	2016-09-26	17:07:00	2900	709	1
## 108	2016-09-26	17:06:00	2825	716	1
## 109	2016-09-26	17:06:00	2200	850	1
## 110	2016-09-26	17:06:00	1950	575	1
## 111	2016-09-26	17:06:00	2925	787	1
## 112	2016-09-26	17:03:00	3275	706	1
## 114	2016-09-26	15:08:00	2600	620	1
## 119	2016-09-26	14:29:00	2390	NA	1
## 120	2016-09-26	14:27:00	2390	NA	1
## 121	2016-09-26	14:13:00	2390	NA	1
## 129	2016-09-26	13:27:00	3275	706	1
## 130	2016-09-26	13:09:00	2245	NA	1
## 132	2016-09-26	12:42:00	1945	440	1
## 133	2016-09-26	12:40:00	2825	868	1
## 134	2016-09-26	12:39:00	2925	787	1
## 135	2016-09-26	12:38:00	2900	709	1
## 136	2016-09-26	12:38:00	2825	716	1
## 137	2016-09-26	12:37:00	2925	787	1
## 139	2016-09-26	12:31:00	2000	NA	1
## 141	2016-09-26	12:28:00	2195	450	1
## 142	2016-09-26	12:23:00	2400	NA	1
## 149	2016-09-26	12:01:00	2495	NA	1
## 151	2016-09-26	11:55:00	2195	550	1
## 156	2016-09-26	11:31:00	2600	NA	1
## 158	2016-09-26	11:30:00	2750	NA	1
## 160	2016-09-26	11:30:00	2600	NA	1
## 161	2016-09-26	11:30:00	2600	NA	1
## 165	2016-09-26	11:20:00	3275	706	1

No questions assigned to the following page.

```

## 168 2016-09-26 11:10:00 1850 NA 1
## 170 2016-09-26 11:09:00 3095 NA 1
## 175 2016-09-26 10:25:00 1795 NA 1
## 176 2016-09-26 10:19:00 1950 NA 1
## 183 2016-09-26 10:07:00 3095 790 1
## 184 2016-09-26 10:04:00 2075 NA 1
## 185 2016-09-26 10:04:00 2695 540 1
## 190 2016-09-30 13:02:00 2100 600 1
## 193 2016-09-30 12:01:00 3275 706 1
## 196 2016-09-30 11:29:00 2235 672 1
## 202 2016-09-30 10:33:00 2850 710 1
## 203 2016-09-30 10:10:00 2300 650 1
## 204 2016-09-30 09:49:00 2429 735 1
## 205 2016-09-30 09:22:00 2278 632 1
## 206 2016-09-30 09:15:00 2900 709 1
## 207 2016-09-30 09:13:00 2825 787 1
## 216 2016-09-30 03:28:00 1000 NA 1
## 222 2016-09-29 19:46:00 2745 NA 1
## 224 2016-09-29 19:28:00 1250 NA 1
## 228 2016-09-29 18:13:00 1900 NA 1
## 229 2016-09-29 17:55:00 3275 706 1
## 231 2016-09-29 17:54:00 2495 525 1
## 232 2016-09-29 17:21:00 2400 NA 1
## 233 2016-09-29 17:04:00 1860 450 1
## 237 2016-09-29 14:13:00 2825 787 1
## 239 2016-09-29 13:03:00 2900 709 1
## 242 2016-09-29 12:55:00 3275 706 1
## 245 2016-09-29 11:48:00 2000 NA 1
## 247 2016-09-29 11:00:00 2000 NA 1
## 248 2016-09-29 10:47:00 2300 700 1
## 250 2016-09-29 10:07:00 2195 550 1
## 254 2016-09-29 09:28:00 3275 706 1
## 255 2016-09-29 09:28:00 2500 NA 1
## 256 2016-09-29 09:26:00 2350 NA 1
## 259 2016-09-29 09:14:00 2925 787 1
## 262 2016-09-29 08:21:00 2300 650 1
## 276 2016-09-28 23:35:00 2195 500 1
## 283 2016-09-28 20:09:00 1200 NA 1
## 284 2016-09-28 17:10:00 2925 787 1
## 285 2016-09-28 17:09:00 2025 NA 1
## 286 2016-09-28 17:05:00 3200 742 1
## 290 2016-10-09 21:50:00 2295 700 1
## 291 2016-10-09 20:52:00 2200 NA 1
## 293 2016-10-09 20:27:00 2745 NA 1
## 299 2016-10-09 19:56:00 1800 400 1
## 302 2016-10-09 16:31:00 2250 400 1
## 303 2016-10-09 15:58:00 3275 706 1
## 305 2016-10-09 15:34:00 1650 400 1
## 307 2016-10-09 12:57:00 2195 550 1
## 308 2016-10-09 12:52:00 600 NA 1
## 309 2016-10-09 12:52:00 600 NA 1
## 310 2016-10-09 12:46:00 600 NA 1
## 313 2016-10-09 11:29:00 3275 706 1
## 314 2016-10-09 11:19:00 2000 NA 1

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No questions assigned to the following page.

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## 317 2016-10-09 09:23:00 2250 650 1
## 324 2016-10-08 22:28:00 2500 650 1
## 327 2016-10-08 17:59:00 3275 706 1
## 328 2016-10-08 17:37:00 3300 735 1
## 330 2016-10-08 16:14:00 2825 709 1
## 332 2016-10-08 14:22:00 2373 632 1
## 333 2016-10-08 14:03:00 1800 NA 1
## 335 2016-10-08 13:44:00 2650 NA 1
## 338 2016-10-08 12:26:00 3275 706 1
## 346 2016-10-08 10:38:00 2000 650 1
## 348 2016-10-08 10:34:00 2100 NA 1
## 352 2016-10-08 10:12:00 2333 632 1
## 353 2016-10-08 10:03:00 2195 550 1
## 354 2016-10-08 09:58:00 1988 NA 1
## 356 2016-10-08 09:21:00 3275 706 1
## 362 2016-10-08 07:45:00 1000 NA 1
## 363 2016-10-08 06:45:00 1250 NA 1
## 365 2016-10-07 23:08:00 1895 NA 1
## 374 2016-10-07 20:04:00 2195 NA 1
## 376 2016-10-07 17:35:00 2400 900 1
## 377 2016-10-07 17:29:00 3300 735 1
## 379 2016-10-07 17:04:00 2875 787 1
## 380 2016-10-07 17:03:00 2825 709 1
## 382 2016-10-07 16:57:00 2000 700 1
## 388 2016-10-07 14:58:00 2900 709 1
## 389 2016-10-07 14:58:00 2925 787 1
## 390 2016-10-07 14:58:00 2875 787 1
## 391 2016-10-07 14:56:00 3325 864 1
## 392 2016-10-07 14:30:00 2450 620 1
## 393 2016-10-07 14:30:00 2175 NA 1
## 394 2016-10-07 14:07:00 2575 846 1
## 2251 2016-09-27 18:18:00 3300 810 1
## 2258 2016-09-27 17:36:00 2695 NA 1
## 2265 2016-09-27 16:30:00 3350 810 1
## 2268 2016-09-27 15:51:00 2350 650 1
## 2270 2016-09-27 15:24:00 1200 NA 1
## 2271 2016-09-27 14:55:00 3300 810 1
## 2272 2016-09-27 14:54:00 3350 810 1
## 2273 2016-09-27 14:36:00 2695 NA 1
## 2274 2016-09-27 14:06:00 2695 NA 1
## 2275 2016-09-27 14:04:00 4080 675 1
## 2288 2016-09-27 12:09:00 3500 821 1
## 2290 2016-09-27 11:45:00 3179 750 1
## 2292 2016-09-27 11:38:00 3350 810 1
## 2293 2016-09-27 11:36:00 3300 810 1
## 2300 2016-09-27 10:05:00 2150 2803 1
## 2304 2016-09-27 09:36:00 3179 750 1
## 2305 2016-09-27 09:31:00 2295 610 1
## 2308 2016-09-27 09:17:00 4080 675 1
## 2310 2016-09-27 08:55:00 2095 450 1
## 2311 2016-09-27 08:22:00 2725 550 1
## 2315 2016-09-27 07:00:00 3500 1100 1
## 2320 2016-09-26 21:52:00 3400 NA 1
## 2325 2016-09-26 19:05:00 2695 NA 1

```

No questions assigned to the following page.

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## 2326 2016-09-26 17:28:00 2345 750 1
## 2327 2016-09-26 17:19:00 4080 675 1
## 2328 2016-09-26 17:11:00 2695 650 1
## 2329 2016-09-26 17:11:00 2195 530 1
## 2330 2016-09-26 17:10:00 2495 500 1
## 2333 2016-09-26 16:48:00 1750 385 1
## 2335 2016-09-26 16:25:00 1300 200 1
## 2344 2016-09-26 15:55:00 2295 610 1
## 2345 2016-09-26 15:48:00 2200 NA 1
## 2346 2016-09-26 15:40:00 2095 550 1
## 2348 2016-09-26 15:06:00 2350 NA 1
## 2349 2016-09-26 14:43:00 1500 220 1
## 2350 2016-09-26 14:30:00 2995 NA 1
## 2374 2016-09-26 10:21:00 2095 450 1
## 2375 2016-09-26 10:11:00 1700 NA 1
## 2378 2016-09-26 09:31:00 4080 675 1
## 2380 2016-09-26 09:07:00 2295 610 1
## 2384 2016-09-26 08:53:00 2295 460 1
## 2385 2016-09-26 08:53:00 3295 830 1
## 2386 2016-09-26 08:53:00 3395 750 1
## 2387 2016-09-26 08:52:00 2795 675 1
## 2388 2016-09-26 08:52:00 2650 675 1
## 2389 2016-09-26 08:52:00 2395 600 1
## 2390 2016-09-26 08:52:00 2195 725 1
## 2391 2016-09-26 08:50:00 2595 720 1
## 2398 2016-09-26 07:54:00 2850 NA 1
## 2399 2016-09-26 07:54:00 2550 NA 1
## 2403 2016-09-26 05:27:00 2300 300 1
## 2406 2016-09-25 23:32:00 1175 NA 1
## 2412 2016-09-25 20:34:00 3000 NA 1
## 2413 2016-09-25 18:53:00 2395 560 1
## 2414 2016-09-25 17:14:00 2190 NA 1
## 2415 2016-09-25 16:43:00 1910 NA 1
## 2416 2016-09-25 16:36:00 2135 NA 1
## 2417 2016-09-25 15:36:00 2532 610 1
## 2430 2016-09-25 09:53:00 2300 2803 1
## 2434 2016-09-25 00:04:00 2300 300 1
## 2435 2016-09-24 23:36:00 1800 NA 1
## 2443 2016-09-24 17:06:00 3185 716 1
## 2444 2016-09-24 16:23:00 3995 810 1
## 2448 2016-09-24 15:18:00 3185 716 1
## 2451 2016-09-24 14:13:00 2295 610 1
## 2457 2016-09-24 12:33:00 2595 622 1
## 2458 2016-09-24 12:33:00 2550 500 1
## 2459 2016-09-24 12:32:00 3300 NA 1
## 2460 2016-09-24 12:31:00 2850 NA 1
## 2461 2016-09-24 12:31:00 2295 610 1
## 2466 2016-09-24 11:39:00 2555 715 1
## 2470 2016-09-24 10:05:00 3180 716 1
## 2471 2016-09-24 09:26:00 3300 810 1
## 2472 2016-09-24 09:11:00 3700 750 1
## 2474 2016-09-24 08:51:00 2850 850 1
## 2479 2016-09-23 20:03:00 2395 504 1
## 2480 2016-09-23 20:03:00 2495 504 1

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No questions assigned to the following page.

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## 2481 2016-09-23 20:01:00 2495 504 1
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## 2487 2016-09-23 17:58:00 2995 NA 1
## 2489 2016-09-23 17:02:00 3185 716 1
## 2491 2016-09-23 16:31:00 3300 810 1
## 2493 2016-09-23 15:22:00 2532 610 1
## 2495 2016-09-23 14:06:00 2595 715 1
## 2496 2016-09-23 13:49:00 2695 780 1
## 2503 2016-09-23 12:37:00 1850 240 1
## 2507 2016-09-23 12:10:00 3205 716 1
## 2508 2016-09-23 11:59:00 2295 610 1
## 2511 2016-09-23 10:56:00 2595 715 1
## 2517 2016-09-23 00:46:00 2850 465 1
## 2518 2016-09-23 00:33:00 2400 550 1
## 2520 2016-09-22 22:33:00 2798 NA 1
## 2526 2016-09-22 18:17:00 2800 679 1
## 2529 2016-09-22 16:43:00 2279 680 1
## 2531 2016-09-22 15:19:00 2595 715 1
## 2533 2016-09-22 15:08:00 2710 625 1
## 2536 2016-09-22 14:51:00 6000 820 1
## 2543 2016-09-22 10:46:00 2300 2803 1
## 2545 2016-09-22 10:02:00 2300 500 1
## 2546 2016-09-22 09:20:00 2995 NA 1
## 2547 2016-09-22 09:16:00 1025 NA 1
## 2548 2016-09-22 08:48:00 1500 220 1
## 2551 2016-09-21 20:24:00 1800 NA 1
## 2556 2016-09-21 15:55:00 2095 NA 1
## 2557 2016-09-21 15:42:00 3300 810 1
## 2558 2016-09-21 15:37:00 3400 810 1
## 2564 2016-09-21 13:17:00 2500 776 1
## 2572 2016-09-21 10:55:00 2595 715 1
## 2576 2016-09-21 07:39:00 2900 NA 1
## 2577 2016-09-30 10:38:00 2500 300 1
## 2579 2016-09-30 13:02:00 3100 716 1
## 2580 2016-09-30 12:57:00 3099 750 1
## 2581 2016-09-30 12:54:00 2900 NA 1
## 2582 2016-09-30 12:37:00 2500 500 1
## 2585 2016-09-30 12:04:00 3300 810 1
## 2589 2016-09-30 11:10:00 2395 500 1
## 2590 2016-09-30 11:10:00 2295 725 1
## 2591 2016-09-30 11:10:00 2595 650 1
## 2592 2016-09-30 11:10:00 2145 530 1
## 2593 2016-09-30 11:08:00 3100 716 1
## 2594 2016-09-30 11:06:00 2650 675 1
## 2595 2016-09-30 10:59:00 2295 610 1
## 2598 2016-09-30 10:54:00 3124 750 1
## 2599 2016-09-30 10:29:00 3300 810 1
## 2600 2016-09-30 10:28:00 3350 810 1
## 2601 2016-09-30 10:27:00 3350 810 1
## 2604 2016-09-30 10:15:00 2535 625 1
## 2606 2016-09-30 10:09:00 2300 500 1
## 2607 2016-09-30 10:09:00 2300 500 1
## 2612 2016-09-30 09:37:00 4366 675 1
## 2615 2016-09-30 08:58:00 2295 610 1

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No questions assigned to the following page.

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## 2622 2016-09-29 19:47:00 1450 NA 1
## 2626 2016-09-29 17:52:00 4366 675 1
## 2628 2016-09-29 17:07:00 1000 NA 1
## 2630 2016-09-29 16:20:00 2095 NA 1
## 2631 2016-09-29 15:55:00 3300 550 1
## 2634 2016-09-29 15:15:00 3400 NA 1
## 2649 2016-09-29 12:36:00 3000 1700 1
## 2650 2016-09-29 12:31:00 3100 716 1
## 2652 2016-09-29 12:31:00 3205 716 1
## 2656 2016-09-29 11:25:00 2595 720 1
## 2661 2016-09-29 10:25:00 2150 2803 1
## 2662 2016-09-29 10:21:00 2295 460 1
## 2663 2016-09-29 10:11:00 4366 675 1
## 2666 2016-09-29 09:20:00 3295 830 1
## 2668 2016-09-29 09:18:00 2395 600 1
## 2670 2016-09-29 09:12:00 2695 NA 1
## 2671 2016-09-29 09:09:00 3295 750 1
## 2672 2016-09-29 09:07:00 2095 725 1
## 2674 2016-09-29 08:19:00 2500 776 1
## 2675 2016-09-29 07:52:00 2300 300 1
## 2676 2016-09-29 06:27:00 2000 600 1
## 2681 2016-09-28 17:13:00 2986 779 1
## 2690 2016-09-28 11:52:00 2095 450 1
## 2694 2016-09-28 10:28:00 2150 2803 1
## 2696 2016-09-28 10:16:00 2595 NA 1
## 2699 2016-09-28 09:32:00 3125 625 1
## 2701 2016-09-28 09:19:00 2800 912 1
## 2702 2016-09-28 09:17:00 2800 912 1
## 2710 2016-09-27 22:22:00 2695 NA 1
## 2713 2016-09-27 21:12:00 2495 504 1
## 2714 2016-09-27 21:07:00 2495 504 1
## 2715 2016-09-27 21:04:00 2395 504 1
## 2720 2016-10-09 23:38:00 2500 800 1
## 2727 2016-10-09 19:16:00 2495 50 1
## 2728 2016-10-09 19:15:00 2495 504 1
## 2729 2016-10-09 17:13:00 3300 810 1
## 2732 2016-10-09 16:56:00 3450 810 1
## 2735 2016-10-09 16:07:00 2050 450 1
## 2736 2016-10-09 16:04:00 2010 NA 1
## 2737 2016-10-09 15:58:00 2400 NA 1
## 2738 2016-10-09 15:38:00 750 NA 1
## 2739 2016-10-09 15:31:00 2695 NA 1
## 2745 2016-10-09 12:13:00 3450 810 1
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## 2749 2016-10-09 11:08:00 2695 NA 1
## 2750 2016-10-09 11:01:00 2695 NA 1
## 2753 2016-10-09 10:53:00 2695 NA 1
## 2754 2016-10-09 10:51:00 2695 NA 1
## 2756 2016-10-09 10:36:00 2695 NA 1
## 2762 2016-10-09 08:02:00 2800 NA 1
## 2764 2016-10-09 07:36:00 2150 600 1
## 2766 2016-10-09 06:40:00 2495 715 1
## 2767 2016-10-09 00:07:00 2300 300 1
## 2771 2016-10-08 21:32:00 2495 560 1

```

No questions assigned to the following page.

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## 2772 2016-10-08 20:28:00 2150 2803 1
## 2773 2016-10-08 19:29:00 2095 550 1
## 2774 2016-10-08 16:48:00 2070 NA 1
## 2786 2016-10-08 13:05:00 4903 675 1
## 2790 2016-10-08 12:28:00 2350 NA 1
## 2791 2016-10-08 12:25:00 2657 625 1
## 2795 2016-10-08 10:42:00 3094 750 1
## 2798 2016-10-08 10:32:00 3119 750 1
## 2800 2016-10-08 10:23:00 2295 610 1
## 2803 2016-10-08 09:55:00 2495 715 1
## 2805 2016-10-08 09:03:00 2798 NA 1
## 2806 2016-10-08 08:55:00 2798 NA 1
## 2813 2016-10-07 22:53:00 2295 650 1
## 2814 2016-10-07 22:51:00 3400 NA 1
## 2818 2016-10-07 17:44:00 4903 675 1
## 2819 2016-10-07 17:39:00 2755 780 1
## 2821 2016-10-07 17:27:00 3350 990 1
## 2823 2016-10-07 17:19:00 3350 810 1
## 2827 2016-10-07 16:16:00 2695 NA 1
## 2833 2016-10-07 15:31:00 2295 610 1
## 2838 2016-10-07 15:14:00 2095 415 1
## 2845 2016-10-07 13:39:00 1360 NA 1
## 2847 2016-10-07 13:24:00 2500 850 1
## 2851 2016-10-07 11:50:00 2295 610 1
## 2852 2016-10-07 11:40:00 2295 550 1
## 2853 2016-10-07 11:39:00 2395 725 1
## 2854 2016-10-07 11:33:00 2395 725 1
## 2855 2016-10-07 11:32:00 2295 550 1
## 2857 2016-10-07 10:37:00 2650 850 1
## 2863 2016-10-07 09:07:00 2295 610 1
## 2866 2016-10-07 08:55:00 2450 NA 1
## 2867 2016-10-07 08:04:00 2495 560 1
## 2870 2016-10-07 00:54:00 1500 325 1
## 2875 2016-10-06 15:17:00 2295 610 1
## 2878 2016-10-06 14:15:00 2295 610 1
## 2879 2016-10-06 14:15:00 2998 NA 1
## 2881 2016-10-06 13:22:00 2495 700 1
## 2883 2016-10-06 12:52:00 2800 679 1
## 2884 2016-10-06 12:50:00 3100 716 1
## 2886 2016-10-06 12:40:00 3250 810 1
## 2893 2016-10-06 11:50:00 2295 550 1
## 2895 2016-10-06 11:22:00 3000 450 1
## 2899 2016-10-06 10:39:00 2150 2803 1
## 2903 2016-10-06 10:06:00 2095 650 1
## 2906 2016-10-06 08:33:00 3100 716 1
## 2907 2016-10-06 00:57:00 1950 1311 1
## 2910 2016-10-05 22:04:00 1500 220 1
## 2913 2016-10-05 19:03:00 3350 810 1
## 2915 2016-10-05 17:39:00 3100 716 1
## 2916 2016-10-05 17:24:00 3350 810 1
## 2919 2016-10-05 14:49:00 2596 610 1
## 2920 2016-10-05 14:16:00 2650 650 1
## 2926 2016-10-05 11:36:00 3250 810 1
## 2927 2016-10-05 11:22:00 1900 NA 1

```

No questions assigned to the following page.

```

## 2936 2016-10-04 22:14:00 3000 860 1
## 2945 2016-10-04 17:36:00 2695 NA 1
## 2954 2016-10-04 12:07:00 2000 NA 1
##
## 2 title
## 2 Private/small studio ALL UTILITIES INCLUDED
## 3 Luxury Convenience all at Parker Movein special Hurry in
## 5 One Bedroom Ready For You 500 off Move In Cost
## 6 Ready Now for Immediate Movein
## 7 Super Sharp 1 bed/1 bath Rooftop Lounge Panoramic
## 8 Large 1 bedroom with Den in beautiful LEEDCertified Green Bldg
## 10 Near downtown Berkeley Studio
## 13 Really comfortable cute furnished apartment. Gustavo Lopez AMSI
## 14 ONE BEDROOM ONE BATH STEPS FROM BART
## 16 1bed nice area close to UC Berkeley bart station
## 17 Is this the greatest sublet near campus on the market Somewhat likely
## 19 1250
## 22 Sunny spacious apartment in fantastic location
## 24 Beautiful Fully Furnished Au Pair in Berkeley Hills
## 26 1 plus br UNIQUE BEAUTIFUL 1800 ft. GARDEN APARTMENT
## 33 South Berkeley apartmentAvail 10/1/16. Furnished. Close to UCB BART
## 34 GREAT North Berkeley 2 plex Blocks to Bart/UCB/Shopping.Garage.Garden.
## 35 College Ave apartment. In unit laundry. Parking. One cat OK.
## 38 Large 5th floor Apartment Home W/ Amazing Bay View
## 39 DOWNTOWN BERKELEY APARTMENT
## 40 In home Laundry Bike score 99 Welcome Home
## 41 Higby Apartments Brand new Platinum L.E.E.D Certified Building
## 42 Home is where the heart is. Live Higby. Welcome Home.
## 43 In home Laundry Bike score 99 Welcome Home
## 44 1 bedroom w/ full size washer dryer Steps away from Berkeley bowl
## 45 Spacious 1 bed 1 bath w/ Den Lease Today Come Look and Lease
## 46 Spacious 1 bed 1 bath w/ Den Lease Today Come Look and Lease
## 47 1 bed 1 bath fully Equipped w/ Full Size Washer Dryer
## 48 In home Laundry Bike score 99 Welcome Home
## 49 1 bed 1 bath with den equipped with major applicanes
## 50 Spacious 1 bed 1 bath w/ den full size washer dryer
## 51 Live Higby. Welcome Home.
## 52 Live Higby. 1 bed 1 bath w/ walk in closet
## 53 1 bed 1 bath w/ balcony New Platinum L.E.E.D Certified Building
## 54 1 bed 1 bath with balcony Facing Peaceful Berkeley Hills
## 55 Energy Efficient Appliances with Full Size washer dryer in Every unit
## 56 1 bed 1 bath w/ walk in closet Higby Apartments
## 57 Energy Efficient Appliances with Full Size washer dryer in Every unit
## 58 1 bed 1 bath w/ balcony Higby. Creative. Cultured. Welcome Home.
## 59 Lovely 1 bed 1 bath w/ Den with amazing views natural lighting
## 60 1 bed 1 bath w/ balcony New Platinum L.E.E.D Certified Building
## 62 Open House Renovated One Bedroom Garden Style complex Pets OK
## 63 Upscale 1 Bedroom with Balcony
## 64 Lrg 1x1 in beautiful LEEDCertified Green Bldg Pet Friendly
## 65 Super Sharp1 bed/bath with Den
## 66 1 Bedroom with Den Affordable Luxury Apartment
## 69 Show off a little Check out Parkers modern 1BR w/open concept
## 73 Completely Renovated 1x1 Unit Next to Berkeley Bowl
## 77 Last 1 Bedroom in Gaia.....Great Price
## 78 Great Price Lovely 1 Bedroom Facing The Courtyard

```

No questions assigned to the following page.

79 2301 8th St Great Location Nicely Updated Washer/Dryer in Unit
 ## 80 Welcome to The SouthGate Apartments UNITS RENTING FAST SECURE YOURS
 ## 84 Open House Saturday 10/1 11 am1 pm
 ## 85 Luxury Convenience all at Parker Movein special Hurry in
 ## 89 New Californian Open House
 ## 90 The One Bedroom Home Of Your Dreams
 ## 91 Amazing 1 bedroom available in October
 ## 92 BRIGHT 1 BEDROOM WITH DEN
 ## 93 Lovely studio with loft inlaw unit
 ## 96 Charming SemiFurnished One Bedroom North Berkeley Condominium
 ## 99 Sunny top floor Elmwood apartment in charming Berkeley triplex
 ## 100 Awesome Apt in Downtown Berkeley
 ## 102 Elmwood Classic Building
 ## 103 Junior 1 bedroom Apartment
 ## 105 Lrg 1x1 in beautiful LEEDCertified Green Bldg Pet Friendly
 ## 106 Fully Furnished Fitness Center
 ## 108 Fully secured community Bocce Ball Court
 ## 109 Newly renovated LARGE 1 bedroom/1 bath apartment
 ## 110 1 Bedroom Utilities included
 ## 111 Spacious Charming 1 bedroom with Den Near Berkeley Bowl
 ## 112 Live in luxury A variety of 1BR layouts at Parker Special offer
 ## 114 Stunning 1 bedroom near BART upstairs from Trader Joes
 ## 119 Comfortable Furnished 1 Bedroom Apartment in Berkeley
 ## 120 Cozy Comfortable Furnished 1 Bedroom Apartment in Berkeley
 ## 121 Comfy Private Room in DT Berkeley All utilities and internet incl.
 ## 129 Parkers leasing office is NOW open New luxury 1BR near Bart/UCB
 ## 130 One Bedroom in the Heart of Rockridge 5blk to BART
 ## 132 Beautiful SUNNY unit Near North Berkeley BARTHearstWest
 ## 133 Your Spacious 1 BEDROOM Awaits
 ## 134 Spacious 1 Bedroom with Den
 ## 135 Fully Furnished Fitness Center
 ## 136 Pet friendly building
 ## 137 Ecofriendly design LEED Certified luxury apts
 ## 139 Elmwood Newly Remodel one bedroomClose to UC Berkeley
 ## 141 1 Bedroom at 2020 Bancroft Way 212
 ## 142 Apt on North Side of UC Berkeley
 ## 149 Charming 1BR in Ideal Berkeley Neighborhood
 ## 151 ONE BEDROOM APT. DOWNTOWN BERKELEY
 ## 156 Just A Walk To Most Errands On Foot 1654 Dwight Way For Rent
 ## 158 1bed 1 bath Super Location In The Heart Of Berkeley
 ## 160 MUST RENT REDUCED RENT
 ## 161 So Close To Berkeley Campus
 ## 165 Move in special Parker offers a variety of 1BR floor plans
 ## 168 Brand New Remodeled ON SOLANO Berk/Albany Border Open TUE6pm
 ## 170 Avail. Now 1 MONTH FREE RENT Brand New Luxury Apts
 ## 175 Spacious First Floor 1BD/1BA with Parking
 ## 176 Beautiful 1bdr./1ba Apartment Available 11/1/2016
 ## 183 Amazing New Building w/ a Great Move In Special
 ## 184 Renovated Junior 1 Bedroom w/ Stainless Steel Appliances
 ## 185 Great Location Great Move In Special
 ## 190 Berkeley cottage furnished private
 ## 193 Show off a little Check out Parkers modern 1BR w/open concept
 ## 196 1 BR Apartment Home
 ## 202 1 Bdrm Private Cottage

No questions assigned to the following page.

203 One bedroom Block from the Greek Theatre
 ## 204 Do Not Miss Out 500 off Your Move In Cost Call Now
 ## 205 Fabulous One Bedroom Apartment Home 500 off Move In Cost
 ## 206 1 bed 1 bath w/ balcony New Platinum L.E.E.D Certified Building
 ## 207 Spacious 1 bed 1 bath with Den full size washer and dryer in unit
 ## 216 1bedroom close UC Berkeley campus
 ## 222 South Berkeley apartmentAvail 10/1/16. Furnished. Close to UCB BART
 ## 224 1bedroom apartment 4 blocks from UC Berkeley campus
 ## 228 1 bedroom Near Bart UC Berkeley
 ## 229 Live in luxury A variety of 1BR layouts at Parker Special offer
 ## 231 1 Bedroom 1 bath Charming Cottage
 ## 232 Near CAL Campus Extra Large 1 Bedroom 1 Bath
 ## 233 Good location in north Berkeley close to UC campus and BART
 ## 237 GETAWAY THIS WEEKEND TO DISCOVER YOUR NEW HOME
 ## 239 1 bed 1 bath with balcony Facing Peaceful Berkeley Hills
 ## 242 Show off a little Check out Parkers modern 1BR w/open concept
 ## 245 Bright Clean 1 bedroom private parking spot 2000
 ## 247 Spacious Furnished cottage in north Berkeley walk to UCB
 ## 248 Spacious 1bedroom Apt.
 ## 250 1 BED. APT. WITH PORCH IN DOWNTOWN
 ## 254 MOVE IN SPECIAL New luxury 1BR apartment home Walk to UCB/Bart/Food
 ## 255 A nice onebedroom apartment in central Berkeley
 ## 256 a nice furnished Jr 1bedroom apt close to down town Berkeley/UCB/BART
 ## 259 Call Higby Apartments today
 ## 262 One bedroom off the pool
 ## 276 1/2 block from campus on Oxford Street 1bdrrm hdwd flr
 ## 283 Beautiful newly renovated house Room available
 ## 284 1 bedroom plus DenCertified Green Bldg Pet Friendly
 ## 285 2301 8th St Great Location Nicely Updated Washer/Dryer in Unit
 ## 286 New 1BR/1BA in Berkeley Spacious Air Conditioning InUnit Washer/D
 ## 290 welllit tall ceiling hardwood floor with new kitchen
 ## 291 charming view apartment
 ## 293 South Berkeley apartment Avail Now. Furnished. Close to UCB BART
 ## 299 Sunny Bright Unit
 ## 302 Cozy Private FullyFurnished Cottage
 ## 303 New luxury 1BR flats in Downtown Berkeley.. Movein Special Hurry in
 ## 305 Utilities included near UC Berkeley
 ## 307 1 BED. APT. WITH PORCH IN DOWNTOWN
 ## 308 Executive 1 bedroom 1 bathroom
 ## 309 1br/1ba apt. on 2nd top floor
 ## 310 Easy walk to UC Berkeley north campus
 ## 313 Parkers leasing office is NOW open New luxury 1BR near Bart/UCB
 ## 314 Berkeley Campus Area
 ## 317 Spacious 1bedroom Apt.
 ## 324 Quiet inlaw near Tilden
 ## 327 Parkers leasing office is NOW open New luxury 1BR near Bart/UCB
 ## 328 Gorgeous Top Floor 1BR/1BA 9ft Ceilings Washer/Dryer AC
 ## 330 1 bed 1 bath w/ balcony Higby. Creative. Cultured. Welcome Home.
 ## 332 Fourth U Has Got The Place For You One Bedroom Available 10/25
 ## 333 1 bedroom Near Bart UC Berkeley
 ## 335 Photos soon charming cottage w/deck patio secluded wooded setting
 ## 338 Its time Parker is NOW open for moveins. Sophisticated 1BR flats
 ## 346 1 Bedroom Apartment North Berkeley
 ## 348 1bed 1bath good location clean quiet 5

No questions assigned to the following page.

352 Fabulous One Bedroom Apartment Home Coming October 20
353 1 BED. APT. DOWNTOWN AVAILABLE NOW
354 Stunning 1br Apartment Bikers paradise
356 Move in today Parker offers a variety of 1BR layouts Special
362 Elegant Safe 1 bedroom/1 bathroom apartment for rent in berkeley
363 1bedroom apartment 4 blocks from UC Berkeley campu
365 SHOWING SUNDAY Available Now Blocks fr UC BART Gourmet Ghetto
374 1924 Channing Way newly remodeled 1BRM Open House on 10/9 2pm to 3.
376 Lovely and quiet Art Deco 1bed apartment near Claremont Hotel
377 New 1BR/1BA in Berkeley Top FloorA/C Cast Iron Bathtub 9 Ceiling
379 1 bedroom with Den
380 Large 1 bed/1 bath with Balcony
382 South Berkeley One Bedroom in Triplex with Yard Now Available
388 Lrg 1x1 in beautiful LEEDCertified Green Bldg Pet Friendly
389 Luxury Apt Home
390 Everything you want and MORE
391 ONE BEDROOM ONE BATH STEPS FROM BART
392 The New Californian 1 Bedroom
393 1 Bedroom unit available
394 STUDIO12 3 BEDROOM HOMES OUTDOOR LOUNGESTYLE SEATING
2251 1 Bdrm Available Soon Minutes away from StanfordPet Friendly
2258 Charming Duplex Near Mid Town Washer Dryer in unit BT Properties
2265 1 Bdrm Available NOW Minutes away from Stanford
2268 Delightful Sunny Palo Alto Apt Walk to Stanford Dwntwn Cal Ave
2270 1200 1 Br/ 1 bath in Old Palo Alto
2271 1 Bdrm Available Soon Minutes away from StanfordPet Friendly
2272 1 Bdrm Available Soon Minutes away from StanfordPet Friendly
2273 Gorgeous 1 bdrm steps to Midtown PA easy for commuters
2274 Fabulous Location steps to Midtown PA Dont miss out 4.6mi to FB
2275 Sparkling Pool Granite Countertops Stainless Steel Appliances
2288 Modern Fully Furnished Executive Style Apt.
2290 1x1 apartment with 750 Sq Ft near Philz Coffee and Safeway
2292 1 Bdrm Available NOW Minutes away from Stanford
2293 1 Bdrm Available Soon Minutes away from StanfordAvailable Soon
2300 Available from DEC 10 No Lease Furnished Room
2304 The Embarcadero is an amazing 1 bedroom layout available now
2305 One Bedroom One Bath With Private Yard
2308 High 9.5 Foot Ceilings Laundry Room on Each Floor Dishwashers
2310 Stunning Unit In Palo Alto
2311 Fantastic Palo Alto Location/Charm Galore
2315 LARGE PALO ALTO CONDO FOR RENT Fully furnished
2320 GORGEOUS 1Bd/1Ba BRAND NEW CONSTRUCTION on MORENO AVE. w/ PRIVATE YARD
2325 beautiful 1 bdrm in Midtown Palo Alto 4.6mi to FB
2326 Spacious one bedroom w/ private balcony AC
2327 Sauna High 9.5 Foot Ceilings Floor to Ceiling Windows Dishwashers
2328 Top floor corner unit in Downtown Palo Alto Parking included
2329 Hardwood floors throughout Close to Stanford
2330 ELECTRICITY AND COVERED PARKING INCLUDED 1br near University Ave
2333 Great price Lease transfer for 1bed/1bath studio Palo Alto
2335 Cottage on Stanford Campus
2344 One Bedroom One Bath With Private Yard
2345 Apartment close to Stanford
2346 Beautiful One Bedroom Apartment Great Palo Alto Location
2348 College Terrace Apt. Walk to Caltrain Stanford and California Ave.

No questions assigned to the following page.

No questions assigned to the following page.

2511 1 BR in beautiful Barron Park Palo Alto
 ## 2517 1ba Totally Remodeled Cottage WD College Terrace Walk to Stanford
 ## 2518 Fully furnished studio Walk to VA El Camino
 ## 2520 Available mid October 1 BR/BA FURNISHED midtown APT near Stanford U
 ## 2526 Newly remodeled 1BD/1BA Palo Alto condo for rent
 ## 2529 6th Floor 1 bedroom apartment with a lot of space 680 Sq Ft
 ## 2531 1BR in West Palo Alto. Call today
 ## 2533 Adorable 1 bedroom cottage style home
 ## 2536 Perfect Stay In This Fully Furnished Home Oak Creek
 ## 2543 Available from DEC 10 No Lease Furnished Room
 ## 2545 Studio includes all utilities wifi private W/D gated parking
 ## 2546 Condo in PA for rent
 ## 2547 Private Room with one bathroom near Stanford
 ## 2548 1500 Furnished small studio in Palo Alto from 10/10/2016
 ## 2551 apartamento de un cuarto en east. palo alto 1800
 ## 2556 Spacious one bedroom Available now near Midtown Palo Alto
 ## 2557 1 Bdrm Available Soon Up to 25 off Call for more info
 ## 2558 1 Bdrm Stanford/ Sandhill Across from Safeway Pet Friendly
 ## 2564 Modern Condo near downtown Palo Alto
 ## 2572 1 BR in beautiful Barron Park Palo Alto
 ## 2576 DOWNTOWN VICTORIAN COTTAGE
 ## 2577 Fully Furnished Large Private Room
 ## 2579 Home Palo Alto Place
 ## 2580 Outstanding 1 Bed 1 Bath Apartment available now 750 Sq Ft
 ## 2581 DOWNTOWN VICTORIAN COTTAGE
 ## 2582 Beautiful One Bedroom in 19th Century House
 ## 2585 1 Bdrm Available Soon Minutes away from Stanford
 ## 2589 ELECTRICITY AND COVERED PARKING INCLUDED 1br near University Ave
 ## 2590 Spacious apartment in Barron Park near Stanford
 ## 2591 Top floor corner unit in Downtown Palo Alto Parking included
 ## 2592 Hardwood floors throughout Close to Stanford
 ## 2593 Stylish livingwelcome home at Palo Alto Place 1x1
 ## 2594 2650 675ft2 Gorgeous 1BR/1BA Upstairs Unit in Downtown Palo Alto
 ## 2595 One Bedroom One Bath With Private Yard
 ## 2598 1st Floor 1 Bedroom Apartment available next week 750 Sq Ft
 ## 2599 1 Bdrm Available Soon Minutes away from Stanford
 ## 2600 1 Bdrm Available NOW Minutes away from Stanford
 ## 2601 1 Bdrm Available NOW Minutes away from Stanford
 ## 2604 Jr. one bedroom with patio coming soon
 ## 2606 Studio includes all utilities wifi private W/D gated parking
 ## 2607 Studio includes all utilities wifi private W/D gated parking
 ## 2612 Air Conditioning Storage Lockers Available Sauna Billiards
 ## 2615 One Bedroom One Bath With Private Yard
 ## 2622 1br Airy light filled guest unit private entry Crescent Park Add
 ## 2626 OnSite Management DryCleaning Services Underground Parking Sauna
 ## 2628 se renta un estudio privado 1000
 ## 2630 Spacious one bedroom Available now near Midtown Palo Alto
 ## 2631 Fully Furnished Rental Close to Stanford and University Ave
 ## 2634 Fully Furnished Downtown Palo Alto 1BD/1BD
 ## 2649 Renting out 1B1B in gorgeous PA house
 ## 2650 Elegant Living Palo Alto Place 1br with everthing you need.
 ## 2652 Elegant Living Palo Alto Place 1br with everthing you need.
 ## 2656 OPEN HOUSE SAT 1/2 MONTH FREE RENT
 ## 2661 Available from DEC 10 Furnished Lease Free Room Available

No questions assigned to the following page.

2662 ALL UTILITIES INCLUDED Corner unit one bedroom
 ## 2663 BuiltIn Microwaves Newly Renovated Hallways Fitness Center Sauna
 ## 2666 1/2 MONTH FREE RENT
 ## 2668 Spacious one bedroom near Cal Ave Stanford
 ## 2670 2695 Beautiful 1 bedroom Duplex in Midtown Palo Alto 4.6mi to FB
 ## 2671 1/2 MONTH FREE RENT
 ## 2672 1/2 MONTH FREE RENT
 ## 2674 Modern Condo near downtown Palo Alto
 ## 2675 Nov 19 New Stanford Proximity Studio sep. kitechnette bath patio
 ## 2676 LAH 1BR study 1BA
 ## 2681 Renovated 1 bedroom in Palo Alto
 ## 2690 great location in palo alto Newly Renovated
 ## 2694 Available from DEC 10 Fully Furnished No Lease Room
 ## 2696 2595 /622ft2/ Palo Alto 1 br 2 blocks from town
 ## 2699 1 ba Sunny quiet private remodeled
 ## 2701 Private Apartment in a Single Family Neighborhood
 ## 2702 Private Apartment in a Single Family Neighborhood
 ## 2710 AMAZING LOCATION Steps to Caltrain/ElCamino/101/
 ## 2713 Live in a community where residents matter.... 1 MONTH FREE
 ## 2714 RENT WITH US KNOW 1 MONTH OF RENT FREE
 ## 2715 YOU DONT WANT TO PASS THIS UPv 1 MONTH FREE
 ## 2720 Premier Palo Alto Location next to Stanford
 ## 2727 RENT NOW AND YOU GET 1 MONTH FREE
 ## 2728 RENT WITH US NOW 1 MONTH OF RENT FREE
 ## 2729 1 Bdrm Available NOW Desirable Unit First floor Hardwood Floors
 ## 2732 3450 / 1br 810ft2
 ## 2735 great location in palo alto Newly Renovated
 ## 2736 One Bedroom Available NOW Move In Special
 ## 2737 One Bedroom Available NOW Move In Special
 ## 2738 large bedroom and living room. Reserved garage parking in palo alto
 ## 2739 Amazing Location Perfect for commuting 101/85/280/caltrain/CenExp
 ## 2745 1 Bdrm Available NOW First Floor UnitHardwood Floors
 ## 2747 One Bedroom Available NOW Move In Special
 ## 2749 Charming Duplex in Mid Town Washer Dryer in unit BT Properties
 ## 2750 CHECK OUT THIS AMAZING 1bdrm/ IN A PERFECT LOCATION
 ## 2753 Amazing Location Perfect for commuting 101/85/280/caltrain/CenExp
 ## 2754 2695 Beautiful 1 bedroom Duplex in Midtown Palo Alto 4.6mi to FB
 ## 2756 Beautiful Renovated 1Bdrm/1Bt 4.6 Mi. to FB in Menlo Park
 ## 2762 1 bedroom duplex w/washer and dryer rom downtown
 ## 2764 near Stanford U. Hosp. College Terrace neighborhood
 ## 2766 CHARIMING GARDEN COURTYARD1 MONTH FREE RENT NEWLY REMODELED
 ## 2767 Nov 19 New Stanford Viciniy Studio sep. kitechnette bath patio
 ## 2771 Spacious One Bedroom Alma St Triplex
 ## 2772 From DEC 10Furnished Room in a Spacious House near 280
 ## 2773 Beautiful One Bedroom Apartment New Quartz Counters Great Location
 ## 2774 One Bedroom Available NOW Move In Special
 ## 2786 WiFi in Selected Areas Renovated Interior Sparkling Pool Billiards
 ## 2790 1Bd/1Bath Cottage cross from Stanford
 ## 2791 Adorable 1 bedroom cottagestyle home
 ## 2795 1x1 with washer and dry in unit available now in Palo Alto
 ## 2798 Another great apartment in MidTown Palo Alto near Hoover Park
 ## 2800 One Bedroom One Bath With Private Yard
 ## 2803 CHARIMING GARDEN COURTYARD1 MONTH FREE RENT NEWLY REMODELED
 ## 2805 Fully Furnished 1 BR Apts in Midtown Near Stanford

No questions assigned to the following page.

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## 2806 Available mid November1 BR/BA FURNISHED midtown APT near Stanford U
## 2813 Delightful Sunny Palo Alto Apt Walk to Stanford Dwntwn Cal Ave
## 2814 Fully Furnished Downtown Palo Alto 1BD/1BD
## 2818 Billiards DryCleaning Services WiFi in Selected Areas Dishwashers
## 2819 1x1 coming soon with Large Private Baloncy
## 2821 1 Bdrm w/ den Available 10/28 Pet Friendly
## 2823 1 Bdrm Available NOW First Floor UnitPet Friendly
## 2827 Charming Duplex Near Mid Town Washer Dryer in unit BT Properties
## 2833 One Bedroom with Private Yard
## 2838 Walking Distance Downtown and Caltrain
## 2845 Downtown Palo Alto 1BR 1BA fully furnished
## 2847 Woodland Creek CondosGated Community 1bed/1bath
## 2851 One Bedroom One Bath With Private Yard
## 2852 1br with vaulted ceilings
## 2853 Huge one bedroom now available
## 2854 Large one bedroom now available Central location
## 2855 One bedroom with vaulted ceilings
## 2857 MUST SEE 1 BR /1BA Vaulted ceilings balcony in unit laundry
## 2863 One Bedroom One Bath With Private Yard
## 2866 1 x 1 BUNGALOW STYLE CLOSE TO STANFORD
## 2867 Spacious One Bedroom Alma St Triplex
## 2870 Studio w Kitchenette for Rent in Palo Alto
## 2875 One Bedroom One Bath With Private Yard
## 2878 One Bedroom One Bath With Private Yard
## 2879 Furnished Apartment up to 2 people from 10/19 2998/month
## 2881 Large top floor apartment now available
## 2883 Newly remodeled 1BD/1BA Palo Alto condo for rent
## 2884 Elegant Living Palo Alto Place 1br with everthing you need.
## 2886 1 Bdrm Available NOW Minutes away from Stanford
## 2893 One bedroom with vaulted ceilings near Stanford
## 2895 Furnished cottage in the back 10 minutes from Stanford
## 2899 Available from DEC 10 Fully Furnished No Lease Room
## 2903 BEAUTIFUL 1 bedroom unit in PALO ALTO SHOWING 10/06
## 2906 Elegant Living Palo Alto Place 1br with everthing you need.
## 2907 Private Suite in Palo Alto Condo
## 2910 1500 Furnished small studio in Palo Alto from now.
## 2913 1 Bdrm Available NOW Minutes away from Stanford
## 2915 Stylish living ....welcome home at Palo Alto Place 1x1
## 2916 1 Bdrm Available NOW Minutes away from Stanford
## 2919 Comfirtable home with hardood floors
## 2920 Downtown Palo Alto 1BR 1BA
## 2926 1 Bdrm Available Soon Minutes away from StanfordPet Friendly
## 2927 Your Bungalow Awaits Home Without The Hassle
## 2936 PALO ALTO Furnished 1Bedroom Apartment
## 2945 Charming Duplex Near Mid Town Washer Dryer in unit BT Properties
## 2954 Fully Furnished Communal Nurse in a 3Br/2Ba
## link location
## 2 /eby/apa/5802540177.html berkeley
## 3 /eby/apa/5802443907.html berkeley
## 5 /eby/apa/5802429182.html berkeley
## 6 /eby/apa/5802414465.html berkeley
## 7 /eby/apa/5797264384.html berkeley
## 8 /eby/apa/5768826232.html berkeley
## 10 /eby/apa/5797615711.html berkeley

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No questions assigned to the following page.

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## 13 /eby/apa/5781695435.html berkeley
## 14 /eby/apa/5802344712.html berkeley
## 16 /eby/apa/5802319826.html berkeley
## 17 /eby/apa/5796027142.html berkeley
## 19 /eby/apa/5802272781.html berkeley
## 22 /eby/apa/5802168698.html berkeley
## 24 /eby/apa/5783423423.html berkeley
## 26 /eby/apa/5802140674.html berkeley
## 33 /eby/apa/5802021093.html berkeley
## 34 /eby/apa/5802021604.html berkeley
## 35 /eby/apa/5802017584.html berkeley
## 38 /eby/apa/5801976452.html berkeley
## 39 /eby/apa/5801966967.html berkeley
## 40 /eby/apa/5789197974.html berkeley
## 41 /eby/apa/5789207868.html berkeley
## 42 /eby/apa/5780214256.html berkeley
## 43 /eby/apa/5780219300.html berkeley
## 44 /eby/apa/5780217295.html berkeley
## 45 /eby/apa/5775875621.html berkeley
## 46 /eby/apa/5774540885.html berkeley
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## 51 /eby/apa/5786103707.html berkeley
## 52 /eby/apa/5794040295.html berkeley
## 53 /eby/apa/5795549755.html berkeley
## 54 /eby/apa/5795554325.html berkeley
## 55 /eby/apa/5795551019.html berkeley
## 56 /eby/apa/5795560306.html berkeley
## 57 /eby/apa/5790999605.html berkeley
## 58 /eby/apa/5795551729.html berkeley
## 59 /eby/apa/5790992619.html berkeley
## 60 /eby/apa/5795750500.html berkeley
## 62 /eby/apa/5795963936.html berkeley
## 63 /eby/apa/5797384773.html berkeley
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## 73 /eby/apa/5801874438.html berkeley
## 77 /eby/apa/5801817643.html berkeley
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## 80 /eby/apa/5772678633.html berkeley
## 84 /eby/apa/5801711453.html berkeley
## 85 /eby/apa/5801711035.html berkeley
## 89 /eby/apa/5796185246.html berkeley
## 90 /eby/apa/5801616400.html berkeley
## 91 /eby/apa/5772096130.html berkeley
## 92 /eby/apa/5768779948.html berkeley
## 93 /eby/apa/5801603034.html berkeley
## 96 /eby/apa/5774548397.html berkeley
## 99 /eby/apa/5801002648.html berkeley
```

No questions assigned to the following page.

```
## 100 /eby/apa/5800945090.html berkeley
## 102 /eby/apa/5800889234.html berkeley
## 103 /eby/apa/5773803823.html berkeley
## 105 /eby/apa/5774026514.html berkeley
## 106 /eby/apa/5797240090.html berkeley
## 108 /eby/apa/5772752990.html berkeley
## 109 /eby/apa/5800769130.html berkeley
## 110 /eby/apa/5800768857.html berkeley
## 111 /eby/apa/5773826452.html berkeley
## 112 /eby/apa/5800765024.html berkeley
## 114 /eby/apa/5794272588.html berkeley
## 119 /eby/apa/5800508059.html berkeley
## 120 /eby/apa/5800515100.html berkeley
## 121 /eby/apa/5800485853.html berkeley
## 129 /eby/apa/5800419474.html berkeley
## 130 /eby/apa/5769424653.html berkeley
## 132 /eby/apa/5800335303.html berkeley
## 133 /eby/apa/5796085794.html berkeley
## 134 /eby/apa/5770902869.html berkeley
## 135 /eby/apa/5796264920.html berkeley
## 136 /eby/apa/5770870625.html berkeley
## 137 /eby/apa/5772911062.html berkeley
## 139 /eby/apa/5800313051.html berkeley
## 141 /eby/apa/5800306528.html berkeley
## 142 /eby/apa/5779003816.html berkeley
## 149 /eby/apa/5791084713.html berkeley
## 151 /eby/apa/5800240332.html berkeley
## 156 /eby/apa/5780438730.html berkeley
## 158 /eby/apa/5786582283.html berkeley
## 160 /eby/apa/5755563961.html berkeley
## 161 /eby/apa/5778568033.html berkeley
## 165 /eby/apa/5800170176.html berkeley
## 168 /eby/apa/5778299076.html berkeley
## 170 /eby/apa/5789361039.html berkeley
## 175 /eby/apa/5793025629.html berkeley
## 176 /eby/apa/5796981140.html berkeley
## 183 /eby/apa/5796184692.html berkeley
## 184 /eby/apa/5793000511.html berkeley
## 185 /eby/apa/5761753488.html berkeley
## 190 /eby/apa/5806875556.html berkeley
## 193 /eby/apa/5806764324.html berkeley
## 196 /eby/apa/5806627106.html berkeley
## 202 /eby/apa/5797340234.html berkeley
## 203 /eby/apa/5806552446.html berkeley
## 204 /eby/apa/5806474363.html berkeley
## 205 /eby/apa/5806460980.html berkeley
## 206 /eby/apa/5806420549.html berkeley
## 207 /eby/apa/5806427238.html berkeley
## 216 /eby/apa/5806013857.html berkeley
## 222 /eby/apa/5805814141.html berkeley
## 224 /eby/apa/5805783879.html berkeley
## 228 /eby/apa/5805724703.html berkeley
## 229 /eby/apa/5805704898.html berkeley
## 231 /eby/apa/5805703928.html berkeley
```

No questions assigned to the following page.

```
## 232 /eby/apa/5805666930.html berkeley
## 233 /eby/apa/5805645538.html berkeley
## 237 /eby/apa/5805407589.html berkeley
## 239 /eby/apa/5805290215.html berkeley
## 242 /eby/apa/5805275850.html berkeley
## 245 /eby/apa/5805156205.html berkeley
## 247 /eby/apa/5805042736.html berkeley
## 248 /eby/apa/5805040849.html berkeley
## 250 /eby/apa/5804963409.html berkeley
## 254 /eby/apa/5804888319.html berkeley
## 255 /eby/apa/5765633847.html berkeley
## 256 /eby/apa/5793948533.html berkeley
## 259 /eby/apa/5772813465.html berkeley
## 262 /eby/apa/5804758329.html berkeley
## 276 /eby/apa/5804372558.html berkeley
## 283 /eby/apa/5804255002.html berkeley
## 284 /eby/apa/5797258215.html berkeley
## 285 /eby/apa/5804067628.html berkeley
## 286 /eby/apa/5804062978.html berkeley
## 290 /eby/apa/5813031418.html berkeley
## 291 /eby/apa/5821160998.html berkeley
## 293 /eby/apa/5821125519.html berkeley
## 299 /eby/apa/5821121547.html berkeley
## 302 /eby/apa/5820902369.html berkeley
## 303 /eby/apa/5820852382.html berkeley
## 305 /eby/apa/5820815626.html berkeley
## 307 /eby/apa/5820605832.html berkeley
## 308 /eby/apa/5820590189.html berkeley
## 309 /eby/apa/5820588781.html berkeley
## 310 /eby/apa/5820589699.html berkeley
## 313 /eby/apa/5820473681.html berkeley
## 314 /eby/apa/5810518417.html berkeley
## 317 /eby/apa/5820289009.html berkeley
## 324 /eby/apa/5807762596.html berkeley
## 327 /eby/apa/5819702679.html berkeley
## 328 /eby/apa/5819681978.html berkeley
## 330 /eby/apa/5813376769.html berkeley
## 332 /eby/apa/5819453556.html berkeley
## 333 /eby/apa/5819426946.html berkeley
## 335 /eby/apa/5815009746.html berkeley
## 338 /eby/apa/5819270002.html berkeley
## 346 /eby/apa/5819068760.html berkeley
## 348 /eby/apa/5817827009.html berkeley
## 352 /eby/apa/5819023122.html berkeley
## 353 /eby/apa/5819005548.html berkeley
## 354 /eby/apa/5818995470.html berkeley
## 356 /eby/apa/5818925737.html berkeley
## 362 /eby/apa/5818758516.html berkeley
## 363 /eby/apa/5818658570.html berkeley
## 365 /eby/apa/5818446891.html berkeley
## 374 /eby/apa/5818335905.html berkeley
## 376 /eby/apa/5818131117.html berkeley
## 377 /eby/apa/5808209300.html berkeley
## 379 /eby/apa/5814254054.html berkeley
```

No questions assigned to the following page.

```
## 380 /eby/apa/5814242023.html berkeley
## 382 /eby/apa/5818149013.html berkeley
## 388 /eby/apa/5814238132.html berkeley
## 389 /eby/apa/5796282300.html berkeley
## 390 /eby/apa/5813429329.html berkeley
## 391 /eby/apa/5817981098.html berkeley
## 392 /eby/apa/5778521700.html berkeley
## 393 /eby/apa/5804039671.html berkeley
## 394 /eby/apa/5817903388.html berkeley
## 2251 /pen/apa/5802502217.html palo alto
## 2258 /pen/apa/5802452014.html palo alto
## 2265 /pen/apa/5802366454.html palo alto
## 2268 /pen/apa/5802311458.html palo alto
## 2270 /pen/apa/5802253141.html palo alto
## 2271 /pen/apa/5802227160.html palo alto
## 2272 /pen/apa/5802226184.html palo alto
## 2273 /pen/apa/5802197493.html palo alto
## 2274 /pen/apa/5802131981.html palo alto
## 2275 /pen/apa/5802143995.html palo alto
## 2288 /pen/apa/5787431755.html palo alto
## 2290 /pen/apa/5801887619.html palo alto
## 2292 /pen/apa/5801873182.html palo alto
## 2293 /pen/apa/5801870230.html palo alto
## 2300 /pen/apa/5801687087.html palo alto
## 2304 /pen/apa/5801628341.html palo alto
## 2305 /pen/apa/5801616608.html palo alto
## 2308 /pen/apa/5801587315.html palo alto
## 2310 /pen/apa/5776631646.html palo alto
## 2311 /pen/apa/5801477548.html palo alto
## 2315 /pen/apa/5767425311.html palo alto
## 2320 /pen/apa/5778776149.html palo alto
## 2325 /pen/apa/5800900388.html palo alto
## 2326 /pen/apa/5800781624.html palo alto
## 2327 /pen/apa/5800785319.html palo alto
## 2328 /pen/apa/5779964105.html palo alto
## 2329 /pen/apa/5793053291.html palo alto
## 2330 /pen/apa/5772919681.html palo alto
## 2333 /pen/apa/5800745335.html palo alto
## 2335 /pen/apa/5800712773.html palo alto
## 2344 /pen/apa/5782945233.html palo alto
## 2345 /pen/apa/5800657686.html palo alto
## 2346 /pen/apa/5786966072.html palo alto
## 2348 /pen/apa/5800593526.html palo alto
## 2349 /pen/apa/5782440042.html palo alto
## 2350 /pen/apa/5800531920.html palo alto
## 2374 /pen/apa/5781216582.html palo alto
## 2375 /pen/apa/5800028743.html palo alto
## 2378 /pen/apa/5799943255.html palo alto
## 2380 /pen/apa/5753534918.html palo alto
## 2384 /pen/apa/5770508790.html palo alto
## 2385 /pen/apa/5770510181.html palo alto
## 2386 /pen/apa/5770510676.html palo alto
## 2387 /pen/apa/5772813734.html palo alto
## 2388 /pen/apa/5768585489.html palo alto
```

No questions assigned to the following page.

```
## 2389 /pen/apa/5770515945.html palo alto
## 2390 /pen/apa/5770519767.html palo alto
## 2391 /pen/apa/5770687623.html palo alto
## 2398 /pen/apa/5785108606.html palo alto
## 2399 /pen/apa/5786040072.html palo alto
## 2403 /pen/apa/5799531322.html palo alto
## 2406 /pen/apa/5799387297.html palo alto
## 2412 /pen/apa/5799295340.html palo alto
## 2413 /pen/apa/5772151266.html palo alto
## 2414 /pen/apa/5799102195.html palo alto
## 2415 /pen/apa/5799065382.html palo alto
## 2416 /pen/apa/5799057272.html palo alto
## 2417 /pen/apa/5798983623.html palo alto
## 2430 /pen/apa/5798486434.html palo alto
## 2434 /pen/apa/5798053325.html palo alto
## 2435 /pen/apa/5798045712.html palo alto
## 2443 /pen/apa/5797774074.html palo alto
## 2444 /pen/apa/5797726589.html palo alto
## 2448 /pen/apa/5794068410.html palo alto
## 2451 /pen/apa/5752229105.html palo alto
## 2457 /pen/apa/5797406479.html palo alto
## 2458 /pen/apa/5788026363.html palo alto
## 2459 /pen/apa/5770584965.html palo alto
## 2460 /pen/apa/5797403059.html palo alto
## 2461 /pen/apa/5753061716.html palo alto
## 2466 /pen/apa/5762718070.html palo alto
## 2470 /pen/apa/5786755503.html palo alto
## 2471 /pen/apa/5797066898.html palo alto
## 2472 /pen/apa/5786685158.html palo alto
## 2474 /pen/apa/5796994680.html palo alto
## 2479 /pen/apa/5769720845.html palo alto
## 2480 /pen/apa/5773162326.html palo alto
## 2481 /pen/apa/5783862573.html palo alto
## 2482 /pen/apa/5796408877.html palo alto
## 2487 /pen/apa/5796329978.html palo alto
## 2489 /pen/apa/5781552919.html palo alto
## 2491 /pen/apa/5796226192.html palo alto
## 2493 /pen/apa/5796132460.html palo alto
## 2495 /pen/apa/5783407558.html palo alto
## 2496 /pen/apa/5795983060.html palo alto
## 2503 /pen/apa/5795853237.html palo alto
## 2507 /pen/apa/5779968118.html palo alto
## 2508 /pen/apa/5751568618.html palo alto
## 2511 /pen/apa/5795639273.html palo alto
## 2517 /pen/apa/5794963541.html palo alto
## 2518 /pen/apa/5794960045.html palo alto
## 2520 /pen/apa/5794915931.html palo alto
## 2526 /pen/apa/5794717435.html palo alto
## 2529 /pen/apa/5794610213.html palo alto
## 2531 /pen/apa/5794493075.html palo alto
## 2533 /pen/apa/5794483815.html palo alto
## 2536 /pen/apa/5794449497.html palo alto
## 2543 /pen/apa/5794027606.html palo alto
## 2545 /pen/apa/5748335179.html palo alto
```

No questions assigned to the following page.

```
## 2546 /pen/apa/5793858504.html palo alto
## 2547 /pen/apa/5793835689.html palo alto
## 2548 /pen/apa/5793794772.html palo alto
## 2551 /pen/apa/5793244020.html palo alto
## 2556 /pen/apa/5781592526.html palo alto
## 2557 /pen/apa/5792916854.html palo alto
## 2558 /pen/apa/5792918129.html palo alto
## 2564 /pen/apa/5792690629.html palo alto
## 2572 /pen/apa/5748392953.html palo alto
## 2576 /pen/apa/5792026134.html palo alto
## 2577 /sby/apa/5784988602.html palo alto
## 2579 /pen/apa/5806874516.html palo alto
## 2580 /pen/apa/5806866159.html palo alto
## 2581 /pen/apa/5806861360.html palo alto
## 2582 /pen/apa/5806829646.html palo alto
## 2585 /pen/apa/5806769328.html palo alto
## 2589 /pen/apa/5803358776.html palo alto
## 2590 /pen/apa/5803375912.html palo alto
## 2591 /pen/apa/5803361207.html palo alto
## 2592 /pen/apa/5803359667.html palo alto
## 2593 /pen/apa/5806665216.html palo alto
## 2594 /pen/apa/5806642687.html palo alto
## 2595 /pen/apa/5803359740.html palo alto
## 2598 /pen/apa/5806638320.html palo alto
## 2599 /pen/apa/5806589239.html palo alto
## 2600 /pen/apa/5806587675.html palo alto
## 2601 /pen/apa/5806586700.html palo alto
## 2604 /pen/apa/5806563288.html palo alto
## 2606 /pen/apa/5806551385.html palo alto
## 2607 /pen/apa/5806550542.html palo alto
## 2612 /pen/apa/5806489353.html palo alto
## 2615 /pen/apa/5806413074.html palo alto
## 2622 /pen/apa/5805815121.html palo alto
## 2626 /pen/apa/5805702404.html palo alto
## 2628 /pen/apa/5805649288.html palo alto
## 2630 /pen/apa/5805536038.html palo alto
## 2631 /pen/apa/5805557475.html palo alto
## 2634 /pen/apa/5805501423.html palo alto
## 2649 /pen/apa/5805241311.html palo alto
## 2650 /pen/apa/5805233912.html palo alto
## 2652 /pen/apa/5805232590.html palo alto
## 2656 /pen/apa/5805112648.html palo alto
## 2661 /pen/apa/5804964743.html palo alto
## 2662 /pen/apa/5804967594.html palo alto
## 2663 /pen/apa/5804971162.html palo alto
## 2666 /pen/apa/5804837963.html palo alto
## 2668 /pen/apa/5804835227.html palo alto
## 2670 /pen/apa/5804857179.html palo alto
## 2671 /pen/apa/5804837263.html palo alto
## 2672 /pen/apa/5804833859.html palo alto
## 2674 /pen/apa/5804755188.html palo alto
## 2675 /pen/apa/5804706115.html palo alto
## 2676 /pen/apa/5804573944.html palo alto
## 2681 /pen/apa/5804072288.html palo alto
```

No questions assigned to the following page.

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## 2690 /pen/apa/5803555408.html palo alto
## 2694 /pen/apa/5803389385.html palo alto
## 2696 /pen/apa/5803365173.html palo alto
## 2699 /pen/apa/5803278434.html palo alto
## 2701 /pen/apa/5803251519.html palo alto
## 2702 /pen/apa/5803248163.html palo alto
## 2710 /pen/apa/5802698749.html palo alto
## 2713 /pen/apa/5802645370.html palo alto
## 2714 /pen/apa/5802645538.html palo alto
## 2715 /pen/apa/5802645142.html palo alto
## 2720 /pen/apa/5788319521.html palo alto
## 2727 /pen/apa/5813573197.html palo alto
## 2728 /pen/apa/5821090578.html palo alto
## 2729 /pen/apa/5820963883.html palo alto
## 2732 /pen/apa/5820939108.html palo alto
## 2735 /pen/apa/5819443406.html palo alto
## 2736 /pen/apa/5820860888.html palo alto
## 2737 /pen/apa/5820853437.html palo alto
## 2738 /pen/apa/5820804206.html palo alto
## 2739 /pen/apa/5820812095.html palo alto
## 2745 /pen/apa/5820540015.html palo alto
## 2747 /pen/apa/5820451698.html palo alto
## 2749 /pen/apa/5820442895.html palo alto
## 2750 /pen/apa/5820433017.html palo alto
## 2753 /pen/apa/5808181979.html palo alto
## 2754 /pen/apa/5820417307.html palo alto
## 2756 /pen/apa/5820395135.html palo alto
## 2762 /pen/apa/5810050986.html palo alto
## 2764 /pen/apa/5820146385.html palo alto
## 2766 /pen/apa/5816790449.html palo alto
## 2767 /pen/apa/5816859128.html palo alto
## 2771 /pen/apa/5819859179.html palo alto
## 2772 /pen/apa/5819820932.html palo alto
## 2773 /pen/apa/5819778323.html palo alto
## 2774 /pen/apa/5819632906.html palo alto
## 2786 /pen/apa/5819335736.html palo alto
## 2790 /pen/apa/5819272974.html palo alto
## 2791 /pen/apa/5819268823.html palo alto
## 2795 /pen/apa/5819076289.html palo alto
## 2798 /pen/apa/5819058612.html palo alto
## 2800 /pen/apa/5819042751.html palo alto
## 2803 /pen/apa/5818990453.html palo alto
## 2805 /pen/apa/5818893549.html palo alto
## 2806 /pen/apa/5818878407.html palo alto
## 2813 /pen/apa/5818440303.html palo alto
## 2814 /pen/apa/5818439210.html palo alto
## 2818 /pen/apa/5818203159.html palo alto
## 2819 /pen/apa/5818198475.html palo alto
## 2821 /pen/apa/5818184944.html palo alto
## 2823 /pen/apa/5818175818.html palo alto
## 2827 /pen/apa/5818097173.html palo alto
## 2833 /pen/apa/5808166336.html palo alto
## 2838 /pen/apa/5814781343.html palo alto
## 2845 /pen/apa/5817846313.html palo alto
```

Questions assigned to the following page: [1.2](#) and [1.3](#)

```

## 2847 /pen/apa/5814106337.html palo alto
## 2851 /pen/apa/5807066119.html palo alto
## 2852 /pen/apa/5817595635.html palo alto
## 2853 /pen/apa/5817614280.html palo alto
## 2854 /pen/apa/5817601006.html palo alto
## 2855 /pen/apa/5817593036.html palo alto
## 2857 /pen/apa/5817493598.html palo alto
## 2863 /pen/apa/5813229479.html palo alto
## 2866 /pen/apa/5810738623.html palo alto
## 2867 /pen/apa/5817225146.html palo alto
## 2870 /pen/apa/5816892464.html palo alto
## 2875 /pen/apa/5812851574.html palo alto
## 2878 /pen/apa/5812974502.html palo alto
## 2879 /pen/apa/5816334252.html palo alto
## 2881 /pen/apa/5816206881.html palo alto
## 2883 /pen/apa/5816171662.html palo alto
## 2884 /pen/apa/5808754632.html palo alto
## 2886 /pen/apa/5816177267.html palo alto
## 2893 /pen/apa/5816076737.html palo alto
## 2895 /pen/apa/5816040316.html palo alto
## 2899 /pen/apa/5815948261.html palo alto
## 2903 /pen/apa/5811554585.html palo alto
## 2906 /pen/apa/5807277729.html palo alto
## 2907 /pen/apa/5815352273.html palo alto
## 2910 /pen/apa/5815290310.html palo alto
## 2913 /pen/apa/5815144773.html palo alto
## 2915 /pen/apa/5807031899.html palo alto
## 2916 /pen/apa/5815030755.html palo alto
## 2919 /pen/apa/5814796029.html palo alto
## 2920 /pen/apa/5814759365.html palo alto
## 2926 /pen/apa/5814470622.html palo alto
## 2927 /pen/apa/5814444097.html palo alto
## 2936 /pen/apa/5813643062.html palo alto
## 2945 /pen/apa/5813410731.html palo alto
## 2954 /pen/apa/5807514271.html palo alto

```

(b) Calculate the number of postings for Berkeley in the data frame `subset`.

```
# insert code here save the number of postings for Berkeley as
# 'no.berkeley'
```

```
no.berkeley <- sum (subset $ location == "berkeley")
no.berkeley
```

```
## [1] 178
```

(c) Calculate the observed statistics, i.e., the absolute difference between the mean of Berkeley and mean of Palo Alto one bedroom rent price.

```
# insert code here save the observed statistics as
# 'stat.obs'
```

```
stat.obs <- abs(mean(subset[subset$location == "berkeley", "price"]) - mean(subset[subset$location == "palo alto", "price"]))
```

```
## [1] 195.4835
```

Questions assigned to the following page: [1.4](#) and [1.5](#)

- (d) Calculate the permuted statistics (absolute mean difference), repeat for 1000 times. HINT: use `sample` function to sample from a group of observations. You can use either for loop or the `replicate` function introduced above. However, it is a good practice to try `replicate`.

```
# leave seed set as is.  
# insert code after set seed to save the simulated statistics as  
# 'stat.bootstrap'  
set.seed(20172828)  
  
stat.bootstrap <- replicate (1000, {sample = sample(nrow(subset), no.berkeley, replace = FALSE)  
abs(mean(subset[sample, "price"])- mean(subset[-sample, "price"]))})
```

- (e) Calculate the p-value of our observed statistic using our approximation of the sampling distribution from part (d). We are testing if there is any difference between the two means. Our null hypothesis is that there is no difference between the two means. Our alternative hypothesis is that there is a difference.

```
# insert code here save the observed statistics as  
# 'p.value'  
  
p.value <- mean(stat.bootstrap >= stat.obs)  
p.value  
  
## [1] 0.002
```

No questions assigned to the following page.

T-test

With the function `t.test`, implementing t-tests is easy in R. We will illustrate using a simulated example:

```
# Generate 100 samples from N(0, 1)
group1 <- rnorm(100, mean = 0, sd = 1)
# Generate 100 samples from N(0.2, 1)
group2 <- rnorm(100, mean = 0.2, sd = 1)
# perform t test
t.test(group1, group2)

##
## Welch Two Sample t-test
##
## data: group1 and group2
## t = -0.38556, df = 198, p-value = 0.7002
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.3497069 0.2353236
## sample estimates:
##      mean of x      mean of y
## -3.759364e-06 5.718789e-02
```

`t.test` usually print the results. To obtain the value of the t statistics or p-value, it is generally not wise to copy and paste from the printed output. Imagine you need to do 1000 t-test simultaneously, it is impossible to copy and paste every time. We need to figure out the output of `t.test`:

```
ttest.result <- t.test(group1, group2)
```

If you check the `ttest.result` object in your Environment window, you will find that it is a list of 9. And each element in the list stores some information.

```
names(ttest.result)

## [1] "statistic"    "parameter"    "p.value"       "conf.int"     "estimate"
## [6] "null.value"   "stderr"        "alternative"  "method"       "data.name"
```

To get the p-value, you can use either dollar sign or double square bracket, which are two ways usually used to extract elements from lists.

```
ttest.result$p.value    # with dollar sign, you can do tab completion

## [1] 0.7002346
ttest.result[['p.value']]

## [1] 0.7002346
```

Question assigned to the following page: [2](#)

Exercise 2.

Now apply t-test to compare the mean rent of one bedroom listings in Palo Alto and Berkeley.

```
# insert code here and save the t-statistic as
# 'rent.1b.tstat'
Palo_Alto <- craigslist[craigslist$location == "palo alto" & craigslist$brs == "1", "price"]
Berkeley <- craigslist[craigslist$location == "berkeley" & craigslist$brs == "1", "price"]
ttest <- t.test (Palo_Alto, Berkeley)
rent.1b.tstat <- ttest$statistic
rent.1b.tstat

##          t
## 3.163719

# insert code here and save the p value as
# 'rent.1b.pvalue'

rent.1b.pvalue <- ttest$p.value
rent.1b.pvalue

## [1] 0.001676094
```

No questions assigned to the following page.

T-distribution vs Normal distribution

The T-distribution has mean = 0 and variance = $n/(n-2)$. It is parameterized by just one parameter, the degrees of freedom. The degrees of freedom for practical purposes is equal to the sample size minus 1 for a one sample T-test. For a two sample T-test, as done above, the degrees of freedom is calculated through a formula (that you don't need to know).

The T-distribution is similar in shape to the standard normal distribution, but the relative difference in the tail regions of the distributions is significant. This implies that for hypothesis tests, the p-value we find will be quite different if we use the wrong distribution as our sampling distribution for the test statistic.

The following code finds the tail probability for a T-score (or T-statistic / T-value) of -1, with 30 degrees of freedom.

```
pt(-1, df=30)
```

```
## [1] 0.1626543
```

We can see that this different from that of a Z-score (standard normal distribution) of -1

```
pnorm(-1)
```

```
## [1] 0.1586553
```

The difference is larger when we change the degrees of freedom to 10

```
pt(-1, df=10)
```

```
## [1] 0.1704466
```

Question assigned to the following page: [3](#)

Exercise 3.

- (a) Find the tail probability of a T-score of -2 with 30 degrees of freedom. Divide this by the tail probability of a Z-score of -2.

```
#insert code here  
#save final answer (ratio) as e3a
```

```
e3a = pt(-2, df = 30)/pnorm (-2)  
e3a
```

```
## [1] 1.200543
```

- (b) Repeat part (a) but for 10 degrees of freedom.

```
#insert code here  
#save final answer (ratio) as e3b
```

```
e3b = pt(-2, df = 10)/pnorm (-2)  
e3b
```

```
## [1] 1.612914
```

It is common to run a hypothesis test with a significance level of 5 percent, or 0.05. This corresponds to rejecting the null hypothesis if we are more than 2 standard errors from the mean, or a Z-score of less than -2 or more than 2. However, if we do not know the true standard error, and we use the sample standard deviation to estimate it, then we must use the T-distribution. You can see from above that in this case our true P-value is much greater than we would otherwise think it is under the standard normal distribution. This is the effect of the uncertainty that comes from not knowing the true population standard deviation.