```r
> setwd("~/Desktop/data analysis")
> earnings = read.delim("graduate-earnings.txt", header = TRUE)
> attach(earnings)
> earnings$ratio = earnings$Earn/earnings$Price
> View(earnings)
```

	School	Public	Location	Earn	SAT	ACT	Price	Price_with_aid	need_fraction	merit_aided	ratio
2	University of Michigan-Ann Arbor	1	Ann Arbor, MI	59000	1380	30	28100	17300	0.30	0.16	2.0996441
5	University of California-Berkeley	1	Berkeley, CA	60300	1360	30	35700	18200	0.51	0.06	1.6890756
6	Brigham Young University-Provo	1	Provo, UT	51800	1260	29	18500	13400	0.39	0.24	2.8000000
7	Amherst College	1	Amherst, MA	53400	1440	32	66600	16000	0.58	NA	0.8018018
9	University of Virginia-Main Campus	1	Charlottesville, VA	55400	1360	31	28100	15300	0.27	0.03	1.9715302
13	Texas A & M University-College Station	1	College Station, TX	55100	1180	26	23900	12800	0.37	0.06	2.3054393
14	University of California-San Diego	1	La Jolla, CA	53700	1280	28	32500	14900	0.58	0.02	1.6523077
15	University of Florida	1	Gainesville, FL	49700	1270	29	21400	16100	0.34	0.06	2.3224299
16	University of California-Irvine	1	Irvine, CA	50600	1130	24	32900	13200	0.67	0.02	1.5379939
17	University of California-Davis	1	Davis, CA	51000	1200	26	35100	17700	0.63	0.04	1.4529915
18	Virginia Polytechnic Institute and State University	1	Blacksburg, VA	55300	1220	25	26900	20100	0.32	0.11	2.0557621
19	University of Maryland-College Park	1	College Park, MD	54500	1310	28	25300	16200	0.35	0.13	2.1541502
20	University of California-Los Angeles	1	Los Angeles, CA	52200	1300	28	34300	13600	0.54	0.03	1.5218659
21	Clemson University	1	Clemson, SC	53100	1250	29	30300	18300	0.37	0.28	1.7524752
22	University of Illinois at Urbana-Champaign	1	Champaign, IL	56800	1360	29	30800	17700	0.37	0.12	1.8441558
30	University of Washington-Seattle Campus	1	Seattle, WA	54000	1230	28	27800	11300	0.37	0.04	1.9424460
35	Georgia Institute of Technology-Main Campus	1	Atlanta, GA	63800	1360	30	25700	13300	0.39	0.24	2.4824903
36	College of William and Mary	1	Williamsburg, VA	47400	1370	30	32400	13500	0.28	0.06	1.4629630
37	Washington State University	1	Pullman, WA	49200	1030	22	29300	17900	0.49	0.11	1.6791809

```r
> splitearnings=split(earnings,earnings$public)
> publicschools=splitearnings[1]
> privateschools=splitearnings[2]
> boxplot(earnings$ratio~earnings$Public, xlab=c("private public"), ylab='earning to price ratio', main='earning
to price ratio')
```


earning to price ratio
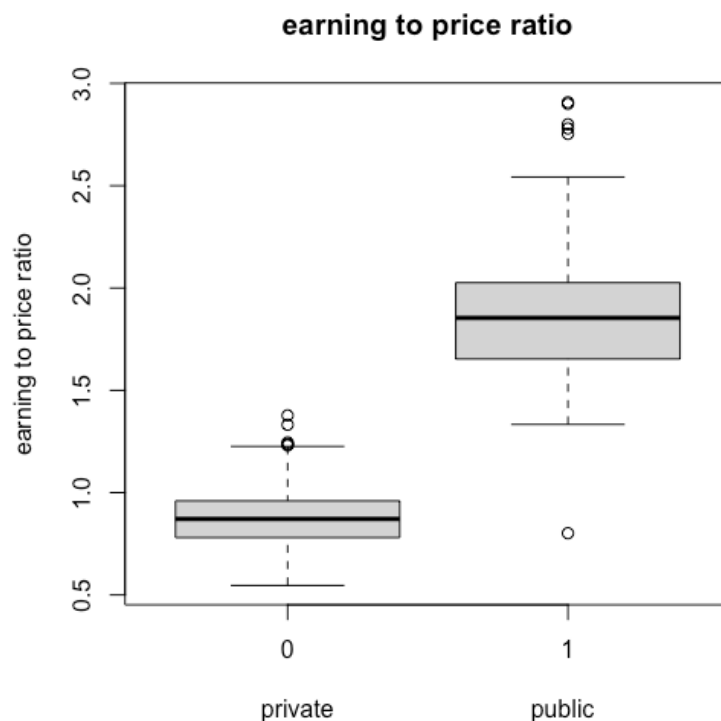
Run z-Test of earn to price ratio between public and private schools:

z-Test: Two Sample for Means

	private	public
Mean	0.87858447	1.86705224
Variance	0.13	0.31
Observations	438	268
Hypothesized Mean Difference	0	
z	-25.926984	
P(Z<=z) one-tail	0	
z Critical one-tail	1.64485363	
P(Z<=z) two-tail	0	
z Critical two-tail	1.95996398	

Null hypothesis is rejected. The public schools' earn to price ratio is significantly higher than private schools.