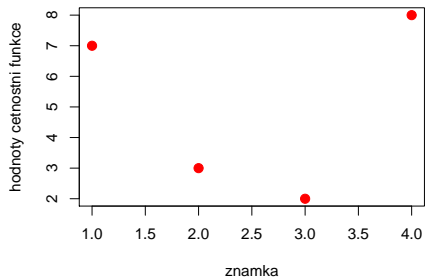
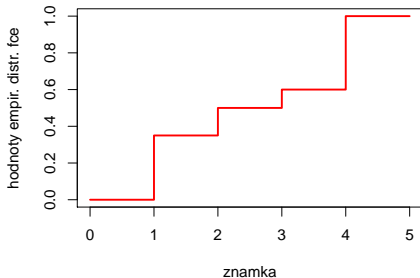


znamka	n.j	p.j	N.j	Fj
1	7	0.35	7	0.35
2	3	0.15	10	0.50
3	2	0.10	12	0.60
4	8	0.40	20	1.00

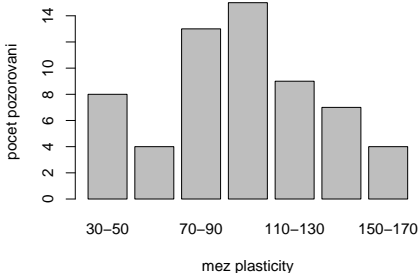
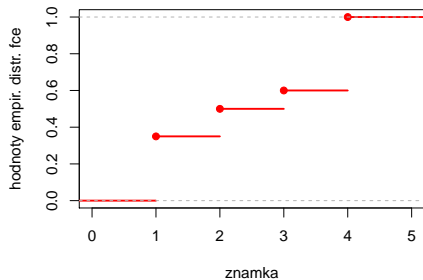
Graf četnostní funkce



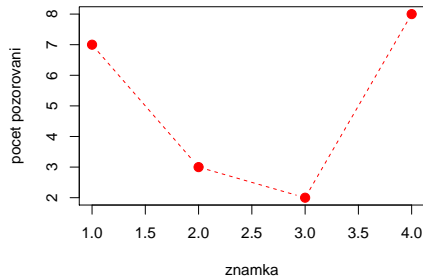
Graf empirické distribuční funkce



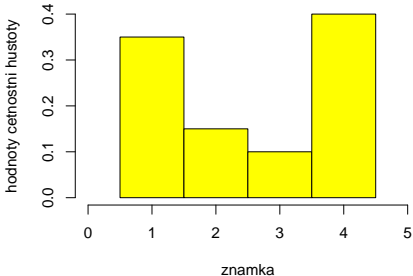
Graf empirické distribuční funkce



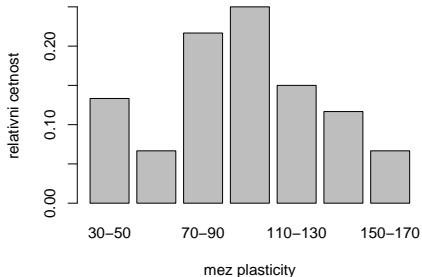
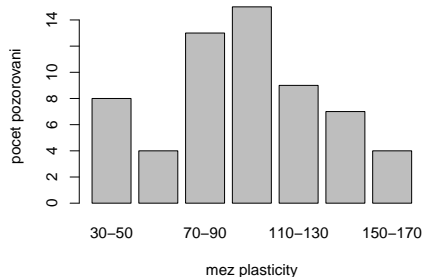
Polygon četnosti



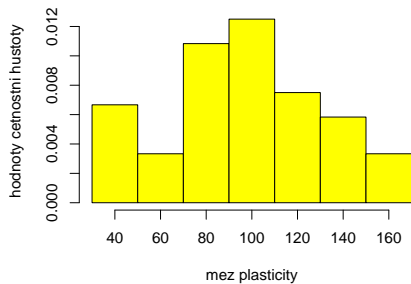
Histogram



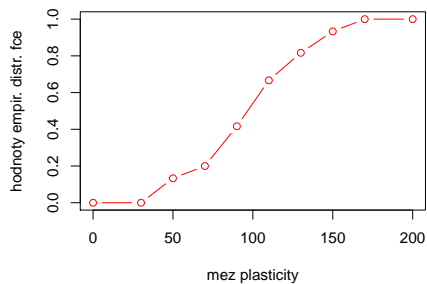
mez.d	mez.h	stredy	d.j	n.j	p.j	N.j	F.j	f.j
30	50	40	20	8	0.133	8	0.133	0.007
50	70	60	20	4	0.067	12	0.200	0.003
70	90	80	20	13	0.217	25	0.417	0.011
90	110	100	20	15	0.250	40	0.667	0.012
110	130	120	20	9	0.150	49	0.817	0.008
130	150	140	20	7	0.117	56	0.933	0.006
150	170	160	20	4	0.067	60	1.000	0.003



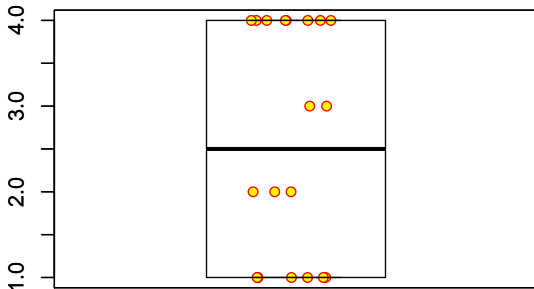
Histogram



Graf empirické distribuční funkce



## Krabicový diagram (boxplot)



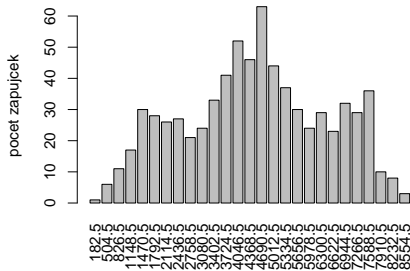
Pracujte s datovou tabulkou **cv08-06.csv**. Jedná se o soubor dat s počty zápůjček jízdních kol během jednotlivých dnů let 2011–2012 ve Washingtonu, D.C. Ve sloupci **cnt** jsou celkové počty zápůjček, sloupce **registered** a **casual** pak obsahují počty stálých a náhodných zákazníků.

Pro proměnnou **cnt** určete:

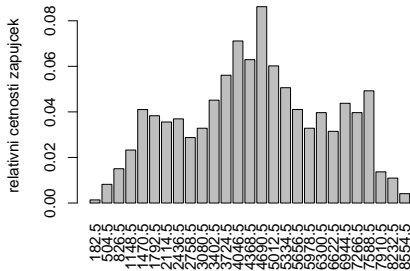
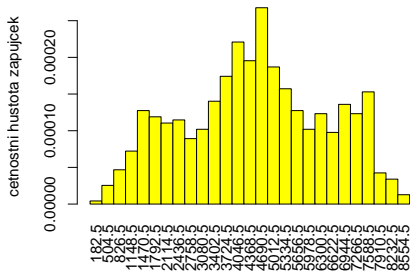
- tabulku absolutních i relativních četností, kumulativních četností, četnostní funkce
- sloupkový diagram četností, relativních četností, četnostní hustoty, histogram a graf empirické distribuční funkce
- průměr, rozptyl a směrodatnou odchylku, vážený průměr, vážený rozptyl
- medián, 1. a 3. kvartil, kvartilovou odchylku, vnější a vnitřní hradby
- krabicový diagram
- Q-Q plot, N-P plot, P-P plot

Totéž si potom vyzkoušejte i pro proměnné **registered** a **casual**. Dále můžete průzkumovou analýzu provést jen na části datové tabulky, např. pro jednotlivé měsíce (viz sloupec **mnth**), a výsledky porovnat.

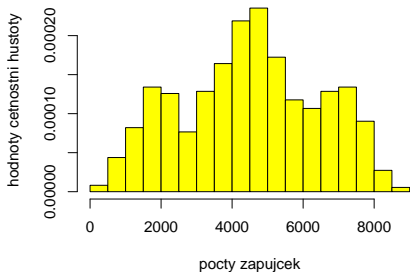
dolní	horní	střed	n.j	p.j	N.j	F.j	d.j	f.j
21.5	343.5	182.5	1	0.001	1	0.001	322	0
343.5	665.5	504.5	6	0.008	7	0.010	322	0
665.5	987.5	826.5	11	0.015	18	0.025	322	0
987.5	1309.5	1148.5	17	0.023	35	0.048	322	0
1309.5	1631.5	1470.5	30	0.041	65	0.089	322	0
1631.5	1953.5	1792.5	28	0.038	93	0.127	322	0
1953.5	2275.5	2114.5	26	0.036	119	0.163	322	0
2275.5	2597.5	2436.5	27	0.037	146	0.200	322	0
2597.5	2919.5	2758.5	21	0.029	167	0.228	322	0
2919.5	3241.5	3080.5	24	0.033	191	0.261	322	0
3241.5	3563.5	3402.5	33	0.045	224	0.306	322	0
3563.5	3885.5	3724.5	41	0.056	265	0.363	322	0
3885.5	4207.5	4046.5	52	0.071	317	0.434	322	0
4207.5	4529.5	4368.5	46	0.063	363	0.497	322	0
4529.5	4851.5	4690.5	63	0.086	426	0.583	322	0
4851.5	5173.5	5012.5	44	0.060	470	0.643	322	0
5173.5	5495.5	5334.5	37	0.051	507	0.694	322	0
5495.5	5817.5	5656.5	30	0.041	537	0.735	322	0
5817.5	6139.5	5978.5	24	0.033	561	0.767	322	0
6139.5	6461.5	6300.5	29	0.040	590	0.807	322	0
6461.5	6783.5	6621.5	22	0.033	612	0.839	322	0
6783.5	7105.5	6944.5	15	0.023	627	0.861	322	0
7105.5	7427.5	7269.5	10	0.016	637	0.877	322	0
7427.5	7749.5	7591.5	6	0.008	643	0.887	322	0
7749.5	8071.5	7913.5	3	0.001	646	0.891	322	0
8071.5	8393.5	8235.5	1	0.001	647	0.892	322	0
8393.5	8715.5	8557.5	0	0.000	647	0.892	322	0
8715.5	9037.5	8879.5	0	0.000	647	0.892	322	0
9037.5	9359.5	9201.5	0	0.000	647	0.892	322	0
9359.5	9681.5	9523.5	0	0.000	647	0.892	322	0
9681.5	10003.5	9845.5	0	0.000	647	0.892	322	0
10003.5	10325.5	10167.5	0	0.000	647	0.892	322	0
10325.5	10647.5	10489.5	0	0.000	647	0.892	322	0
10647.5	10969.5	10811.5	0	0.000	647	0.892	322	0
10969.5	11291.5	11133.5	0	0.000	647	0.892	322	0
11291.5	11613.5	11455.5	0	0.000	647	0.892	322	0
11613.5	11935.5	11777.5	0	0.000	647	0.892	322	0
11935.5	12257.5	12099.5	0	0.000	647	0.892	322	0
12257.5	12579.5	12421.5	0	0.000	647	0.892	322	0
12579.5	12901.5	12743.5	0	0.000	647	0.892	322	0
12901.5	13223.5	13065.5	0	0.000	647	0.892	322	0
13223.5	13545.5	13387.5	0	0.000	647	0.892	322	0
13545.5	13867.5	13709.5	0	0.000	647	0.892	322	0
13867.5	14189.5	14031.5	0	0.000	647	0.892	322	0
14189.5	14511.5	14353.5	0	0.000	647	0.892	322	0
14511.5	14833.5	14675.5	0	0.000	647	0.892	322	0
14833.5	15155.5	15000.5	0	0.000	647	0.892	322	0
15155.5	15477.5	15325.5	0	0.000	647	0.892	322	0
15477.5	15799.5	15650.5	0	0.000	647	0.892	322	0
15799.5	16121.5	15975.5	0	0.000	647	0.892	322	0
16121.5	16443.5	16295.5	0	0.000	647	0.892	322	0
16443.5	16765.5	16615.5	0	0.000	647	0.892	322	0
16765.5	17087.5	16935.5	0	0.000	647	0.892	322	0
17087.5	17409.5	17255.5	0	0.000	647	0.892	322	0
17409.5	17731.5	17575.5	0	0.000	647	0.892	322	0
17731.5	18053.5	17895.5	0	0.000	647	0.892	322	0
18053.5	18375.5	18215.5	0	0.000	647	0.892	322	0
18375.5	18697.5	18535.5	0	0.000	647	0.892	322	0
18697.5	19019.5	18855.5	0	0.000	647	0.892	322	0
19019.5	19341.5	19175.5	0	0.000	647	0.892	322	0
19341.5	19663.5	19495.5	0	0.000	647	0.892	322	0
19663.5	19985.5	19815.5	0	0.000	647	0.892	322	0
19985.5	20307.5	20135.5	0	0.000	647	0.892	322	0
20307.5	20629.5	20455.5	0	0.000	647	0.892	322	0
20629.5	20951.5	20775.5	0	0.000	647	0.892	322	0
20951.5	21273.5	21095.5	0	0.000	647	0.892	322	0
21273.5	21595.5	21415.5	0	0.000	647	0.892	322	0
21595.5	21917.5	21735.5	0	0.000	647	0.892	322	0
21917.5	22239.5	22055.5	0	0.000	647	0.892	322	0
22239.5	22561.5	22375.5	0	0.000	647	0.892	322	0
22561.5	22883.5	22695.5	0	0.000	647	0.892	322	0
22883.5	23205.5	23015.5	0	0.000	647	0.892	322	0
23205.5	23527.5	23335.5	0	0.000	647	0.892	322	0
23527.5	23849.5	23655.5	0	0.000	647	0.892	322	0
23849.5	24171.5	23975.5	0	0.000	647	0.892	322	0
24171.5	24493.5	24295.5	0	0.000	647	0.892	322	0
24493.5	24815.5	24615.5	0	0.000	647	0.892	322	0
24815.5	25137.5	24935.5	0	0.000	647	0.892	322	0
25137.5	25459.5	25255.5	0	0.000	647	0.892	322	0
25459.5	25781.5	25575.5	0	0.000	647	0.892	322	0
25781.5	26103.5	25895.5	0	0.000	647	0.892	322	0
26103.5	26425.5	26215.5	0	0.000	647	0.892	322	0
26425.5	26747.5	26535.5	0	0.000	647	0.892	322	0
26747.5	27069.5	26855.5	0	0.000	647	0.892	322	0
27069.5	27391.5	27175.5	0	0.000	647	0.892	322	0
27391.5	27713.5	27495.5	0	0.000	647	0.892	322	0
27713.5	28035.5	27815.5	0	0.000	647	0.892	322	0
28035.5	28357.5	28135.5	0	0.000	647	0.892	322	0
28357.5	28679.5	28455.5	0	0.000	647	0.892	322	0
28679.5	29001.5	28775.5	0	0.000	647	0.892	322	0
29001.5	29323.5	29095.5	0	0.000	647	0.892	322	0
29323.5	29645.5	29415.5	0	0.000	647	0.892	322	0
29645.5	29967.5	29735.5	0	0.000	647	0.892	322	0
29967.5	30289.5	30055.5	0	0.000	647	0.892	322	0
30289.5	30611.5	30375.5	0	0.000	647	0.892	322	0
30611.5	30933.5	30695.5	0	0.000	647	0.892	322	0
30933.5	31255.5	31015.5	0	0.000	647	0.892	322	0
31255.5	31577.5	31335.5	0	0.000	647	0.892	322	0
31577.5	31899.5	31655.5	0	0.000	647	0.892	322	0
31899.5	32221.5	31975.5	0	0.000	647	0.892	322	0
32221.5	32543.5	32295.5	0	0.000	647	0.892	322	0
32543.5	32865.5	32615.5	0	0.000	647	0.892	322	0
32865.5	33187.5	32935.5	0	0.000	647	0.892	322	0
33187.5	33509.5	33255.5	0	0.000	647	0.892	322	0
33509.5	33831.5	33575.5	0	0.000	647	0.892	322	0
33831.5	34153.5	33895.5	0	0.000	647	0.892	322	0
34153.5	34475.5	34215.5	0	0.000	647	0.892	322	0
34475.5	34797.5	34535.5	0	0.000	647	0.892	322	0
34797.5	35119.5	34855.5	0	0.000	647	0.892	322	0
35119.5	35441.5	35175.5	0	0.000	647	0.892	322	0
35441.5	35763.5	35495.5	0	0.000	647	0.892	322	0
35763.5	36085.5	35815.5	0	0.000	647	0.892	322	0
36085.5	36407.5	36135.5	0	0.000	647	0.892	322	0
36407.5	36729.5	36455.5	0	0.000	647	0.892	322	0
36729.5	37051.5	36775.5	0	0.000	647	0.892	322	0
37051.5	37373.5	37095.5	0	0.000	647	0.892	322	0
37373.5	37695.5	37415.5	0	0.000	647	0.892	322	0
37695.5	38017.5	37735.5	0	0.000	647	0.892	322	0
38017.5	38339.5	38055.5	0	0.000	647	0.892	322	0
38339.5	38661.5	38375.5	0	0.000	647	0.892	322	0
38661.5	38983.5	38695.5	0	0.000	647	0.892	322	0
38983.5	39305.5	39015.5	0	0.000	647	0.892	322	0
39305.5	39627.5	39335.5	0	0.000	647	0.892	322	0
39627.5	39949.5	39655.5	0	0.000	647	0.892	322	0
39949.5	40271.5	39975.5	0	0.000	647	0.892	322	0
40271.5	40593.5	40295.5	0	0.000	647	0.892	322	0
40593.5	40915.5	40615.5	0	0.000	647	0.892	322	0
40915.5	41237.5	40935.5	0	0.000	647	0.892	322	0
41237.5	41559.5	41255.5	0	0.000	647	0.892	322	0
41559.5	41881.5	41575.5	0	0.000	647	0.892	322	0
41881.5	42203.5	41895.5	0	0.000	647	0.892	322	0
42203.5	42525.5	42215.5	0	0.000	647	0.892	322	0
42525.5	42847.5	42535.5	0	0.000	647	0.892	322	0
42847.5	43169.5	42855.5	0	0.000	647	0.892	322	0
43169.5	43491.5	43175.5	0	0.000	647	0.892	322	0
43491.5	43813.5	43495.5	0	0.000	647	0.892	322	0
43813.5	44135.5	43815.5	0	0.000	647	0.892	322	0
44135.5	44457.5							



Histogram



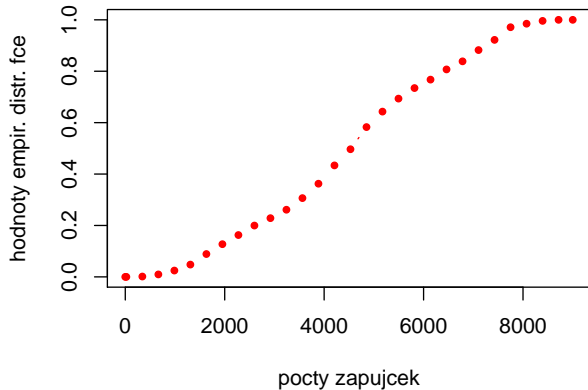
Histogram



počty zapůjcek

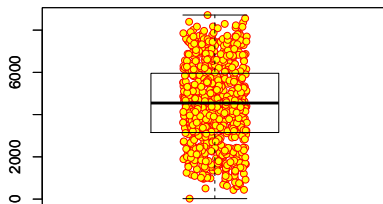


## Graf empiricke distribucni funkce

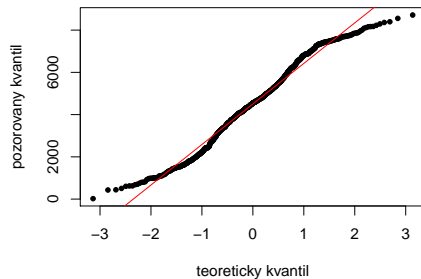


$$\bar{x} = 4504 \text{ (4505)}, s^2 = 3747654 \text{ (3760238)},$$
$$\tilde{x} = 4548, x_{0,25} = 3141, x_{0,75} = 5976, q = 2835$$

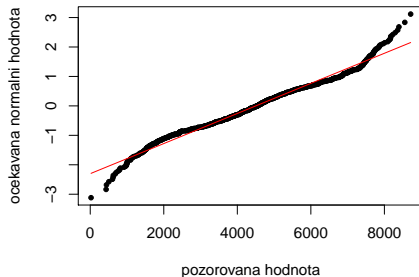
Krabicový diagram (boxplot)



Q-Q plot



N-P plot



P-P plot

