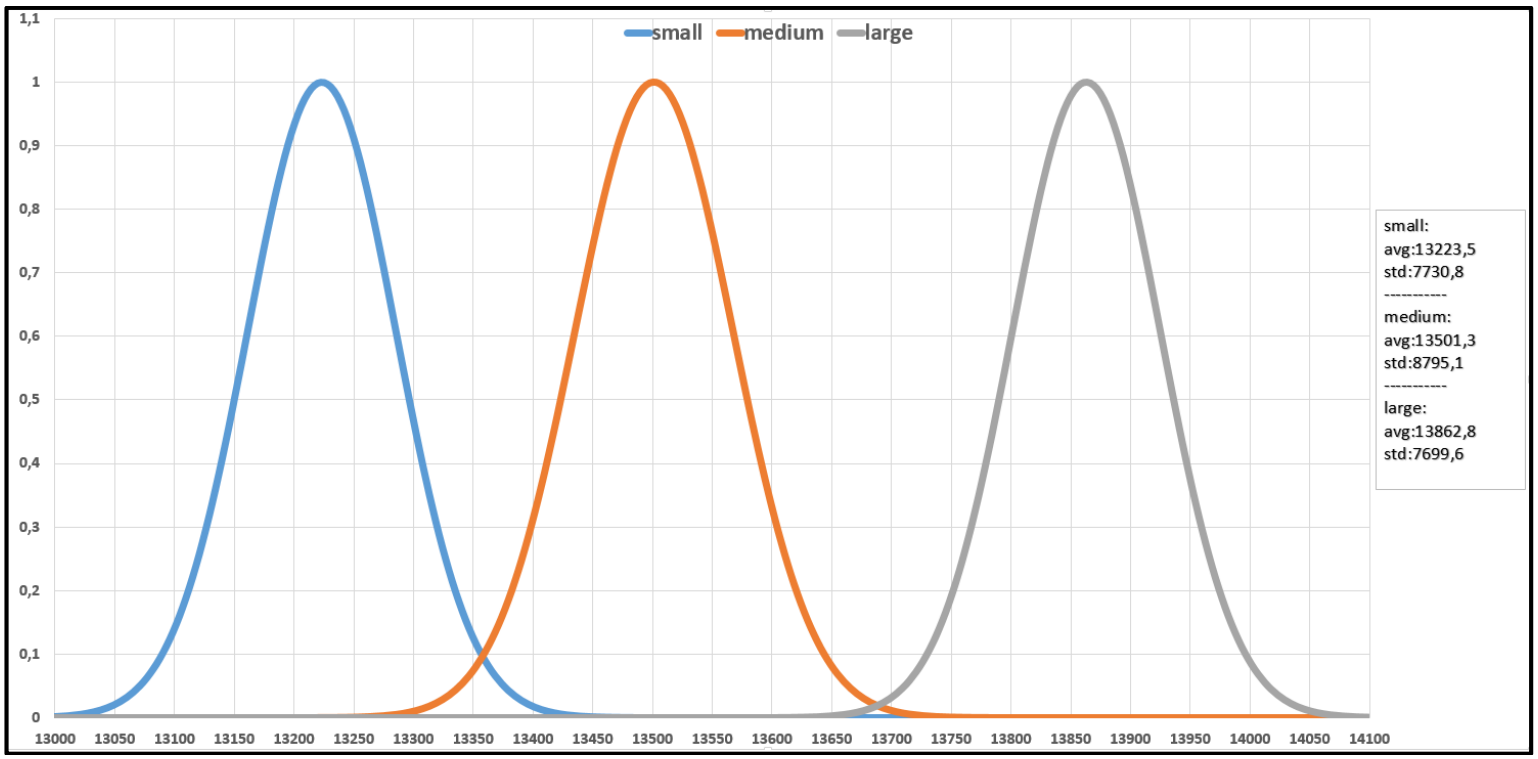
Muzyka Alexandr 11.05.16

Laboratory work #11

1) create 3 membership function of small, medium, large from dataset



2) Design 9 rules such as IF x(t-1) = large AND x(t) = medium then y_i

IF	X(t-1) = small	AND	X(t) = small	THEN	y = 1
IF	X(t-1) = small	AND	X(t) = medium	THEN	y = 2
IF	X(t-1) = small	AND	X(t) = large	THEN	y = 3
IF	X(t-1) = medium	AND	X(t) = small	THEN	y = 4
IF	X(t-1) = medium	AND	X(t) = medium	THEN	y = 5
IF	X(t-1) = medium	AND	X(t) = large	THEN	y = 6
IF	X(t-1) = large	AND	X(t) = small	THEN	y = 7
IF	X(t-1) = large	AND	X(t) = medium	THEN	y = 8
IF	X(t-1) = large	AND	X(t) = large	THEN	y = 9

3-5) Create a table. Apply TS-rule. Predict x(t) by y.

IF	y = 1	OR	y = 2	OR	y = 3			THEN	small
IF	y = 6	OR	y = 7	OR	y = 5	OR	y = 4	THEN	medium
IF	y = 9	OR	y = 8					THEN	large

t	x(t)	x(t-1)	how-big	x(t-2)	how-big	y	prediction x(t)
63	---	13211,99	small	13577,87	medium	2	13223,486
62	13211,99	13577,87	medium	13861,75	large	6	13501,2895
61	13577,87	13861,75	large	13907,25	large	9	13862,816
60	13861,75	13907,25	large	13950,98	large	9	13862,816
59	13907,25	13950,98	large	13463,33	medium	8	13862,816
58	13950,98	13463,33	medium	13181,91	small	4	13501,2895
57	13463,33	13181,91	small	13468,78	medium	2	13223,486
56	13181,91	13468,78	medium	13971,55	large	6	13501,2895
55	13468,78	13971,55	large	13918,22	large	9	13862,816
54	13971,55	13918,22	large	13226,53	small	7	13501,2895
53	13918,22	13226,53	small	13235,88	small	1	13223,486
52	13226,53	13235,88	small	13378,87	medium	2	13223,486
51	13235,88	13378,87	medium	13322,13	small	3	13223,486
50	13378,87	13322,13	small	13041,85	small	1	13223,486
49	13322,13	13041,85	small	13289,29	small	1	13223,486
48	13041,85	13289,29	small	13577,3	medium	2	13223,486
47	13289,29	13577,3	medium	13565,84	medium	5	13501,2895
46	13577,3	13565,84	medium	13611,68	medium	5	13501,2895
45	13565,84	13611,68	medium	13649,97	medium	5	13501,2895
44	13611,68	13649,97	medium	13649,97	medium	5	13501,2895
43	13649,97	13649,97	medium	13501,7	medium	5	13501,2895
42	13649,97	13501,7	medium	13577,87	medium	5	13501,2895
41	13501,7	13577,87	medium	13861,75	large	6	13501,2895
40	13577,87	13861,75	large	13907,25	large	9	13862,816
39	13861,75	13907,25	large	13950,98	large	9	13862,816
38	13907,25	13950,98	large	13971,55	large	9	13862,816
37	13950,98	13971,55	large	13918,22	large	9	13862,816
36	13971,55	13918,22	large	13226,53	small	7	13501,2895
35	13918,22	13226,53	small	13028,92	small	1	13223,486
34	13226,53	13028,92	small	13351,74	small	1	13223,486
33	13028,92	13351,74	small	13448,86	medium	3	13223,486
32	13351,74	13448,86	medium	14000,41	large	6	13501,2895
31	13448,86	14000,41	large	13851,08	large	9	13862,816
30	14000,41	13851,08	large	13943,42	large	9	13862,816
29	13851,08	13943,42	large	13716,95	large	9	13862,816
28	13943,42	13716,95	large	13785,79	large	9	13862,816
27	13716,95	13785,79	large	13473,57	medium	8	13862,816
26	13785,79	13473,57	medium	13265,47	small	4	13501,2895
25	13473,57	13265,47	small	13358,31	medium	2	13223,486
24	13265,47	13358,31	medium	13211,99	small	3	13223,486
23	13358,31	13211,99	small	13362,37	medium	2	13223,486
22	13211,99	13362,37	medium	13851,08	large	5	13501,2895
21	13362,37	13851,08	large	13943,42	large	9	13862,816
20	13851,08	13943,42	large	13716,95	large	9	13862,816
19	13943,42	13716,95	large	13785,79	large	9	13862,816
18	13716,95	13785,79	large	13851,08	large	9	13862,816
17	13785,79	13851,08	large	13943,42	large	9	13862,816
16	13851,08	13943,42	large	13716,95	large	9	13862,816
15	13943,42	13716,95	large	13785,79	large	9	13862,816
14	13716,95	13785,79	large	13463,33	medium	8	13862,816
13	13785,79	13463,33	medium	13181,91	small	4	13501,2895
12	13463,33	13181,91	small	13468,78	medium	2	13223,486
11	13181,91	13468,78	medium	13904,3	large	6	13501,2895
10	13468,78	13904,3	large	13657,86	medium	8	13862,816
9	13904,3	13657,86	medium	13270,68	small	4	13501,2895
8	13657,86	13270,68	small	13305,47	small	1	13223,486
7	13270,68	13305,47	small	13424,88	medium	2	13223,486
6	13305,47	13424,88	medium	13442,52	medium	5	13501,2895
5	13424,88	13442,52	medium	13403,42	medium	5	13501,2895
4	13442,52	13403,42	medium	13739,39	large	6	13501,2895
3	13403,42	13739,39	large	13815,6	large	9	13862,816
2	13739,39	13815,6	large	13725,13	large	9	13862,816
1	13815,6	13725,13	large	---	---	---	---
0	13725,13	---	---	---	---	---	---

6) Draw 2 graphs of x(t) and predicted x(t) = avg of prediction