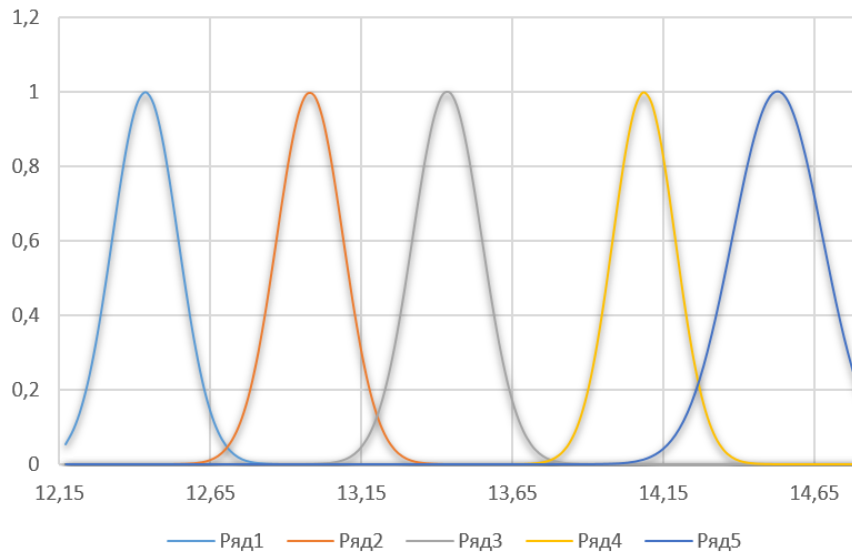


Contemporary Data Processing Technology (CCOD)

Lab 9 (October 27, 2016)

Kurilenko Nikita, AS-36

Membership function of attribute №1:



MS 1:
very small:
avg:12.434166666666667
std: 0.02387430555555556

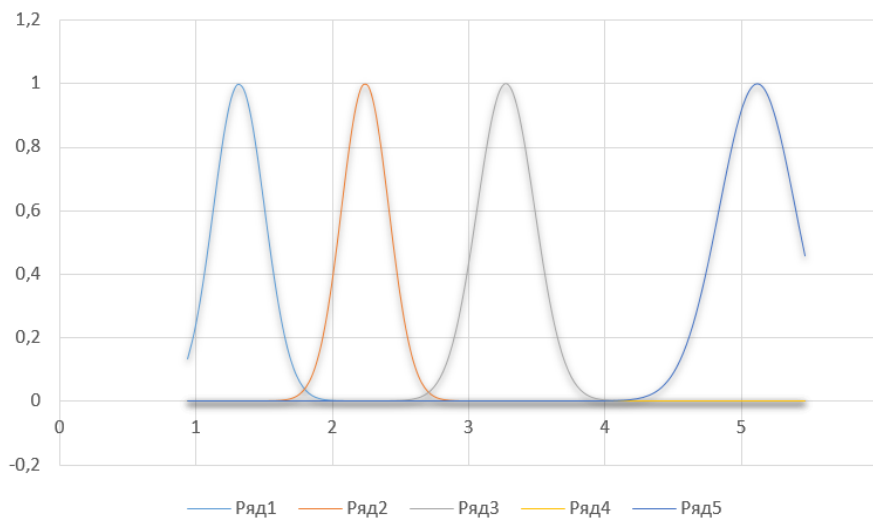
small:
avg:12.98
std: 0.024371428571428492

medium:
avg:13.435
std: 0.026324999999999984

large:
avg:14.0875
std: 0.021368750000000047

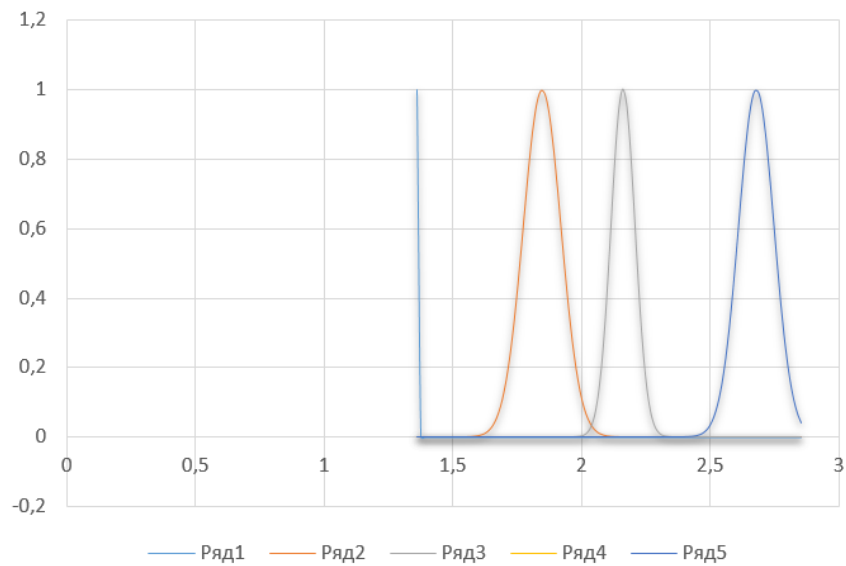
very large:
avg:14.53
std: 0.04506666666666671

Membership function of attribute №2:



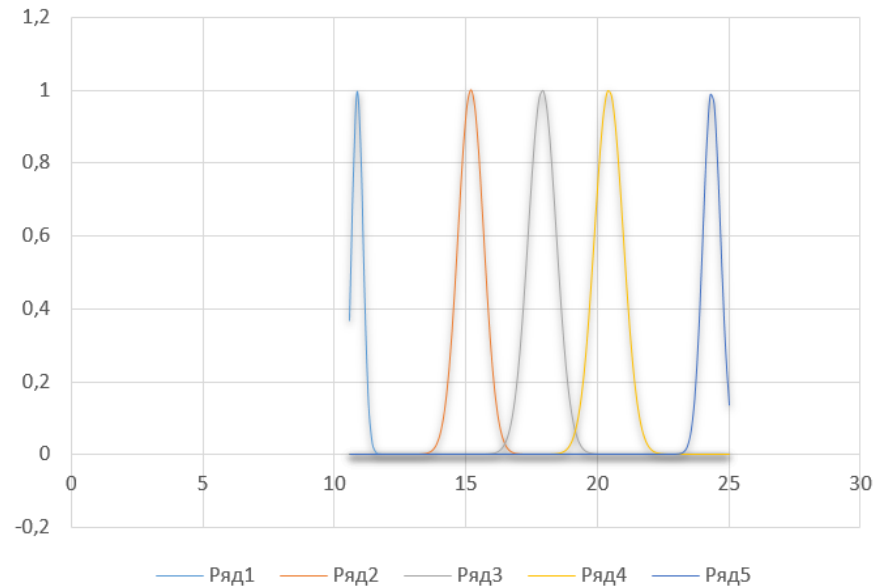
MS 2:
very small:
avg:1.3170588235294114
std: 0.0703031141868512
small:
avg:2.2414285714285715
std: 0.059897959183673445
medium:
avg:3.2725
std: 0.08881874999999992
large:
avg:0
std: 0
very large:
avg:5.115
std: 0.15602500000000002

Membership function of attribute №3:



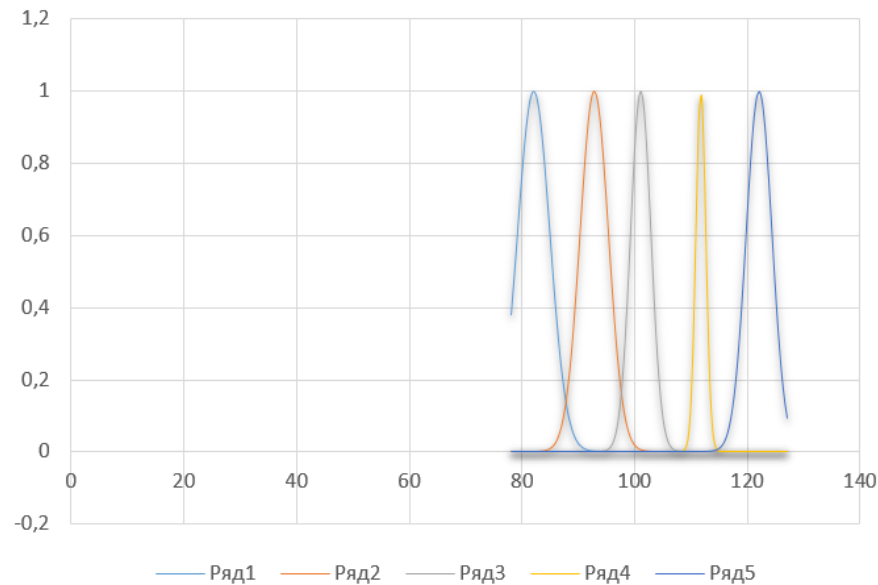
MS 3:
very small:
avg:1.36
std: 0
small:
avg:1.8466666666666667
std: 0.010755555555555553
medium:
avg:2.1614285714285715
std: 0.0043836734693877555
large:
avg:2.4178571428571427
std: 0.008173979591836742
very large:
avg:2.6799999999999997
std: 0.009520000000000013

Membership function of attribute №4:



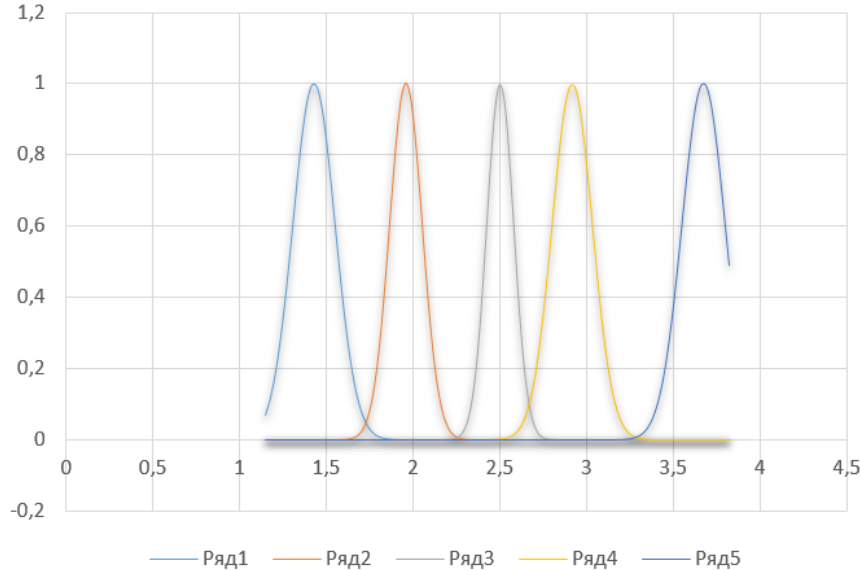
MS 4:
very small:
avg:10.899999999999999
std: 0.08999999999999989
small:
avg:15.2
std: 0.4685714285714286
medium:
avg:17.908333333333335
std: 0.5674305555555555
large:
avg:20.433333333333337
std: 0.5888888888888886
very large:
avg:24.333333333333336
std: 0.2222222222222224

Membership function of attribute №5:



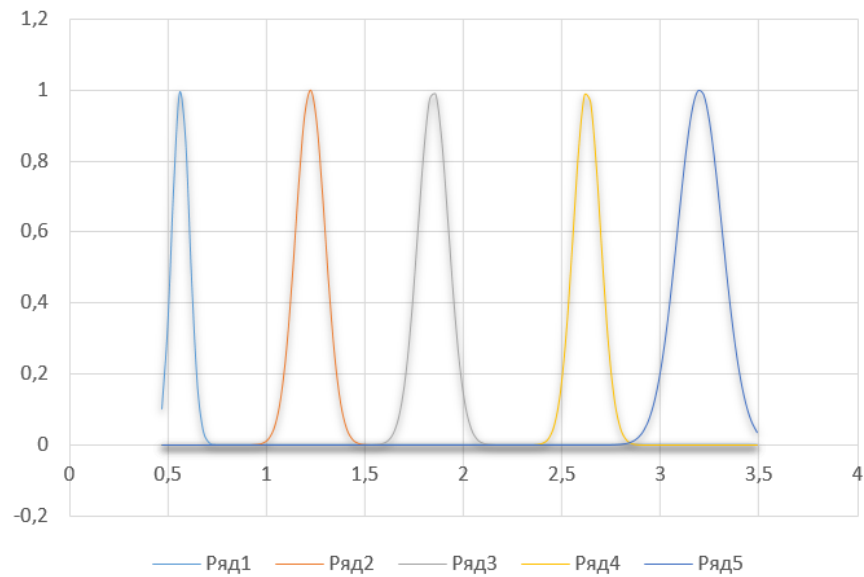
MS 5:
very small:
avg:82
std: 16.5
small:
avg:92.75
std: 12.6875
medium:
avg:101
std: 6.545454545454547
large:
avg:111.66666666666666
std: 1.5555555555555556
very large:
avg:122
std: 10.5

Membership function of attribute №6:



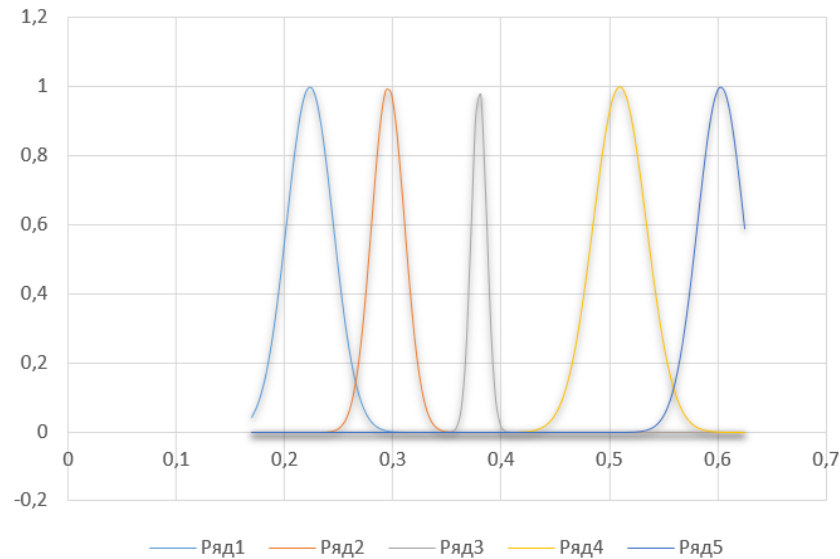
MS 6:
very small:
avg:1.43
std: 0.029400000000000002
small:
avg:1.96
std: 0.017466666666666665
medium:
avg:2.5033333333333334
std: 0.012022222222222223
large:
avg:2.9185714285714286
std: 0.026755102040816353
very large:
avg:3.675
std: 0.0306250000000000013

Membership function of attribute №7:



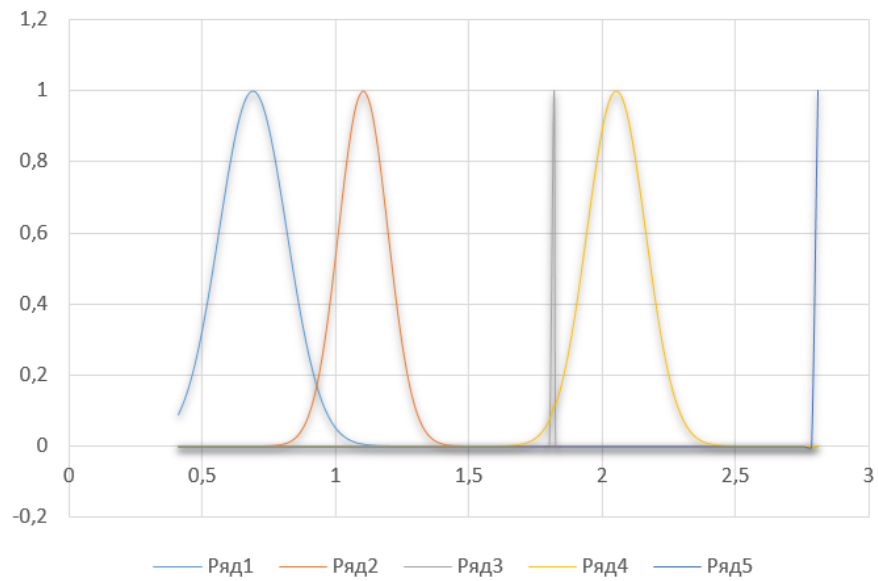
MS 7:
very small:
avg:0.5657142857142857
std: 0.00399591836734694
small:
avg:1.222857142857143
std: 0.011077551020408156
medium:
avg:1.8466666666666667
std: 0.012022222222222222
large:
avg:2.6260000000000003
std: 0.009463999999999997
very large:
avg:3.1987500000000004
std: 0.02533593750000002

Membership function of attribute №8:



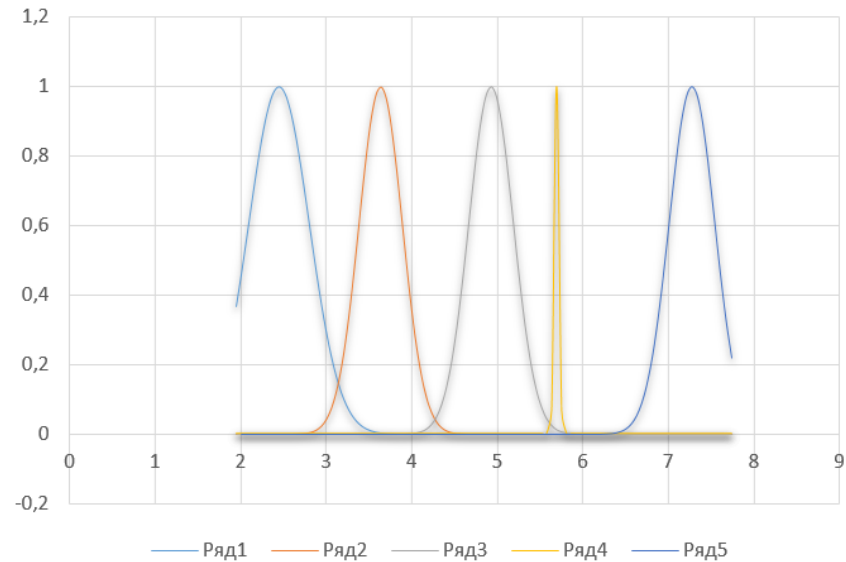
MS 8:
very small:
avg:0.22374999999999998
std: 0.0009234375
small:
avg:0.29600000000000004
std: 0.0004639999999999999
medium:
avg:0.38
std: 0.00010000000000000018
large:
avg:0.51
std: 0.0012000000000000008
very large:
avg:0.6033333333333333
std: 0.0009222222222222221

Membership function of attribute №9:



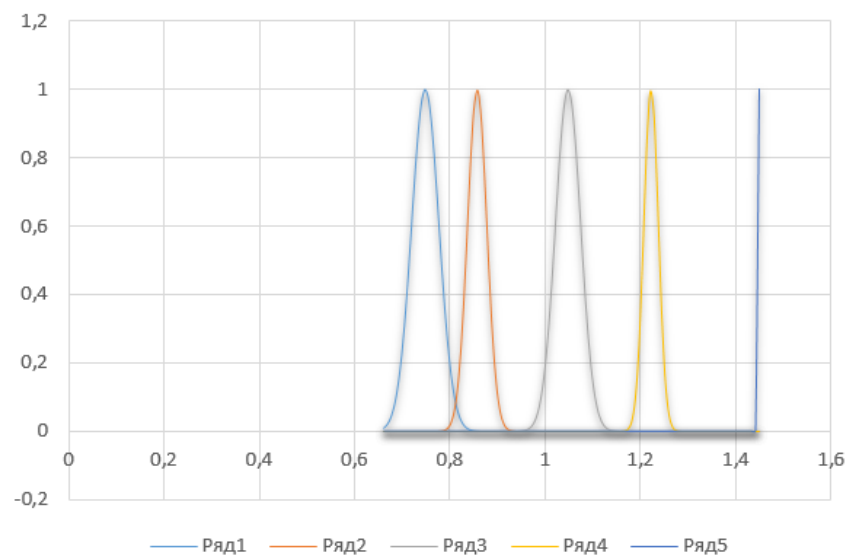
MS 9:
very small:
avg:0.69
std: 0.03227272727272728
small:
avg:1.10375
std: 0.0171234375
medium:
avg:1.82
std: 0
large:
avg:2.0533333333333332
std: 0.024088888888888888
very large:
avg:2.81
std: 0

Membership function of attribute №10:



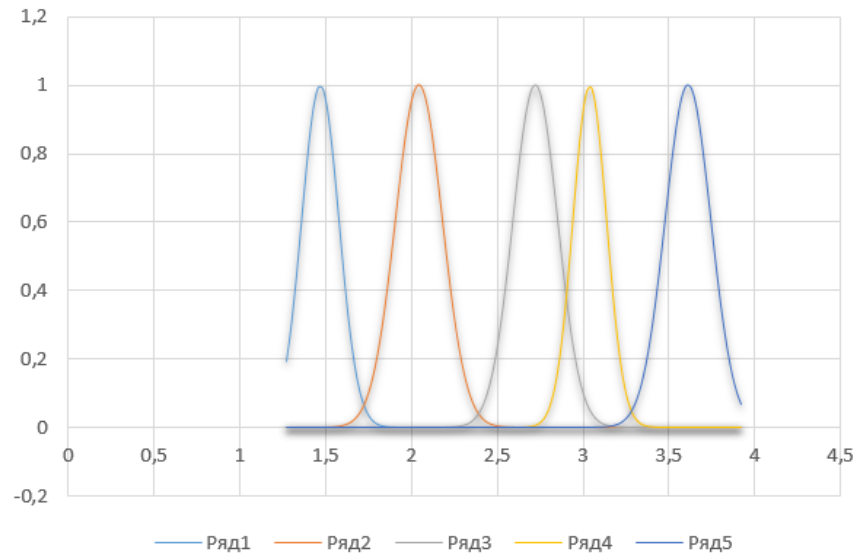
MS 10:
very small:
avg:2.45
std: 0.25000000000000001
small:
avg:3.638
std: 0.12781599999999993
medium:
avg:4.928571428571429
std: 0.13601224489795918
large:
avg:5.6940000000000001
std: 0.0012640000000000095
very large:
avg:7.2175
std: 0.14291874999999996

Membership function of attribute №11:



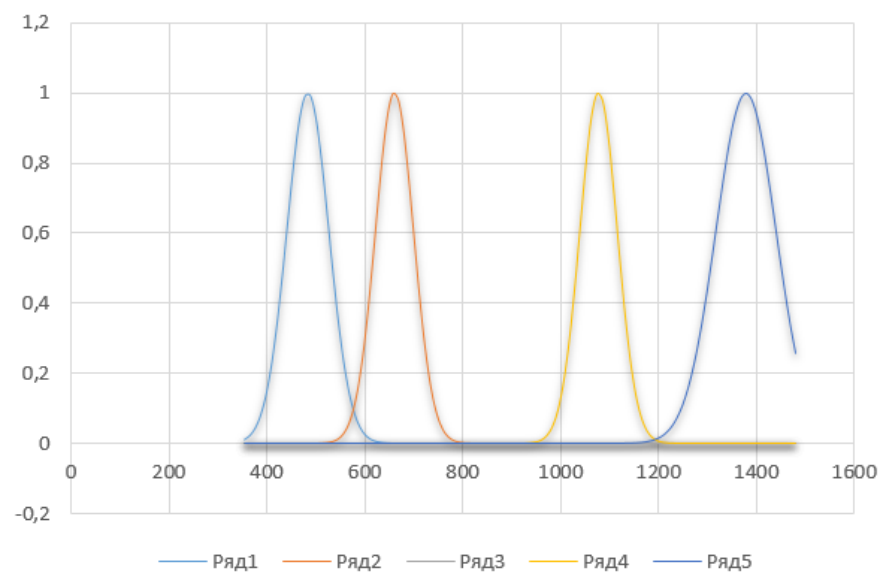
MS 11:
very small:
avg:0.7475
std: 0.0016437500000000005
small:
avg:0.8566666666666667
std: 0.0008222222222222238
medium:
avg:1.0478571428571428
std: 0.0014025510204081658
large:
avg:1.2225000000000001
std: 0.00046875000000000085
very large:
avg:1.45
std: 0

Membership function of attribute №12:



MS 12:
very small:
avg:1.4669999999999999
std: 0.023580999999999998
small:
avg:2.0416666666666665
std: 0.03744722222222222
medium:
avg:2.72
std: 0.0338000000000000024
large:
avg:3.0374999999999996
std: 0.019368749999999999
very large:
avg:3.6100000000000003
std: 0.03552499999999999

Membership function of attribute №13:



MS 13:
very small:
avg:484.6666666666663
std: 3670.8888888888887
small:
avg:661.5
std: 3003.9166666666665
medium:
avg:0
std: 0
large:
avg:1078
std: 2916.0000000000005
very large:
avg:1378.75
std: 7554.6875

Table of rules

if x1	if x2	if x3	if x4	if x5	if x6	if x7	if x8	if x9	if x10	if x11	if x12	if x13	Then
3	0	3	2	1	2	3	0	3	2	3	3	4	1
4	1	3	0	2	2	4	1	3	2	3	2	3	1
0	0	4	4	2	1	1	3	0	2	3	1	0	2
0	0	2	4	2	1	1	3	0	2	3	2	0	2
2	2	3	4	3	0	0	2	1	4	0	2	1	3
2	4	3	3	3	0	0	1	0	4	1	2	0	3
1	3	2	0	4	4	1	3	0	1	0	1	2	Other

Table of conformities

	Type 1:	Type 2:	Type 3:
1	1	2	3
2	1	3	3
3	1	1	3
4	1	2	3
5	1	1	3
Succes Rate	100%	40%	100%

Table of initial data:

No	x1	x2	x3	x4	x5	x6	x7	x8	x9	x10	x11	x12	x13	Type of wine
1	14,23	1,71	2,43	15,6	127	2,8	3,06	0,28	2,29	5,64	1,04	3,92	1065	1
2	13,2	1,78	2,14	11,2	100	2,65	2,76	0,26	1,28	4,38	1,05	3,4	1050	
3	13,16	2,36	2,67	18,6	101	2,8	3,24	0,3	2,81	5,68	1,03	3,17	1185	
4	14,37	1,95	2,5	16,8	113	3,85	3,49	0,24	2,18	7,8	0,86	3,45	1480	
5	13,24	2,59	2,87	21	118	2,8	2,69	0,39	1,82	4,32	1,04	2,93	735	
6	14,2	1,76	2,45	15,2	112	3,27	3,39	0,34	1,97	6,75	1,05	2,85	1450	
7	14,39	1,87	2,45	14,6	96	2,5	2,52	0,3	1,98	5,25	1,02	3,58	1290	
8	14,06	2,15	2,61	17,6	121	2,6	2,51	0,31	1,25	5,05	1,06	3,58	1295	
9	14,83	1,64	2,17	14	97	2,8	2,98	0,29	1,98	5,2	1,08	2,85	1045	
10	13,86	1,35	2,27	16	98	2,98	3,15	0,22	1,85	7,22	1,01	3,55	1045	
1	12,37	0,94	1,36	10,6	88	1,98	0,57	0,28	0,42	1,95	1,05	1,82	520	2
2	12,33	1,1	2,28	16	101	2,05	1,09	0,63	0,41	3,27	1,25	1,67	680	
3	12,64	1,36	2,02	16,8	100	2,02	1,41	0,53	0,62	5,75	0,98	1,59	450	
4	13,67	1,25	1,92	18	94	2,1	1,79	0,32	0,73	3,8	1,23	2,46	630	
5	12,37	1,13	2,16	19	87	3,5	3,1	0,19	1,87	4,45	1,22	2,87	420	
6	12,17	1,45	2,53	19	104	1,89	1,75	0,45	1,03	2,95	1,45	2,23	355	
7	12,37	1,21	2,56	18,1	98	2,42	2,65	0,37	2,08	4,6	1,19	2,3	678	
8	13,11	1,01	1,7	15	78	2,98	3,18	0,26	2,28	5,3	1,12	3,18	502	
9	12,37	1,17	1,92	19,6	78	2,11	2	0,27	1,04	4,68	1,12	3,48	510	
10	13,34	0,94	2,36	17	110	2,53	1,3	0,55	0,42	3,17	1,02	1,93	750	
1	12,86	1,35	2,32	18	122	1,51	1,25	0,21	0,94	4,1	0,76	1,29	630	3
2	12,88	2,99	2,4	20	104	1,3	1,22	0,24	0,83	5,4	0,74	1,42	530	
3	12,81	2,31	2,4	24	98	1,15	1,09	0,27	0,83	5,7	0,66	1,36	560	
4	12,7	3,55	2,36	21,5	106	1,7	1,2	0,17	0,84	5	0,78	1,29	600	
5	12,51	1,24	2,25	17,5	85	2	0,58	0,6	1,25	5,45	0,75	1,51	650	
6	12,6	2,46	2,2	18,5	94	1,62	0,66	0,63	0,94	7,1	0,73	1,58	695	
7	12,25	4,72	2,54	21	89	1,38	0,47	0,53	0,8	3,85	0,75	1,27	720	
8	12,53	5,51	2,64	25	96	1,79	0,6	0,63	1,1	5	0,82	1,69	515	
9	13,49	3,59	2,19	19,5	88	1,62	0,48	0,58	0,88	5,7	0,81	1,82	580	
10	12,84	2,96	2,61	24	101	2,32	0,6	0,53	0,81	4,92	0,89	2,15	590	

Table of validate data:

No	x1	x2	x3	x4	x5	x6	x7	x8	x9	x10	x11	x12	x13	Type of wine
1	14,1	2,16	2,3	18	105	2,95	3,32	0,22	2,38	5,75	1,25	3,17	1510	1
2	14,12	1,48	2,32	16,8	95	2,2	2,43	0,26	1,57	5	1,17	2,82	1280	
3	13,75	1,73	2,41	16	89	2,6	2,76	0,29	1,81	5,6	1,15	2,9	1320	
4	14,75	1,73	2,39	11,4	91	3,1	3,69	0,43	2,81	5,4	1,25	2,73	1150	
5	14,38	1,87	2,38	12	102	3,3	3,64	0,29	2,96	7,5	1,2	3	1547	
1	12,21	1,19	1,75	16,8	151	1,85	1,28	0,14	2,5	2,85	1,28	3,07	718	2
2	12,29	1,61	2,21	20,4	103	1,1	1,02	0,37	1,46	3,05	0,906	1,82	870	
3	13,86	1,51	2,67	25	86	2,95	2,86	0,21	1,87	3,38	1,36	3,16	410	
4	13,49	1,66	2,24	24	87	1,88	1,84	0,27	1,03	3,74	0,98	2,78	472	
5	12,99	1,67	2,6	30	139	3,3	2,89	0,21	1,96	3,35	1,31	3,5	985	
1	12,93	2,81	2,7	21	96	1,54	0,5	0,53	0,75	4,6	0,77	2,31	600	3
2	13,36	2,56	2,35	20	89	1,4	0,5	0,37	0,64	5,6	0,7	2,47	780	
3	13,52	3,17	2,72	23,5	97	1,55	0,52	0,5	0,55	4,35	0,89	2,06	520	
4	13,62	4,95	2,35	20	92	2	0,8	0,47	1,02	4,4	0,91	2,05	550	
5	12,25	3,88	2,2	18,5	112	1,38	0,78	0,29	1,14	8,21	0,65	2	855	