CCOD
Lab 8 17.10.2016
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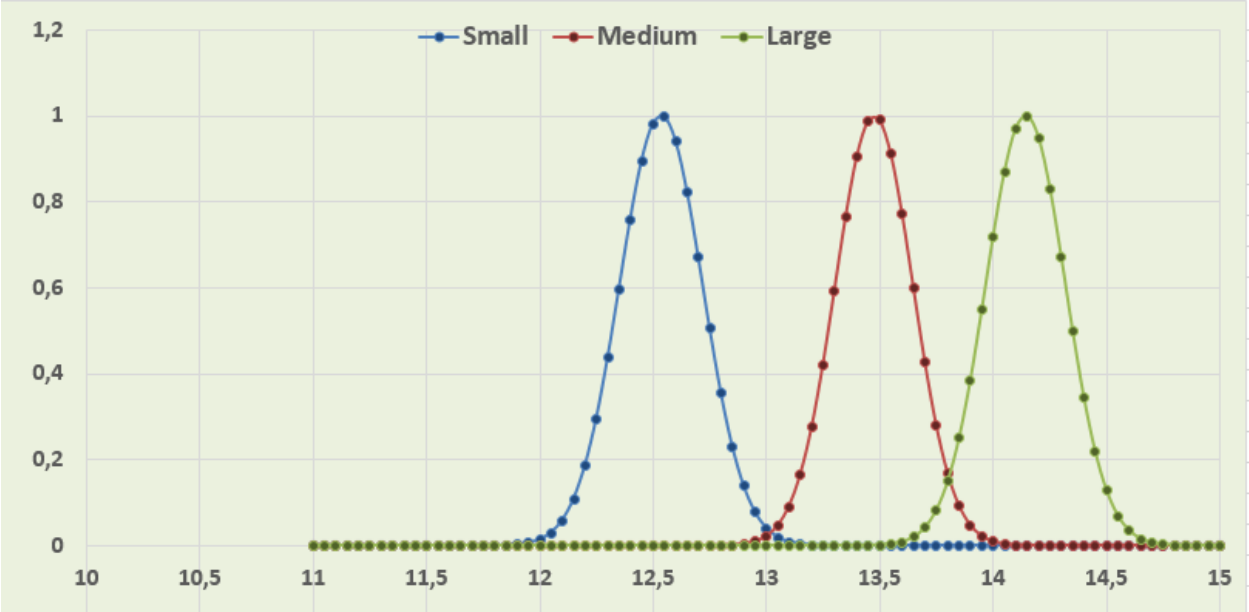
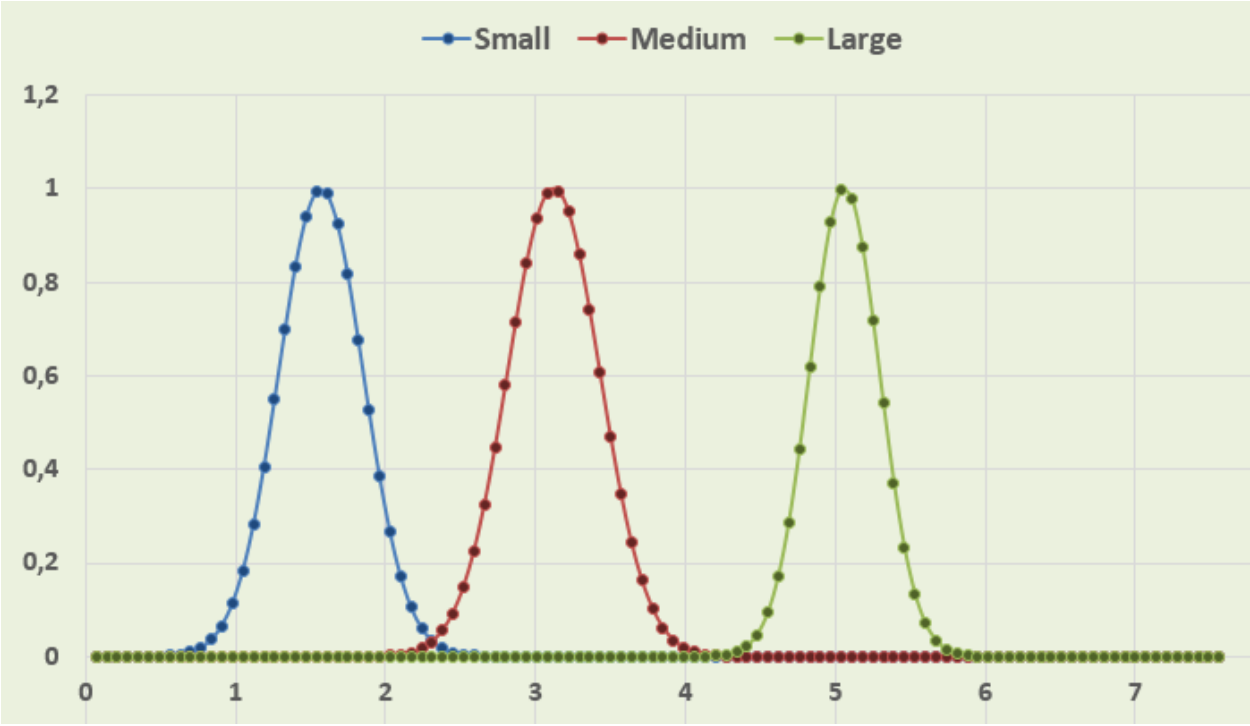
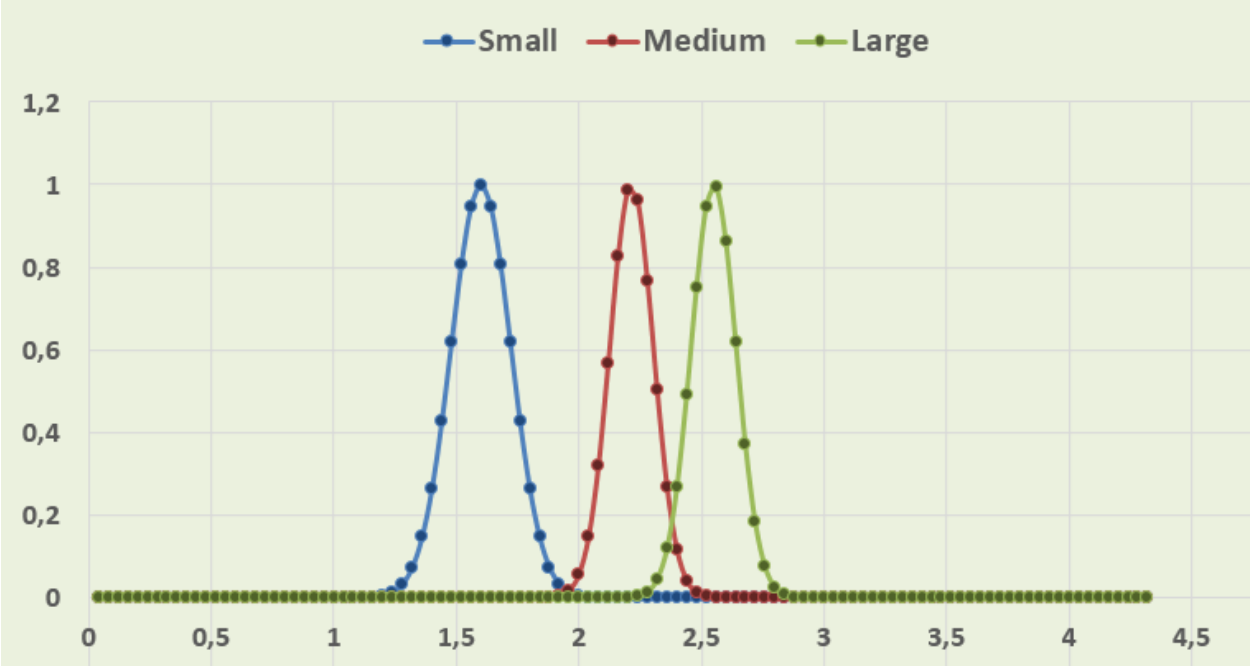
1. Below you can see 3 Gaussian Membership Function of small, medium and large x-y coordinate for “Alcohol” attribute:



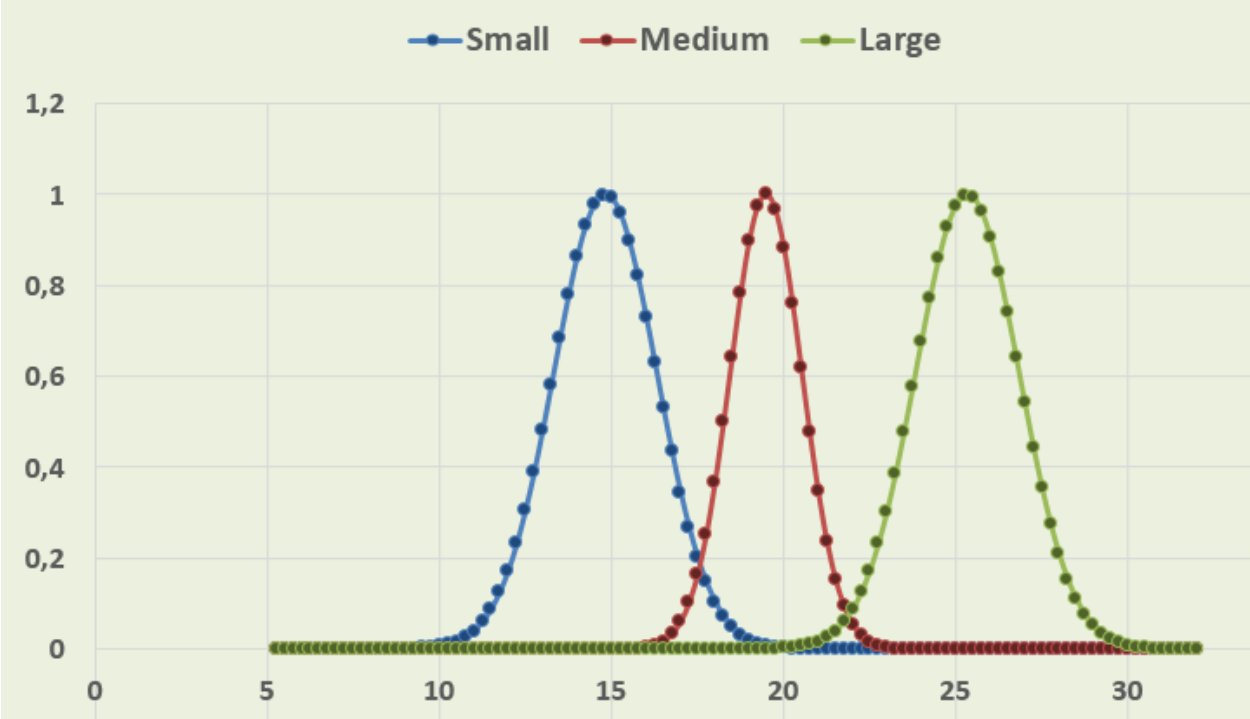
2. Below you can see 3 Gaussian Membership Function of small, medium and large x-y coordinate for “Malic acid” attribute:



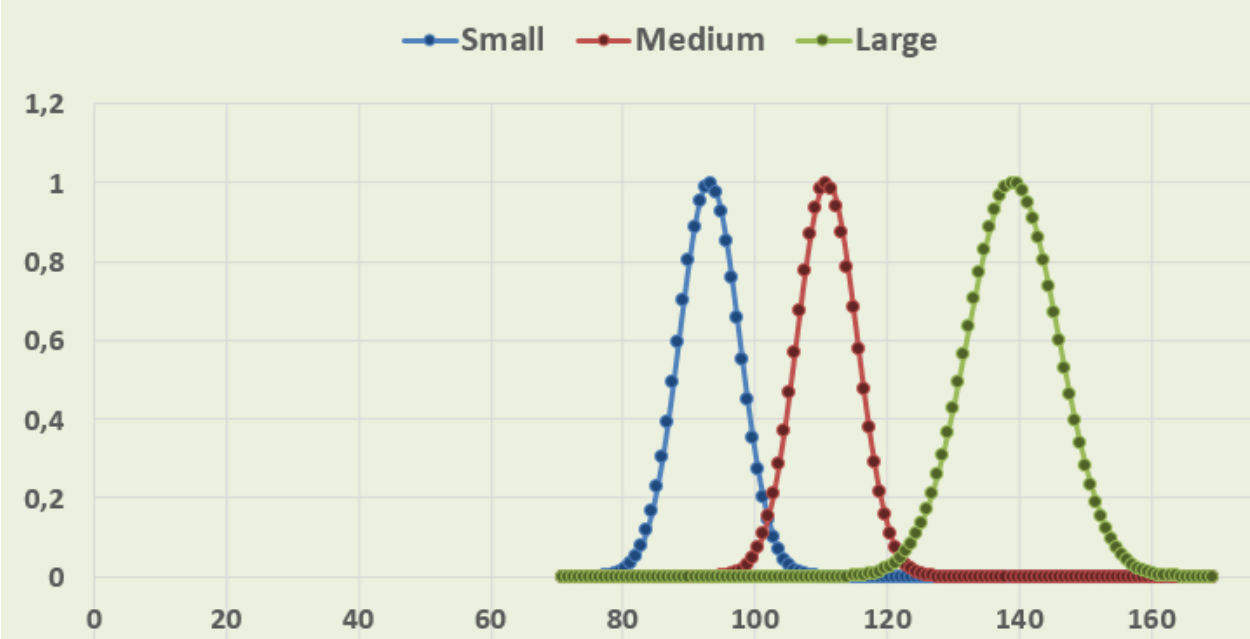
3. Below you can see 3 Gaussian Membership Function of small, medium and large x-y coordinate for “Ash” attribute:



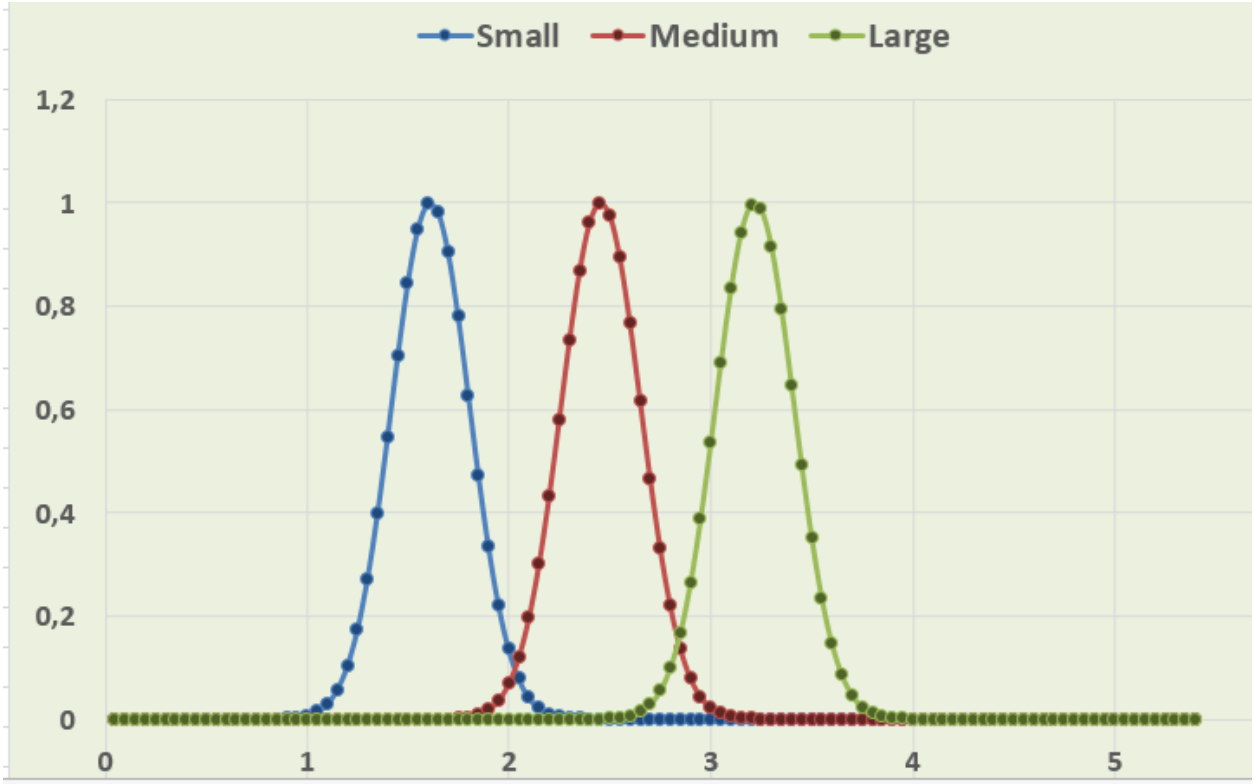
4. Below you can see 3 Gaussian Membership Function of small, medium and large x-y coordinate for “Alkalinity of Ash” attribute:



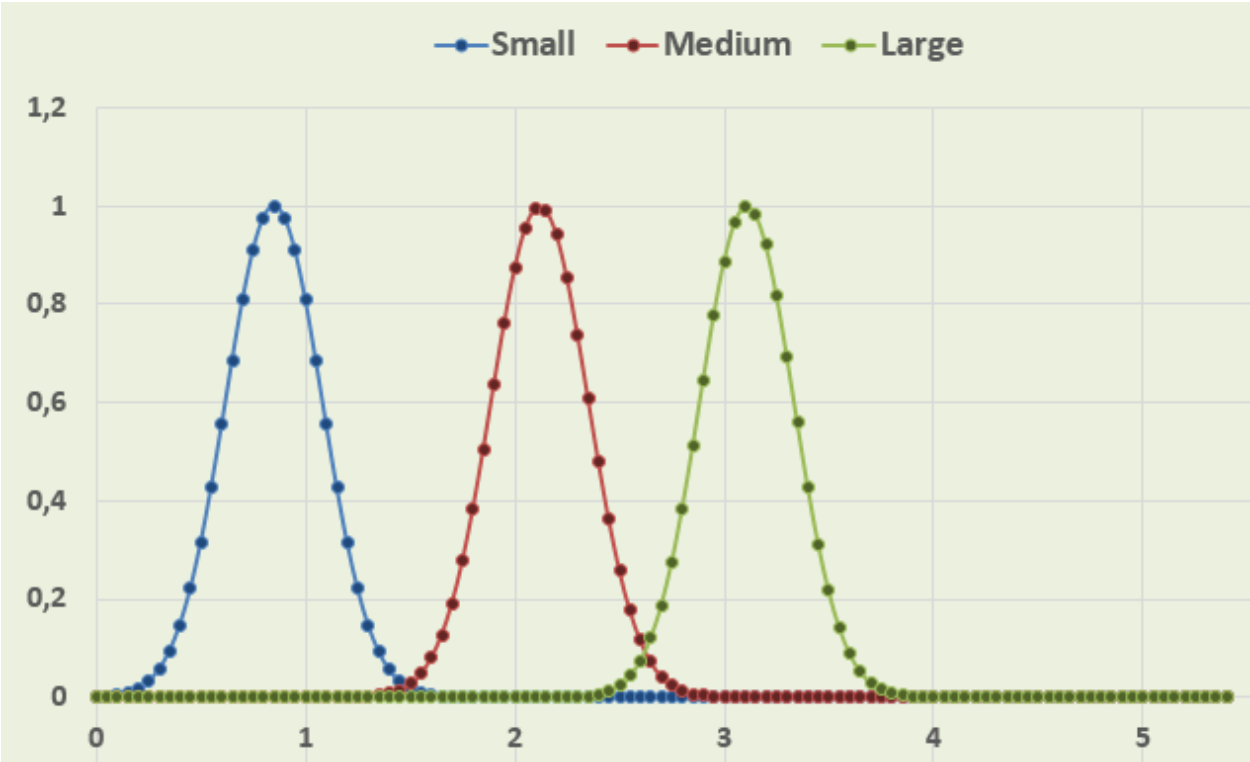
5. Below you can see 3 Gaussian Membership Function of small, medium and large x-y coordinate for “Magnesium” attribute:



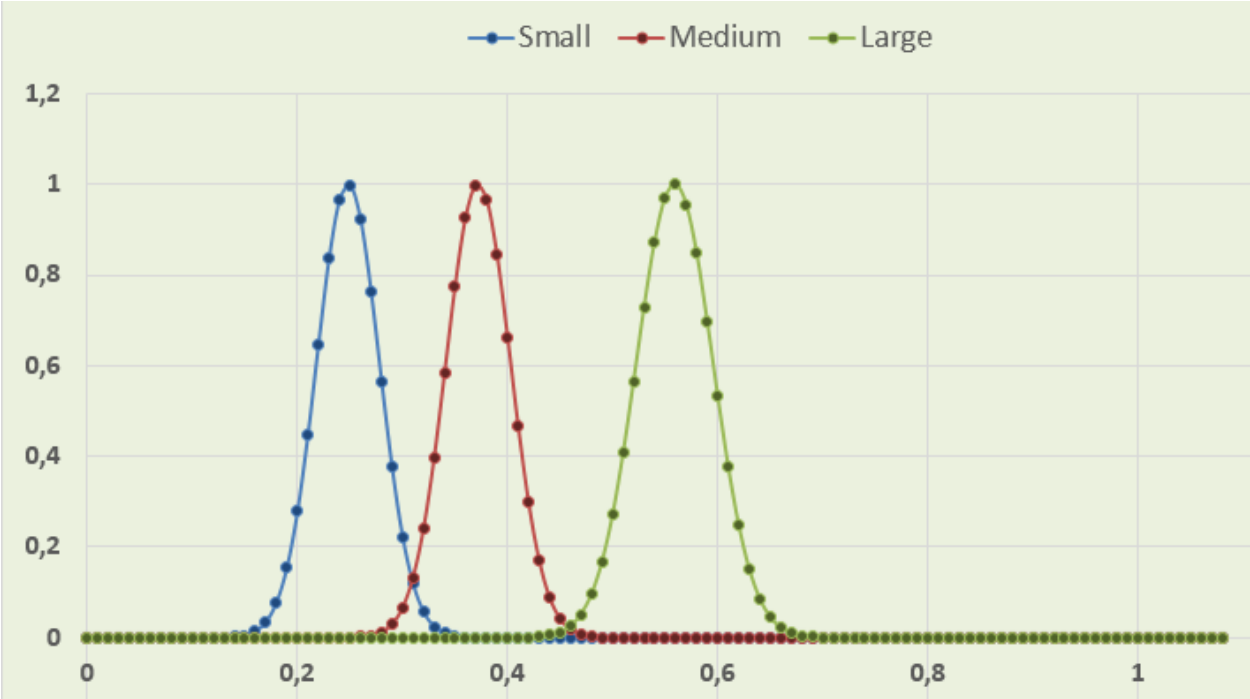
6. Below you can see 3 Gaussian Membership Function of small, medium and large x-y coordinate for “Total phenols” attribute:



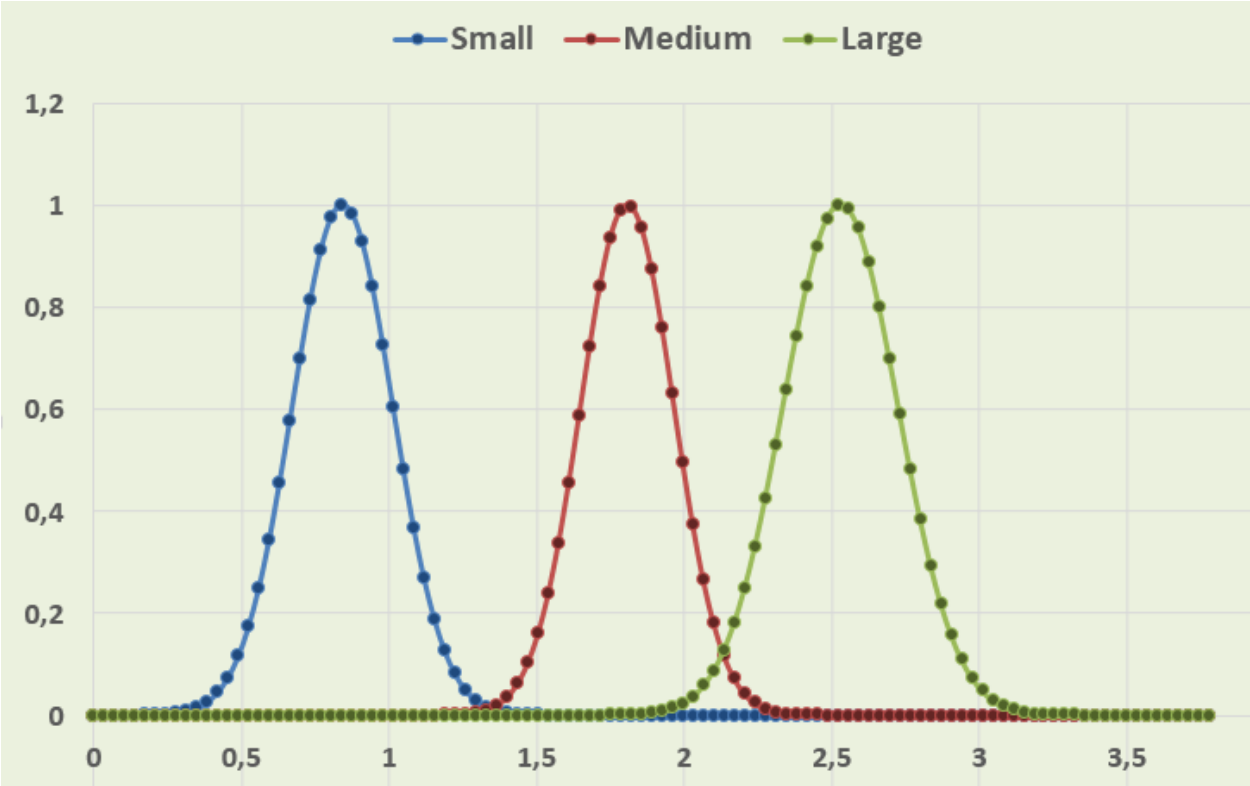
7. Below you can see 3 Gaussian Membership Function of small, medium and large x-y coordinate for “Flavonoids” attribute:



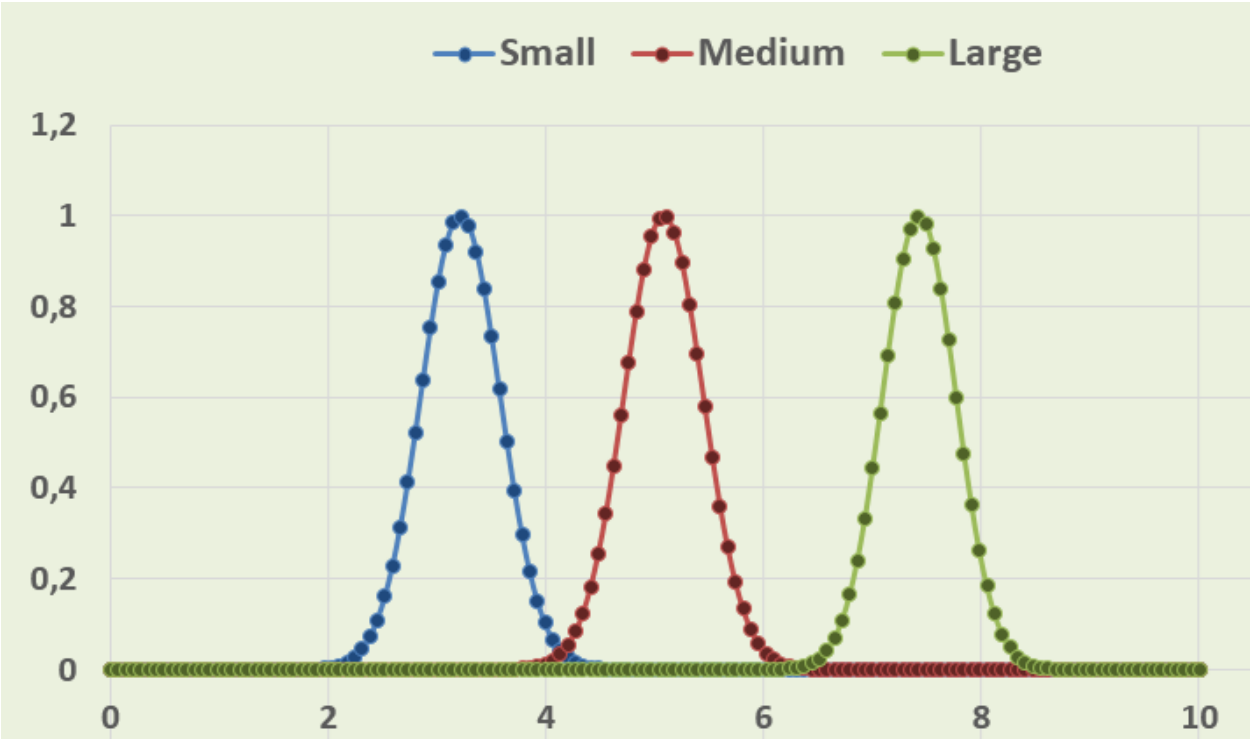
8. Below you can see 3 Gaussian Membership Function of small, medium and large x-y coordinate for “Nonflavonoid phenol” attribute:



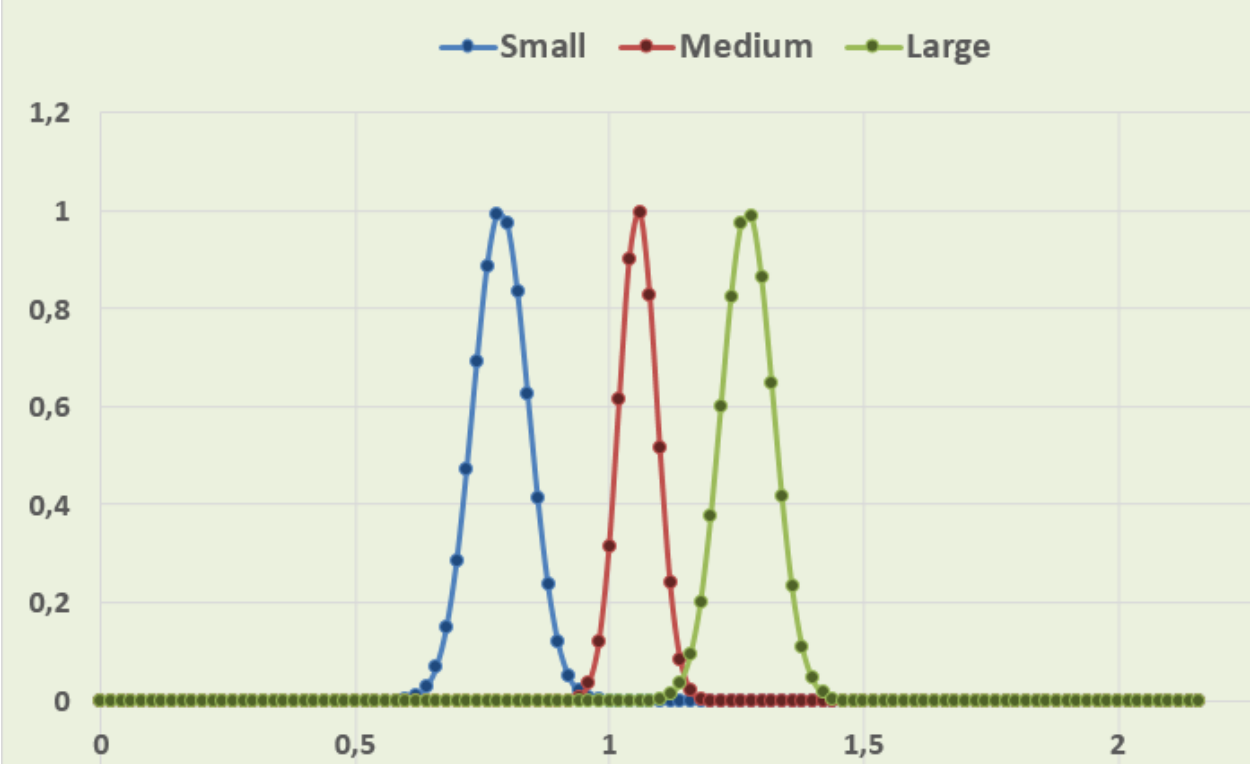
9. Below you can see 3 Gaussian Membership Function of small, medium and large x-y coordinate for “Proanthocyanins” attribute:



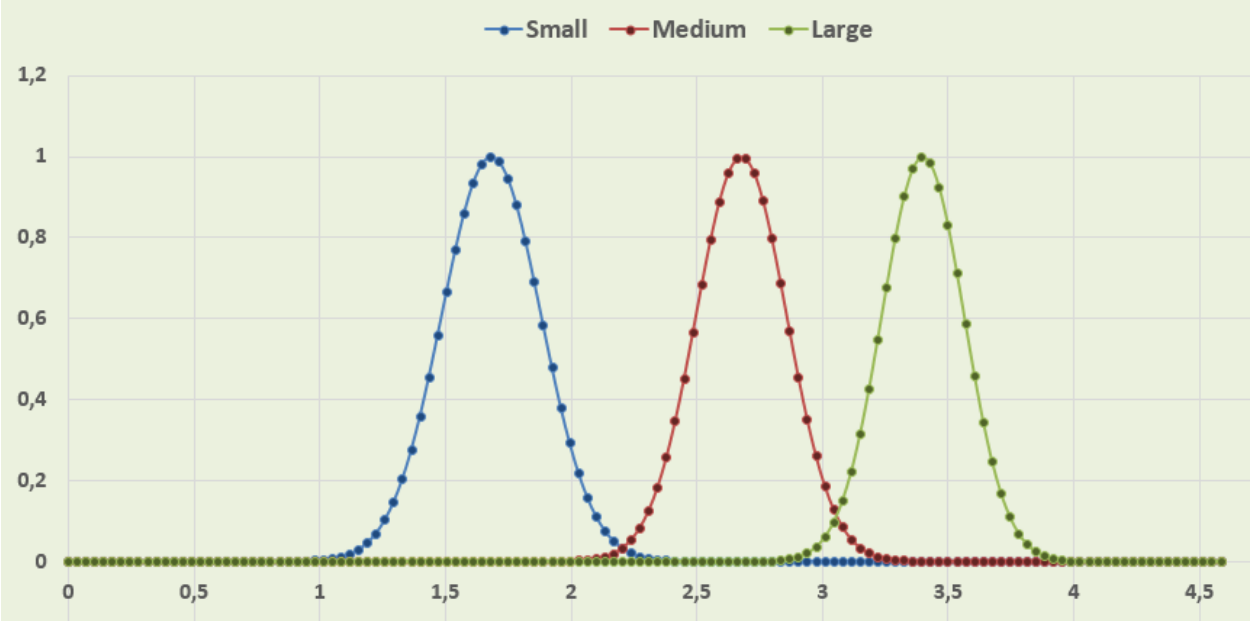
10. Below you can see 3 Gaussian Membership Function of small, medium and large x-y coordinate for “Color intensity” attribute:



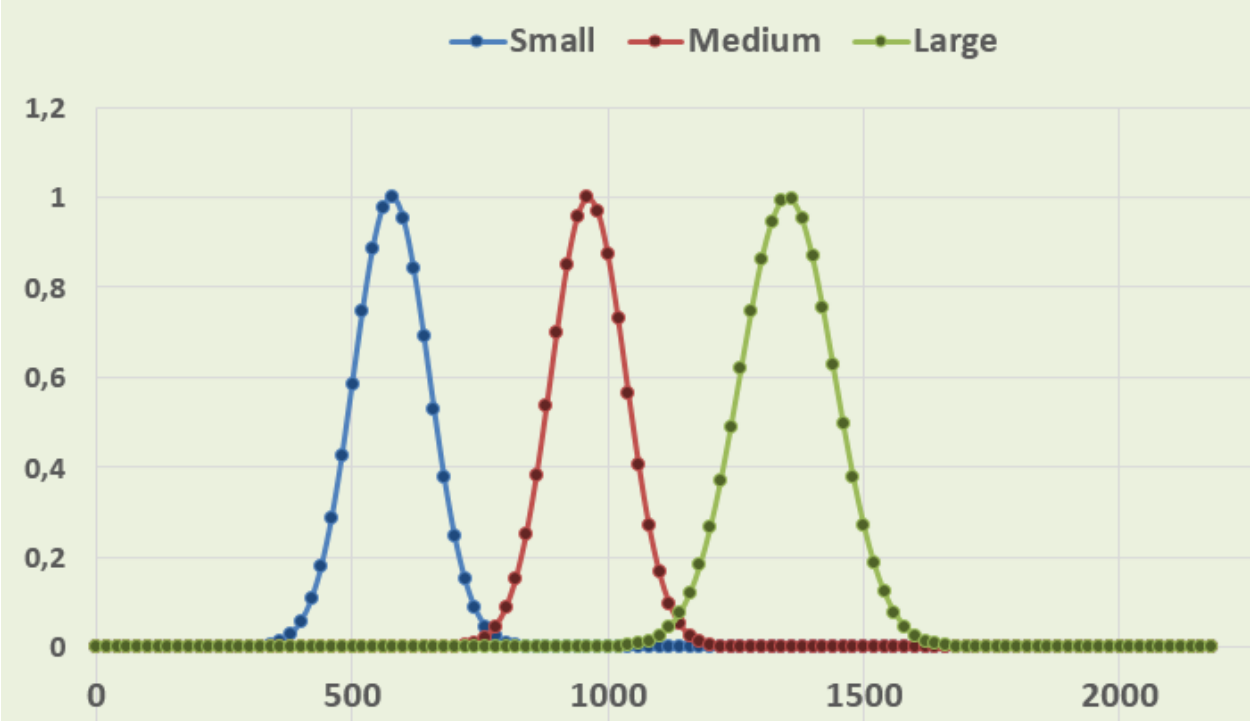
11. Below you can see 3 Gaussian Membership Function of small, medium and large x-y coordinate for “Hue” attribute:



12. Below you can see 3 Gaussian Membership Function of small, medium and large x-y coordinate for “OD280/OD315 of diluted wines” attribute:



13. Below you can see 3 Gaussian Membership Function of small, medium and large x-y coordinate for “Proline” attribute:



I’ve created 4 rules for each wine A, B, C, Other:

Rule 1: **If x1=large; x2=medium; x3=medium; x4=medium, x5=medium, x6=large, x7=large, x8=medium, x9=medium, x10=large, x11=medium, x12=large, x13=medium, then Family A**.

Rule 2: **If x1=small; x2=medium; x3=medium; x4=medium, x5=small, x6=medium, x7=medium, x8=medium, x9=medium, x10=small, x11=medium, x12=medium, x13=small, then Family B**

Rule 3: **If x1=medium; x2=medium; x3=large; x4=medium, x5=medium, x6=small, x7=small, x8=large, x9=medium, x10=large, x11=small, x12=small, x13=small, then Family C**

Rule 4: **If x1=small; x2= small; x3= small; x4= small, x5=large, x6= large, x7= large, x8=small, x9=small, x10=medium, x11=large, x12=small, x13=large, then Other**

Initial data

class	x1	x2	x3	x4	x5	x6	x7	x8	x9	x10	x11	x12	x13
1	14,23	1,71	2,43	15,60	127,00	2,80	3,06	0,28	2,29	5,64	1,04	3,92	1065,00
1	13,20	1,78	2,14	11,20	100,00	2,65	2,76	0,26	1,28	4,38	1,05	3,40	1050,00
1	13,16	2,36	2,67	18,60	101,00	2,80	3,24	0,30	2,81	5,68	1,03	3,17	1185,00
1	14,37	1,95	2,50	16,80	113,00	3,85	3,49	0,24	2,18	7,80	0,86	3,45	1480,00
1	13,24	2,59	2,87	21,00	118,00	2,80	2,69	0,39	1,82	4,32	1,04	2,93	735,00
1	14,20	1,76	2,45	15,20	112,00	3,27	3,39	0,34	1,97	6,75	1,05	2,85	1450,00
1	14,39	1,87	2,45	14,60	96,00	2,50	2,52	0,30	1,98	5,25	1,02	3,58	1290,00
1	14,06	2,15	2,61	17,60	121,00	2,60	2,51	0,31	1,25	5,05	1,06	3,58	1295,00
1	14,83	1,64	2,17	14,00	97,00	2,80	2,98	0,29	1,98	5,20	1,08	2,85	1045,00
1	13,86	1,35	2,27	16,00	98,00	2,98	3,15	0,22	1,85	7,22	1,01	3,55	1045,00
1	14,10	2,16	2,30	18,00	105,00	2,95	3,32	0,22	2,38	5,75	1,25	3,17	1510,00
1	14,12	1,48	2,32	16,80	95,00	2,20	2,43	0,26	1,57	5,00	1,17	2,82	1280,00
1	13,75	1,73	2,41	16,00	89,00	2,60	2,76	0,29	1,81	5,60	1,15	2,90	1320,00
1	14,75	1,73	2,39	11,40	91,00	3,10	3,69	0,43	2,81	5,40	1,25	2,73	1150,00
1	14,38	1,87	2,38	12,00	102,00	3,30	3,64	0,29	2,96	7,50	1,20	3,00	1547,00
2	12,37	0,94	1,36	10,60	88,00	1,98	0,57	0,28	0,42	1,95	1,05	1,82	520,00
2	12,33	1,10	2,28	16,00	101,00	2,05	1,09	0,63	0,41	3,27	1,25	1,67	680,00
2	12,64	1,36	2,02	16,80	100,00	2,02	1,41	0,53	0,62	5,75	0,98	1,59	450,00
2	13,67	1,25	1,92	18,00	94,00	2,10	1,79	0,32	0,73	3,80	1,23	2,46	630,00
2	12,37	1,13	2,16	19,00	87,00	3,50	3,10	0,19	1,87	4,45	1,22	2,87	420,00
2	12,17	1,45	2,53	19,00	104,00	1,89	1,75	0,45	1,03	2,95	1,45	2,23	355,00
2	12,37	1,21	2,56	18,1	98	2,42	2,65	0,37	2,08	4,6	1,19	2,3	678
2	13,11	1,01	1,7	15	78	2,98	3,18	0,26	2,28	5,3	1,12	3,18	502
2	12,37	1,17	1,92	19,6	78	2,11	2	0,27	1,04	4,68	1,12	3,48	510
2	13,34	0,94	2,36	17	110	2,53	1,3	0,55	0,42	3,17	1,02	1,93	750
2	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	12,29	1,61	2,21	20,4	103	1,1	1,02	0,37	1,46	3,05	0,906	1,82	870
2	13,86	1,51	2,67	25	86	2,95	2,86	0,21	1,87	3,38	1,36	3,16	410
2	13,49	1,66	2,24	24	87	1,88	1,84	0,27	1,03	3,74	0,98	2,78	472
2	12,99	1,67	2,6	30	139	3,3	2,89	0,21	1,96	3,35	1,31	3,5	985
3	12,86	1,35	2,32	18	122	1,51	1,25	0,21	0,94	4,1	0,76	1,29	630
3	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
3	12,7	3,55	2,36	21,5	106	1,7	1,2	0,17	0,84	5	0,78	1,29	600
3	12,51	1,24	2,25	17,5	85	2	0,58	0,6	1,25	5,45	0,75	1,51	650
3	12,6	2,46	2,2	18,5	94	1,62	0,66	0,63	0,94	7,1	0,73	1,58	695
3	12,25	4,72	2,54	21	89	1,38	0,47	0,53	0,8	3,85	0,75	1,27	720
3	12,53	5,51	2,64	25	96	1,79	0,6	0,63	1,1	5	0,82	1,69	515
3	13,49	3,59	2,19	19,5	88	1,62	0,48	0,58	0,88	5,7	0,81	1,82	580
3	12,84	2,96	2,61	24	101	2,32	0,6	0,53	0,81	4,92	0,89	2,15	590
3	12,93	2,81	2,7	21	96	1,54	0,5	0,53	0,75	4,6	0,77	2,31	600
3	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
3	13,62	4,95	2,35	20	92	2	0,8	0,47	1,02	4,4	0,91	2,05	550
3	12,25	3,88	2,2	18,5	112	1,38	0,78	0,29	1,14	8,21	0,65	2	855

Below you can see evaluated rules

Data №:	Family A	Family B	Family C	Result:
№ 1	A	B	C	Good

№ 2	A	B	C	Good
№ 3	A	B	C	Good
№ 4	A	B	C	Good
№ 5	A	B	C	Good
№ 6	A	B	C	Good
№ 7	B	B	C	Not Good
№ 8	B	B	C	Not good
№ 9	B	B	C	Not Good
№ 10	B	C	C	Not Good
№ 11	B	B	C	Not Good
№ 12	B	B	C	Not Good
№ 13	B	B	C	Not Good
№ 14	A	B	C	Good
№ 15	A	B	C	Good
№ 16	A	B	C	Good
№ 17	A	B	C	Good
№ 18	B	B	C	Not Good
№ 19	A	B	C	Good
№ 20	B	B	C	Not Good
№ 21	A	B	C	Good
№ 22	B	Other	C	Not Good
№ 23	B	B	C	Not Good
№ 24	B	B	C	Not Good
№ 25	A	B	C	Good
№ 26	A	B	C	Good
№ 27	B	B	C	Not Good
№ 28	A	B	C	Good
№ 29	B	B	C	Not Good
№ 30	B	B	C	Not Good
№ 31	A	B	C	Good
№ 32	A	B	C	Good
№ 33	A	B	C	Good
№ 34	A	B		
№ 35	A	B		
№ 36	A	B		
№ 37	A	B		
№ 38	A	B		
№ 39	A	B		

№ 40	A	B		
№ 41	A	B		
№ 42	A	B		
№ 43	A	B		
№ 44	A	B		
№ 45		B		
№ 46		B		
№ 47		B		
№ 48		B		
№ 49		B		
№ 50		B		
№ 51		B		
№ 52		B		
№ 53		B		
№ 54		B		
№ 55		B		
№ 56		B		
Success Rate:	65.6%	96.4%	100%	54.5%