Istraživanje skupa podataka "Anuran Calls"

Stefanija Marković 306/2018

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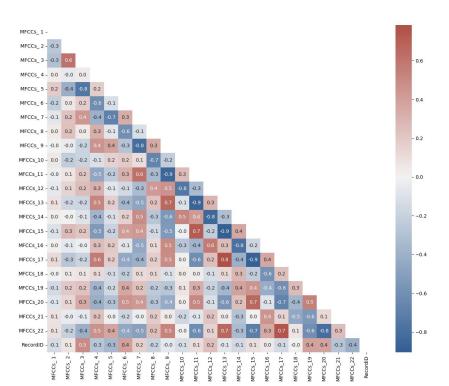
Osnovno o skupu "Anuran Calls"

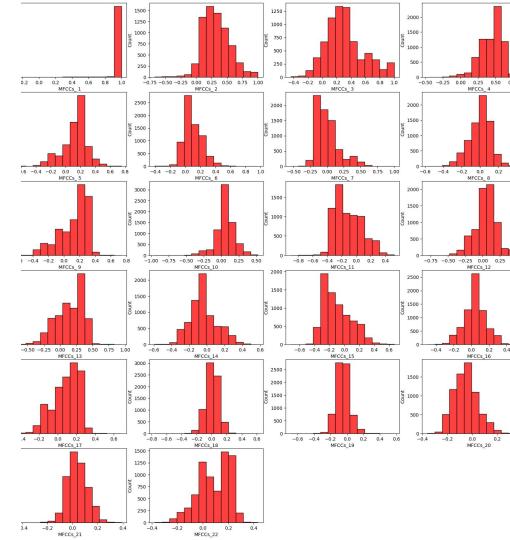
- Kreiran segmentacijom 60 audio zapisa zvukova žaba.
- Žabe su iz četiri različite porodice, osam rodova i deset vrsti.
- Nakon segmentacije dobijeno je 7195 slogova.
- Za svaki slog izračunato je 22 kepstralnih koeficijenata mel skale (MFCC).

Eksplorativna analiza podataka

MF	CCs_ 1	MFCCs_	2 MFCC	s_ 3 MF0	CCs_ 4	MFCCs_ 5	MFCCs_ 6	MFCCs_ 7	MFCCs_ 8	MFCCs_ 9	MFCCs_10	MFC	CCs_17	MFCCs_18	MFCCs_19	MFCCs_2	0 MFCCs_2	1 MFCCs_2	2	Family	Genus	Species	RecordID
0	1.0	0.1529	36 -0.105	586 0.2	00722	0.317201	0.260764	0.100945	-0.150063	-0.171128	0.124676	0.1	108351	-0.077623	-0.009568	0.057684	0.11868	0.014038	B Leptodac	tylidae A	denomera /	denomeraAndre	1
1	1.0	0.1715	34 -0.098	975 0.2	68425	0.338672	0.268353	0.060835	-0.222475	-0.207693	0.170883	0.0	90974	-0.056510	-0.035303	0.020140	0.08226	3 0.029056	6 Leptodac	tylidae A	denomera /	denomeraAndre	1
2	1.0	0,1523	-0.082	973 0.2	87128	0.276014	0.189867	0.008714	-0.242234	-0.219153	0.232538	0.0	50691	-0.023590	-0.066722	-0.02508	0.09910	8 0,077162	2 Leptodac	tylidae A	denomera /	denomeraAndre	1
3	1.0	0.2243	92 0.118	985 0.3	29432	0.372088	0.361005	0.015501	-0.194347	-0.098181	0.270375	0.1	36009	-0.177037	-0.130498	-0.05476	6 -0.01869	0.023954	4 Leptodac	tylidae A	denomera /	denomeraAndre	1
4	1.0	0.0878	-0.068	345 0.3	06967	0.330923	0.249144	0.006884	-0.265423	-0.172700	0.266434	0.0	48885	-0.053074	-0.088550	-0.03134	0.10861	0.07924	4 Leptodac	tylidae A	denomera /	denomeraAndre	1
5 rows	× 26 col	umns																					
	MFCC	s_ 1	MFCCs_ 2	MFCCs_	3	MFCCs_ 4	MFCCs_ 5	MFCCs_ 6	MFCCs_ 7	MFCCs_	8 MFCCs_	9 MFC	CCs_10 .	MFCC	S_14 MF	CCs_15 M	FCCs_16	MFCCs_17	MFCCs_18	MFCCs_1	9 MFCCs_	20 MFCCs_21	MFCCs_22
count	7195,000	\$170	10.70	MFCCs_ 7195,0000		100		MFCCs_ 6	MFCCs_ 7	100			-	MFCC	VT.		100-201			MFCCs_1 7195,00000	-	100	1000
count	7195.000	0000 719	10.70		00 719	100		111111111111111111111111111111111111111	7195,000000	100	0 7195,00000	0 7195,0	-		0000 7195.0	000000 7195	.000000 719			-	7195,0000	00 7195,000000	7195,000000
count mean std	7195,000	0000 719	95,000000	7195,0000	00 719	95,000000 7	7195,000000	7195,000000	7195,000000	7195,00000	0 7195,00000	0 7195,0	00000	7195,00	0000 7195,0 9244 -0.1	000000 7195 101748 0	.000000 719	95,000000 7	195.000000	7195,00000	7195,0000	00 7195,000000 44 0,037313	7195,000000 0,087567
	7195.000 0.989 0.06	9885 9016	0,323584	7195.0000	24	95,000000 7 0,445997	7195,000000 0,127046	7195,000000	7195,000000	7195,00000 -0,00037 0,11630	0 7195,00000 0 0,12821 2 0,17900	00 7195.0 13 0.0 18 0.1	000000	7195,00	0000 7195,0 9244 -0.: 2515 0.:	000000 7195 101748 0 187618	.000000 719 .042062 0.119915	95,000000 7 0,088680	195,000000	7195,00000	7195,0000 4 -0,0532 6 0.0941	00 7195,000000 44 0,037313 81 0,079470	7195,000000 0,087567 0,123442
std	7195,000 0,989 0,06 -0,25	9885 9016	0,323584 0,218653	7195,0000 0,3112 0,2635	24 27 28 -	0.445997 0.160328	7195,000000 0,127046 0,162722	7195,000000 0,097939 0,120412	7195,000000 -0,001397 0,171404	7195,00000 -0,00037 0,11630	0 7195.00000 0 0,12821 2 0,17900 6 -0,58731	00 7195,0 13 0.0 08 0.1 13 -0.9	000000 055998 127099	7195,00 0,03 0.15	0000 7195.0 9244 -0.1 2515 0.1 0380 -0.1	100000 7195 101748 0 187618 0 717156 -0	.000000 719 .042062 0.119915 .498675	95,000000 7 0,088680 0,138055	195,000000 0,007755 0.084733	7195,00000 -0,04947 0,08254	7195.0000 4 -0.0532 6 0.0941 5 -0.3616	00 7195,000000 44 0,037313 81 0,079470 49 -0,430812	7195,000000 0,087567 0,123442 -0,379304
std min	7195.000 0,989 0.06 -0.25	9885 9016 51179	0,323584 0,218653 -0,673025	7195,0000 0,3112 0,2635 -0,4360	000 719 224 227 228 -	0.445997 0.160328 -0.472676	7195,000000 0,127046 0,162722 -0,636012	7195,000000 0,097939 0,120412 -0,410417	7195,000000 -0,001397 0,171404 -0,538982	7195.00000 -0.00037 0.11630 -0.57650 -0.06310	0 7195,00000 0 0,12821 2 0,17900 6 -0,58731 9 0,00464	00 7195.0 03 0.0 08 0.1 13 -0.9 18 -0.0	000000 055998 027099 052266	7195,00 0,03 0.15 0.59 0.13	7195.0 9244 -0.1 2515 0.1 0380 -0.2	7195 101748 0 187618 0 717156 -0	.000000 719 .042062 0.119915 .498675	0,088680 0,138055 -0,421480	195.000000 0,007755 0,084733 -0,759322	7195,00000 -0,04947 0,08254 -0,68074	7195,0000 4 -0,0532 6 0,0941 5 -0,3616 9 -0,1209	00 7195,000000 14 0,037313 181 0,079470 149 -0,430812 171 -0,017620	7195,000000 0,087567 0,123442 -0,379304 0,000533
std min 25%	7195.000 0.989 0.06 -0.25 1.000	9885 9016 51179 0000	0,323584 0,218653 -0,673025 0,165945	7195.0000 0,3112 0,2635 -0,4360 0,1384	27 28 45 26	95,000000 7 0.445997 0.160328 -0.472676 0.336737	7195,000000 0,127046 0,162722 -0,636012 0,051717	7195,000000 0,097939 0,120412 -0,410417 0,012581	7195,000000 -0.001397 0.171404 -0.538982 -0.125737	7195.00000 -0.00037 0.11630 -0.57650 -0.06310	7195,00000 0 0,12821 2 0,17900 6 -0,58731 9 0,00464 5 0,18931	00 7195.0 03 0.0 08 0.1 13 -0.9 18 -0.0	000000 055998 027099 052266 001132	7195.00 0.03 0.15 0.59 0.13	7195.0 9244 -0.3 92515 0.3 0380 -0.3 2980 -0.2	7195 101748 0 187618 (717156 -0 155929 -0	.000000 719 .042062 0.119915 .498675 0.019549	95,000000 7 0,088680 0,138055 -0,421480 -0,001764	195,000000 0,007755 0,084733 -0,759322 -0,042122	7195,00000 -0,04947 0,08254 -0,68074 -0,10607	7195,0000 4 -0,0532 6 0,0941 5 -0,3616 9 -0,1209 6 -0,0551	7195,000000 7195,00000 7195,00000	7195,000000 0,087567 0,123442 -0,379304 0,000533 0,105373

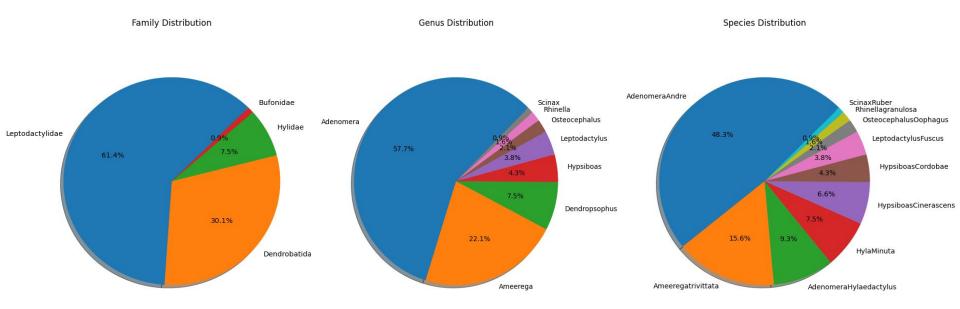
Eksplorativna analiza podataka



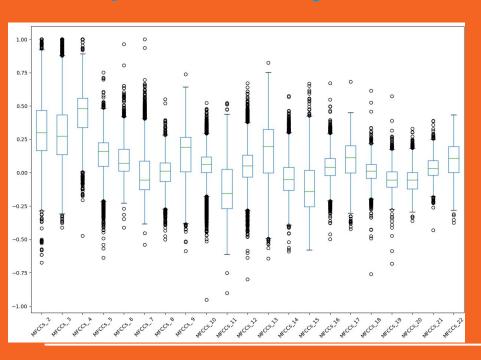


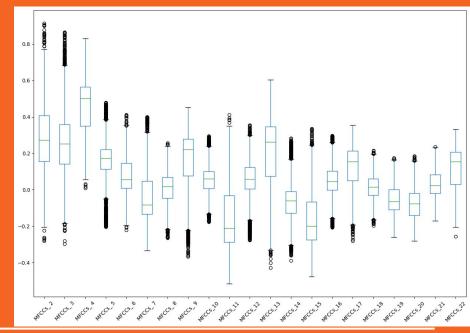
Eksplorativna analiza skupa podataka

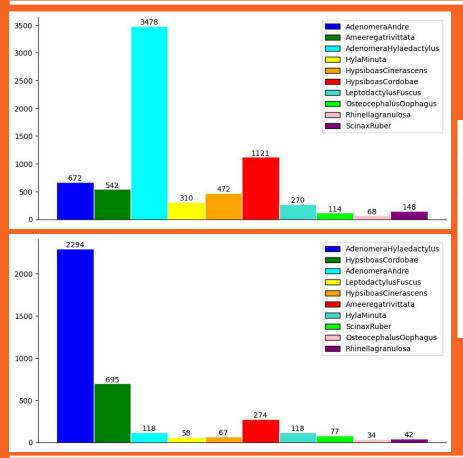
Raspoređenost jedinki



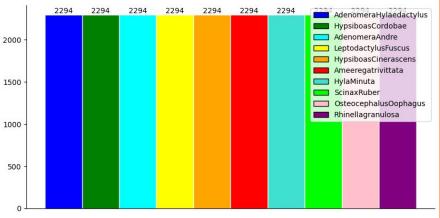
Klasifikacija Preptrocesiranje - rad sa elementima van granica







Balansiranje



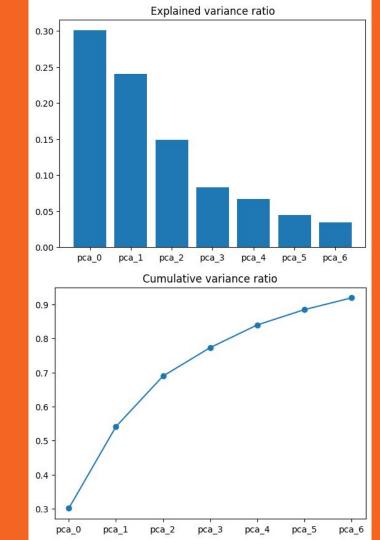


Redukcija dimenzionalnosti

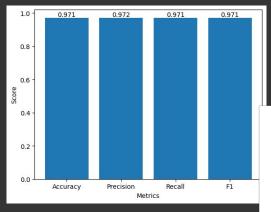
Eliminisani su atributi *Species*, *Family*, *Genus*, RecordID i MFCC_1.

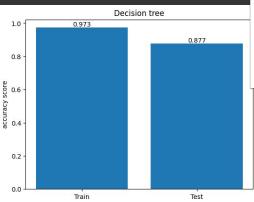
Primenjena je tehnika **PCA** (Principal component analysis).

Na prvom grafiku je predstavljeno koliko varijanse svaki atribut opisuje, dok je na drugom predstavljena njihova kumulativna suma.



Stablo odlučivanja

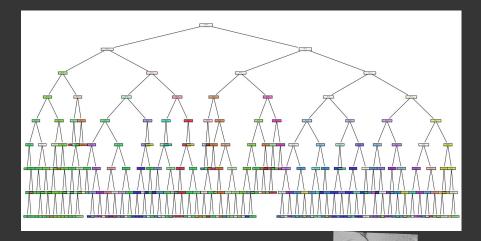


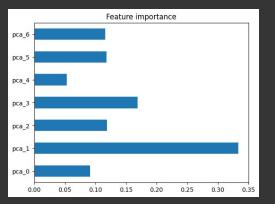


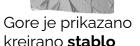


Gornja slika pokazuje rezultate različitih mera.

Donja slika pokazuje **tačnost** na trening i test skupu.







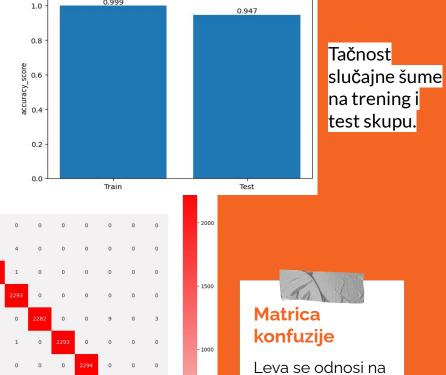
kreirano **stablo** odlučivanja.

Levo vidimo važnost atributa pri odlučivanju.

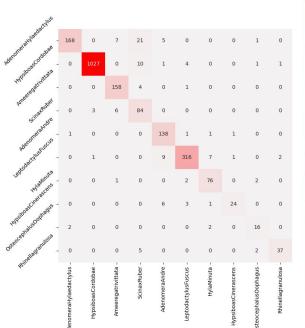
Stablo odlučivanja



Slučajna šuma

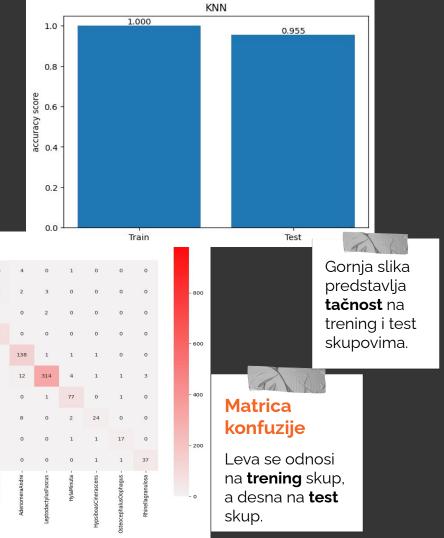


Random forest

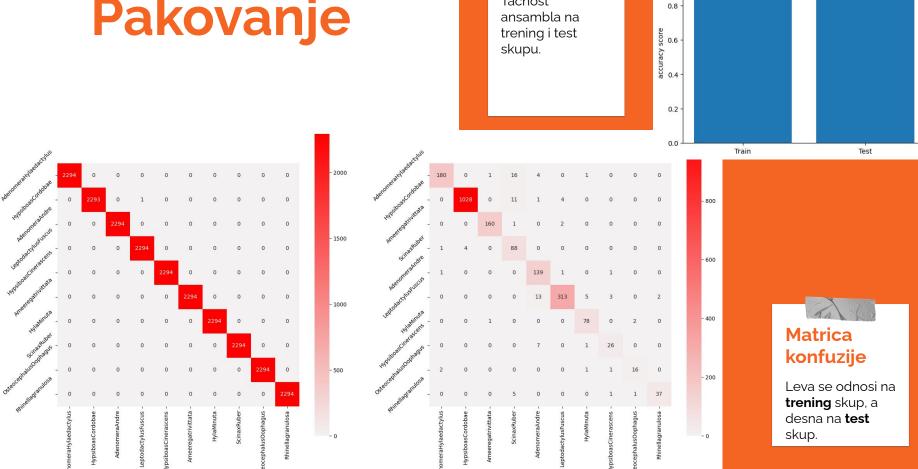


Leva se odnosi na test skup, a desna na trening skup.

K najbližih suseda



Pakovanje



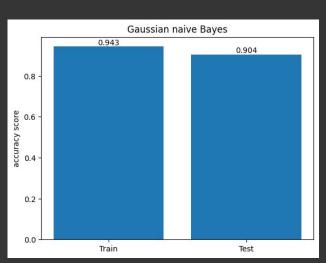
Tačnost

Bagging (KNN)

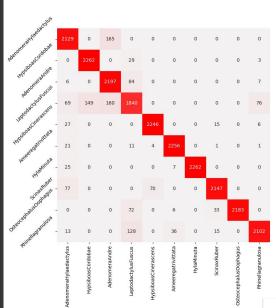
0.956

1.000

Naivni Bajes





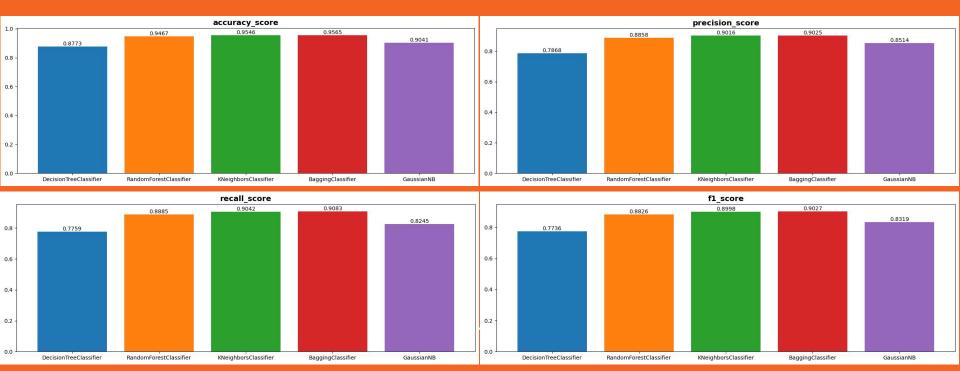




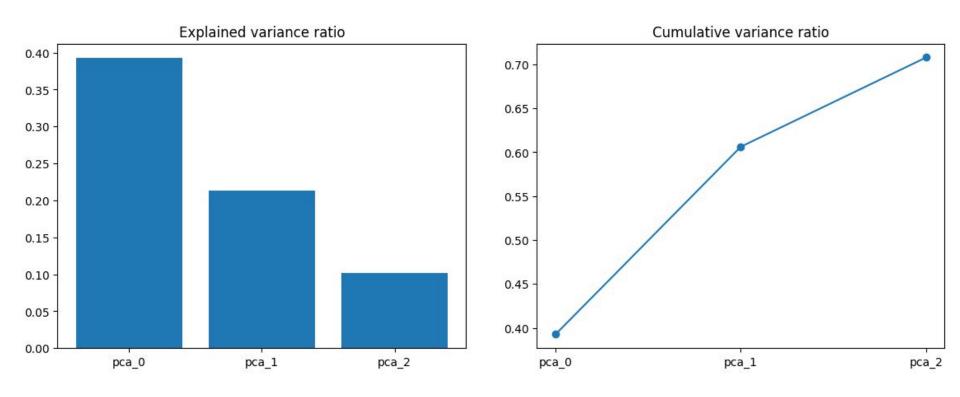
Matrica konfuzije

Leva se odnosi na **trening** skup, a desna na **test** skup.

Klasifikacija Poređenje modela



Klasterovanje Pretprocesiranje

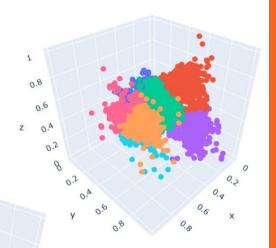


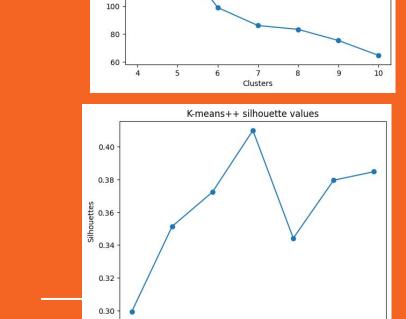
K sredina

Prikaz sedam klastera koristeći *k-means++* i *random* načine za odabir centroida.

0.6

0.2





Clusters

9

K-means++ inertia values

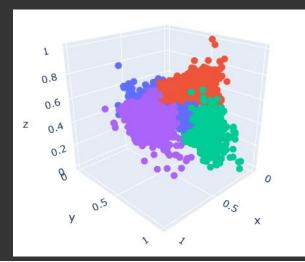
200

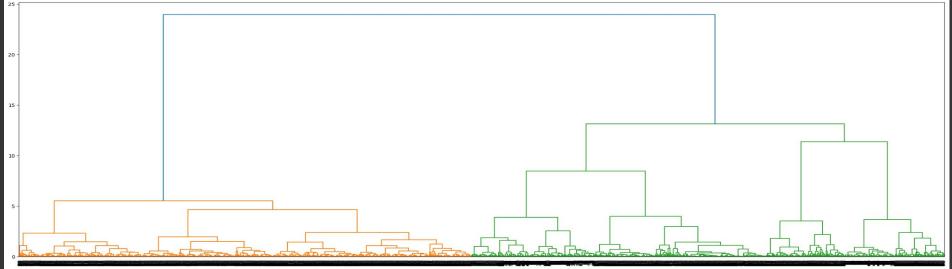
180

160

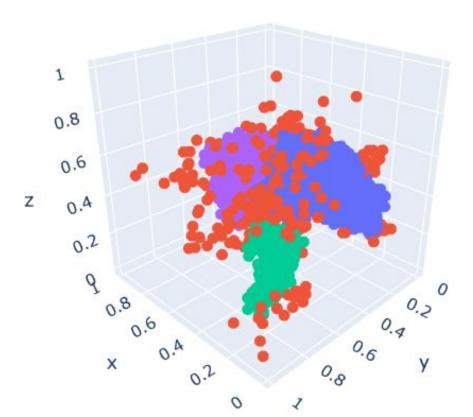
140 120

Hijerarhijsko klasterovanje





DBSCAN

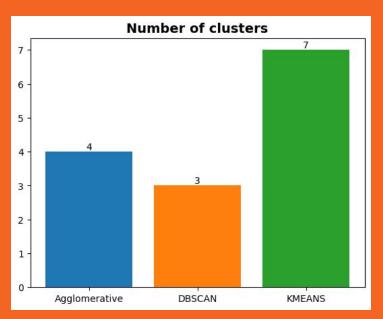


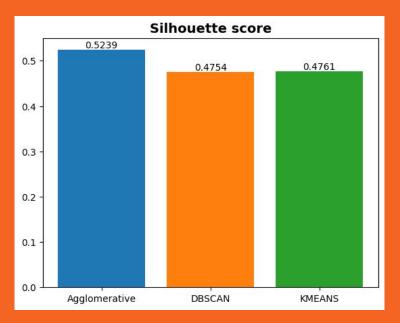


Klasteri

Algoritam definiše tri klastera, obojeni zelenom, plavom i ljubičastom bojom, i elemente van granica obojene crvenom bojom.

Klasterovanje Poređenje modela

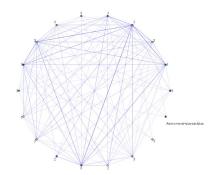




Pravila pridruživanja

Apriori

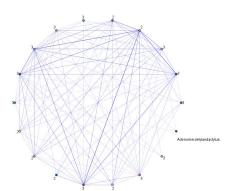
Consequent	Antecedent	Support %	Confidence %	Lift
Species = AdenomeraHylaedactylus	MFCCs_9_BIN = 3	58.277	80.014	1.655
	MFCCs_10_BIN = 3	30.211	80.014	1.055
Species = AdenomeraHylaedactylus	MFCCs_9_BIN = 3	56.511	82.612	1.709
	MFCCs_12_BIN = 3	30.311	02.012	1.709
Species = AdenomeraHylaedactylus	MFCCs_15_BIN = 2			
	MFCCs_5_BIN = 3	55.942	80.547	1.666
	MFCCs_12_BIN = 3			
Species = AdenomeraHylaedactylus	MFCCs_15_BIN = 2			
	MFCCs_5_BIN = 3	54.454	80.807	1.672
	MFCCs_12_BIN = 3	34.434	00.007	1.072
	MFCCs_10_BIN = 3			
Species = AdenomeraHylaedactylus	MFCCs_9_BIN = 3	15		
	MFCCs_10_BIN = 3	54.149	82.161	1.7
	MFCCs_6_BIN = 2			



O MECOS_10_BIN ● MECOS_11_BIN ● MECOS_12_BIN ● MECOS_12_BIN ● MECOS_14_BIN ● MECOS_15_BIN ● MECOS_16_BIN ● MECOS_18_BIN ● MECOS_19_BIN ● MECOS_2_BIN ● MECOS_2_2_BIN ● ME

Consequent	Antecedent	Support %	Confidence %	Lift	
		Ouppoit 70	Confidence 70	Line	
Species = AdenomeraHylaedactylus					
	MFCCs_11_BIN = 2	12.203	100.0	2.069	
	MFCCs_17_BIN = 3				
	MFCCs_3_BIN = 2				
Species = AdenomeraHylaedactylus	MFCCs_20_BIN = 1				
	MFCCs_11_BIN = 2	40.004	400.0	0.000	
	MFCCs_17_BIN = 3	12.064	100.0	2.069	
1	MFCCs 19 BIN = 2				
Species = AdenomeraHylaedactylus		1	1		
opecies - Adenomeral iylaedaciylus					
	MFCCs_11_BIN = 2	13.468	100.0	2.069	
	MFCCs_17_BIN = 3				
	MFCCs_13_BIN = 3	_			
Species = AdenomeraHylaedactylus	MFCCs_20_BIN = 1				
	MFCCs_11_BIN = 2	11.383	100.0	2.069	
l d	MFCCs_17_BIN = 3	11.303	100.0	2.009	
	MFCCs 14 BIN = 2				
Species = AdenomeraHylaedactylus		1			
	MFCCs 11 BIN = 2		100.0		
	MFCCs 17 BIN = 3	11.744		2.069	
1	MFCCs 16 BIN = 2				
	INFUCS TO DIN - 2				
Consequent	Antecedent	Support %	Confidence %	Lift	
Consequent Species = HypsiboasCordobae	MFCCs_3_BIN = 3	Support %	Confidence %	Lift	
·	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2				
·	MFCCs_ 3_BIN = 3 MFCCs_ 8_BIN = 2 MFCCs_11_BIN = 3	Support % 11.049	Confidence %	Lift 6.378	
·	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2				
·	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_11_BIN = 3 MFCCs_14_BIN = 2				
Species = HypsiboasCordobae	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_11_BIN = 3 MFCCs_12_BIN = 3 MFCCs_12_BIN = 3 MFCCs_3_BIN = 3 MFCCs_8_BIN = 2	11.049	99.371	6.378	
Species = HypsiboasCordobae	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_11_BIN = 3 MFCCs_14_BIN = 2 MFCCs_12_BIN = 3 MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCS_13_BIN = 2				
Species = HypsiboasCordobae	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_11_BIN = 3 MFCCs_12_BIN = 3 MFCCs_12_BIN = 3 MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2	11.049	99.371	6.378	
Species = HypsiboasCordobae Species = HypsiboasCordobae	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_11_BIN = 3 MFCCs_12_BIN = 2 MFCCs_12_BIN = 3 MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_13_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCS_12_BIN = 3	11.049	99.371	6.378	
Species = HypsiboasCordobae	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_11_BIN = 3 MFCCs_14_BIN = 2 MFCCs_12_BIN = 3 MFCCs_12_BIN = 3 MFCCs_8_BIN = 2 MFCCs_13_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 3 MFCCS_3_BIN = 3	11.049	99.371	6.378	
Species = HypsiboasCordobae Species = HypsiboasCordobae	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_11_BIN = 3 MFCCs_12_BIN = 2 MFCCs_12_BIN = 3 MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_13_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCS_12_BIN = 3	11.049	99.371	6.378	
Species = HypsiboasCordobae Species = HypsiboasCordobae	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_11_BIN = 3 MFCCs_12_BIN = 3 MFCCs_3_BIN = 3 MFCCs_3_BIN = 2 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_14_BIN = 2 MFCCs_12_BIN = 3 MFCCs_3_BIN = 3 MFCCs_8_BIN = 2	11.049	99.371	6.378	
Species = HypsiboasCordobae Species = HypsiboasCordobae Species = HypsiboasCordobae	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_11_BIN = 3 MFCCs_12_BIN = 3 MFCCs_12_BIN = 3 MFCCs_3_BIN = 3 MFCCs_13_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCs_12_BIN = 3 MFCCs_3_BIN = 3 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_17_BIN = 2 MFCCs_17_BIN = 2 MFCCs_14_BIN = 2	11.049	99.371	6.378	
Species = HypsiboasCordobae Species = HypsiboasCordobae	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_11_BIN = 3 MFCCs_12_BIN = 3 MFCCs_12_BIN = 3 MFCCs_3_BIN = 2 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_14_BIN = 2 MFCCs_12_BIN = 3 MFCCs_8_BIN = 3 MFCCs_8_BIN = 2 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCs_13_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2	11.049	99.371	6.378	
Species = HypsiboasCordobae Species = HypsiboasCordobae Species = HypsiboasCordobae	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_11_BIN = 3 MFCCs_12_BIN = 3 MFCCs_12_BIN = 3 MFCCs_12_BIN = 3 MFCCs_12_BIN = 2 MFCCs_13_BIN = 2 MFCCs_12_BIN = 2 MFCCs_12_BIN = 3 MFCCs_12_BIN = 3 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCs_8_BIN = 3	11.049	99.371 99.351 99.307	6.378 6.377 6.374	
Species = HypsiboasCordobae Species = HypsiboasCordobae Species = HypsiboasCordobae	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_11_BIN = 3 MFCCs_14_BIN = 2 MFCCs_12_BIN = 3 MFCCs_12_BIN = 3 MFCCs_13_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 3 MFCCs_8_BIN = 3 MFCCs_13_BIN = 3 MFCCs_13_BIN = 2 MFCCs_17_BIN = 2 MFCCs_17_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCs_18_BIN = 2 MFCCs_18_BIN = 2 MFCCs_18_BIN = 2 MFCCs_18_BIN = 2 MFCCs_18_BIN = 2 MFCCs_19_BIN = 3	11.049	99.371	6.378	
Species = HypsiboasCordobae Species = HypsiboasCordobae Species = HypsiboasCordobae	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_11_BIN = 3 MFCCs_12_BIN = 3 MFCCs_12_BIN = 3 MFCCs_12_BIN = 3 MFCCs_12_BIN = 2 MFCCs_13_BIN = 2 MFCCs_12_BIN = 2 MFCCs_12_BIN = 3 MFCCs_12_BIN = 3 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCs_8_BIN = 3	11.049	99.371 99.351 99.307	6.378 6.377 6.374	
Species = HypsiboasCordobae Species = HypsiboasCordobae Species = HypsiboasCordobae	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_11_BIN = 3 MFCCs_12_BIN = 3 MFCCs_12_BIN = 3 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCs_12_BIN = 3 MFCCs_3_BIN = 3 MFCCs_3_BIN = 2 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCS_14_BIN = 2 MFCCS_14_BIN = 2 MFCCS_11_BIN = 3 MFCCS_11_BIN = 3 MFCCS_11_BIN = 3 MFCCS_11_BIN = 3 MFCCS_11_BIN = 3	11.049	99.371 99.351 99.307	6.378 6.377 6.374	
Species = HypsiboasCordobae Species = HypsiboasCordobae Species = HypsiboasCordobae Species = HypsiboasCordobae	MFCCs_ 3_BIN = 3 MFCCs_ 8_BIN = 2 MFCCs_ 11_BIN = 3 MFCCs_ 12_BIN = 3 MFCCs_ 12_BIN = 3 MFCCs_ 3_BIN = 2 MFCCs_ 13_BIN = 2 MFCCs_ 14_BIN = 2 MFCCs_ 12_BIN = 3 MFCCs_ 12_BIN = 3 MFCCs_ 12_BIN = 3 MFCCs_ 13_BIN = 2 MFCCs_ 13_BIN = 2 MFCCs_ 17_BIN = 2 MFCCs_ 14_BIN = 2 MFCCs_ 14_BIN = 2 MFCCS_ 11_BIN = 3 MFCCS_ 8_BIN = 2 MFCCS_ 11_BIN = 3 MFCCS_ 11_BIN = 3 MFCCS_ 11_BIN = 3 MFCCS_ 11_BIN = 3 MFCCS_ 11_BIN = 2 MFCCS_ 11_BIN = 2 MFCCS_ 11_BIN = 3 MFCCS_ 11_BIN = 3	11.049 10.716 10.021	99.371 99.351 99.307 99.195	6.378 6.377 6.374	
Species = HypsiboasCordobae Species = HypsiboasCordobae Species = HypsiboasCordobae Species = HypsiboasCordobae	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_11_BIN = 3 MFCCs_12_BIN = 3 MFCCs_12_BIN = 3 MFCCs_8_BIN = 2 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_12_BIN = 3 MFCCs_12_BIN = 3 MFCCs_13_BIN = 3 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCs_11_BIN = 3 MFCCs_11_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2	11.049	99.371 99.351 99.307	6.378 6.377 6.374	
Species = HypsiboasCordobae Species = HypsiboasCordobae Species = HypsiboasCordobae Species = HypsiboasCordobae	MFCCs_3_BIN = 3 MFCCs_8_BIN = 2 MFCCs_11_BIN = 3 MFCCs_12_BIN = 3 MFCCs_12_BIN = 3 MFCCs_13_BIN = 3 MFCCs_13_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 2 MFCCs_14_BIN = 3 MFCCs_3_BIN = 3 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_13_BIN = 2 MFCCs_14_BIN = 2 MFCCs_11_BIN = 3 MFCCs_11_BIN = 3 MFCCs_11_BIN = 3 MFCCs_14_BIN = 2 MFCCS_11_BIN = 3 MFCCS_14_BIN = 2 MFCCS_11_BIN = 3 MFCCS_13_BIN = 3 MFCCS_3_BIN = 3 MFCCS_3_BIN = 3	11.049 10.716 10.021	99.371 99.351 99.307 99.195	6.378 6.377 6.374 6.367	

Pravila pridruživanja FP-Growth



OMFCCs_10_BIN OMFCCs_11_BIN OMFCCs_12_BIN OMFCCs_13_BIN OMFCCs_14_BIN OMFCCs_15_BIN OMFCCs_15_BIN OMFCCs_17_BIN OMFCCs_18_BIN OMFCCs_12_BIN OMFCCs_23_BIN O

Most Interesting Rules by Rule Support

							Evaluation Sta		
Rank	Rule ID	Condition	Prediction	Sorted By Rule Suppor	t(%) Condition S	upport (%) Co	onfidence (%)	Lift	Deployability (%)
	984	MFCCs_16_BIN = 2 MFCCs_12_BIN = 2	MFCCs_14_BIN = 3	15	5.82	18.28	86.54	2.83	2.46
	990	MFCCs_4_BIN = 3 MFCCs_12_BIN = 2	MFCCs_14_BIN = 3	14	1.64	17.08	85.68	2.80	2.45
	970	MFCCs_18_BIN = 3 MFCCs_12_BIN = 2	MFCCs_14_BIN = 3	14	1.50	16.50	87.87	2.88	2.00
	952	MFCCs_17_BIN = 2 MFCCs_12_BIN = 2	MFCCs_14_BIN = 3	14	1.32	15.98	89.57	2.93	1.67
	954	MFCCs_18_BIN = 3 MFCCs_16_BIN = 2 MFCCs_12_BIN = 2	MFCCs_14_BIN = 3	13	3.50	15.08	89.49	2.93	1.58
			Most Into	eresting Rules by C	onfidence				
						Other E	Evaluation Stati	stics	
ank	Rule ID	Condition	Prediction	Sorted By Confidence(6) Condition Sup	oport (%) Rule	e Support (%)	Lift	Deployability (%)
	1	MFCCs_12_BIN = 3 MFCCs_14_BIN = 2 MFCCs_11_BIN = 3 MFCCs_ 8_BIN = 2 MFCCs_ 3_BIN = 3	Species = HypsiboasCordobae	99.5	37	11.05	10.98	6.38	0.07
	2	MFCCs_12_BIN = 3 MFCCs_14_BIN = 2 MFCCs_13_BIN = 2 MFCCs_ 8_BIN = 2 MFCCs_ 3_BIN = 3	Species = HypsiboasCordobae	99.3	35	10.72	10.65	6.38	0.07
	3	MFCCs_14_BIN = 2 MFCCs_17_BIN = 2 MFCCs_11_BIN = 3 MFCCs_8_BIN = 2 MFCCs_3_BIN = 3	Species = HypsiboasCordobae	99.	19	10.35	10.27	6.37	0.08
	4	MFCCs_20_BIN = 2 MFCCs_14_BIN = 2 MFCCs_13_BIN = 2 MFCCs_ 8_BIN = 2 MFCCs_ 3_BIN = 3	Species = HypsiboasCordobae	99.0	19	10.69	10.59	6.36	0.10
	5	MFCCs_20_BIN = 2 MFCCs_14_BIN = 2 MFCCs_11_BIN = 3 MFCCs_8_BIN = 2 MFCCs_3_BIN = 3	Species = HypsiboasCordobae	98.9	99	11.04	10.92	6.35	0.11
			Mos	t Interesting Rules I	by Lift				
						Other Evalua	ation Statistics		
ank	Rule ID	Condition	Prediction	Sorted By Lift Cond	lition Support (%)	Confidence (%		port (%)	Deployability (%)
	1	MFCCs_12_BIN = 3 MFCCs_14_BIN = 2 MFCCs_11_BIN = 3 MFCCs_ 8_BIN = 2 MFCCs_ 3_BIN = 3	Species = HypsiboasCordobae	6.38	11,05	99.3	7	10.98	0.07
	2	MFCCs_12_BIN = 3 MFCCs_14_BIN = 2 MFCCs_13_BIN = 2 MFCCs_ 8_BIN = 2 MFCCs_ 3_BIN = 3	Species = HypsiboasCordobae	6.38	10.72	99.3	5	10.65	0.07
	3	MFCCs_14_BIN = 2 MFCCs_17_BIN = 2 MFCCs_11_BIN = 3 MFCCs_ 8_BIN = 2 MFCCs_ 3_BIN = 3	Species = HypsiboasCordobae	6.37	10.35	99.1	9	10.27	0.08
	4	MFCCs_20_BIN = 2 MFCCs_14_BIN = 2 MFCCs_13_BIN = 2 MFCCs_8_BIN = 2 MFCCs_3_BIN = 3	Species = HypsiboasCordobae	6.36	10.69	99.0	9	10.59	0.10
	5	MFCCs_20_BIN = 2 MFCCs_14_BIN = 2 MFCCs_11_BIN = 3 MFCCs_8_BIN = 2	Species = HypsiboasCordobae	6.35	11.04	98.9	9	10.92	0.11

MFCCs_8_BIN = 2 MFCCs_3_BIN = 3