Prezentacija na temu “Predviđanje suša koristeći skup podataka meteoroloških uslova”

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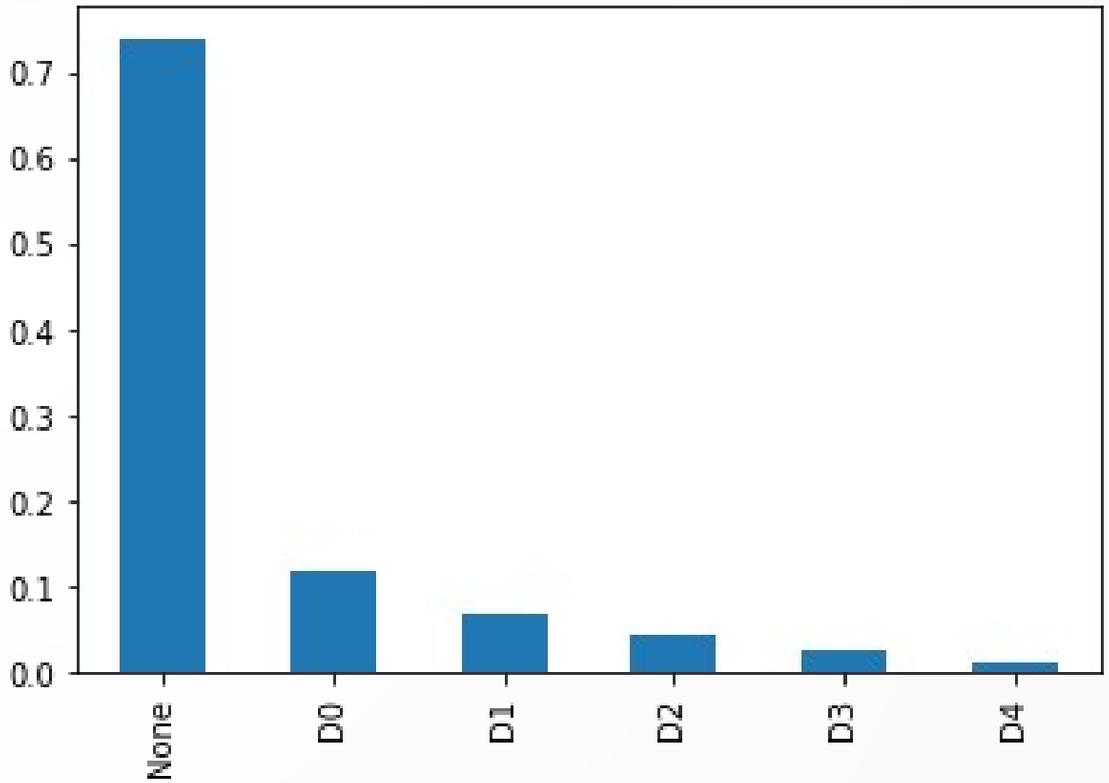
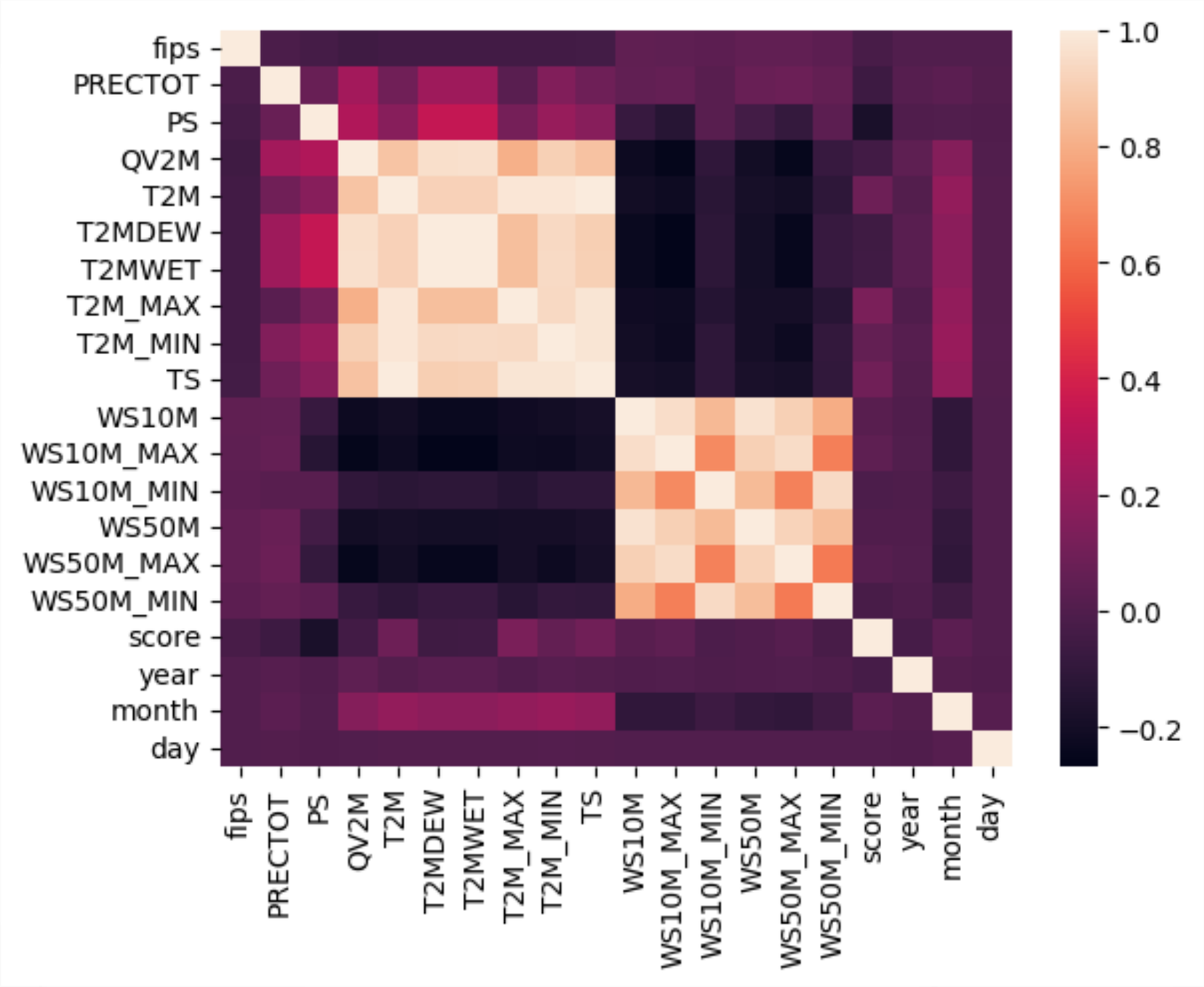
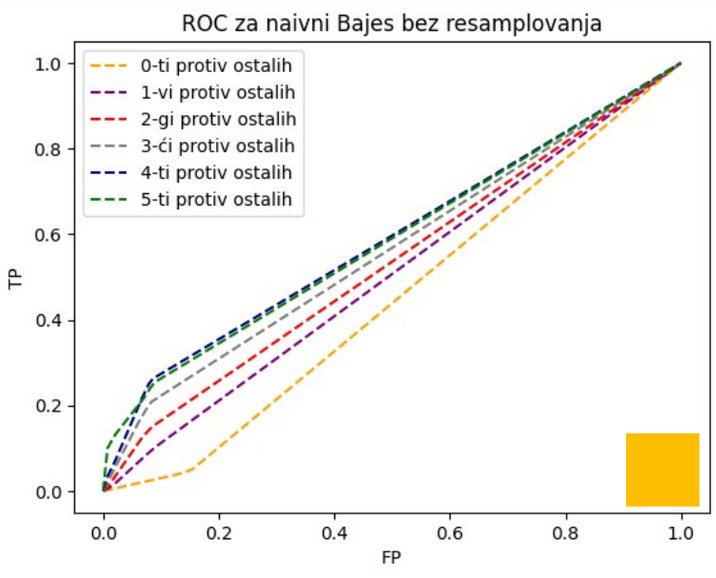
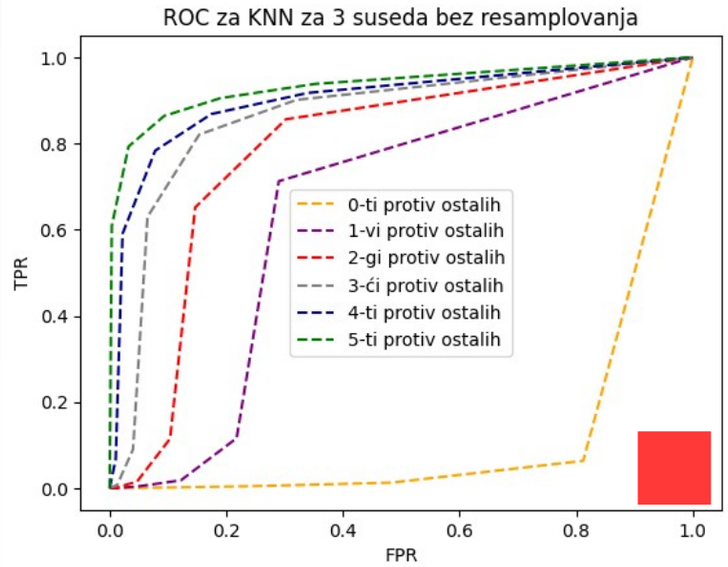
Category	Description	Possible Impacts
D0	Abnormally Dry	Going into drought: ▪ short-term dryness slowing planting, growth of crops or pastures Coming out of drought: ▪ some lingering water deficits ▪ pastures or crops not fully recovered
D1	Moderate Drought	▪ Some damage to crops, pastures ▪ Streams, reservoirs, or wells low, some water shortages developing or imminent ▪ Voluntary water-use restrictions requested
D2	Severe Drought	▪ Crop or pasture losses likely ▪ Water shortages common ▪ Water restrictions imposed
D3	Extreme Drought	▪ Major crop/pasture losses ▪ Widespread water shortages or restrictions
D4	Exceptional Drought	▪ Exceptional and widespread crop/pasture losses ▪ Shortages of water in reservoirs, streams, and wells creating water emergencies



Indicator	Description	Indicator	Description
WS10M_MIN	Minimum Wind Speed at 10 Meters (m/s)	WS50M_RANGE	Wind Speed Range at 50 Meters (m/s)
QV2M	Specific Humidity at 2 Meters (g/kg)	WS50M_MAX	Maximum Wind Speed at 50 Meters (m/s)
T2M_RANGE	Temperature Range at 2 Meters (C)	WS10M_MAX	Maximum Wind Speed at 10 Meters (m/s)
WS10M	Wind Speed at 10 Meters (m/s)	WS10M_RANGE	Wind Speed Range at 10 Meters (m/s)
T2M	Temperature at 2 Meters (C)	PS	Surface Pressure (kPa)
WS50M_MIN	Minimum Wind Speed at 50 Meters (m/s)	T2MDEW	Dew/Frost Point at 2 Meters (C)
T2M_MAX	Maximum Temperature at 2 Meters (C)	T2M_MIN	Minimum Temperature at 2 Meters (C)
WS50M	Wind Speed at 50 Meters (m/s)	T2MWET	Wet Bulb Temperature at 2 Meters (C)
TS	Earth Skin Temperature (C)	PRECTOT	Precipitation (mm day-1)


fips
PRECTOT
PS
QV2M
T2M
T2MDEW
T2MWET
T2M_MAX
T2M_MIN
TS
WS10M
WS10M_MAX
WS10M_MIN
WS50M
WS50M_MAX
WS50M_MIN
score
year
month
day
1.0
0.8
0.6
0.4
0.2
0.0
−0.2


ROC za naivni Bajes bez resamplovanja
0-ti protiv ostalih
1-vi protiv ostalih
2-gi protiv ostalih
3-ći protiv ostalih
4-ti protiv ostalih
5-ti protiv ostalih
TP
FP
0.0
0.2
0.4
0.6
0.8
1.0


ROC za KNN za 3 suseda bez resamplovanja
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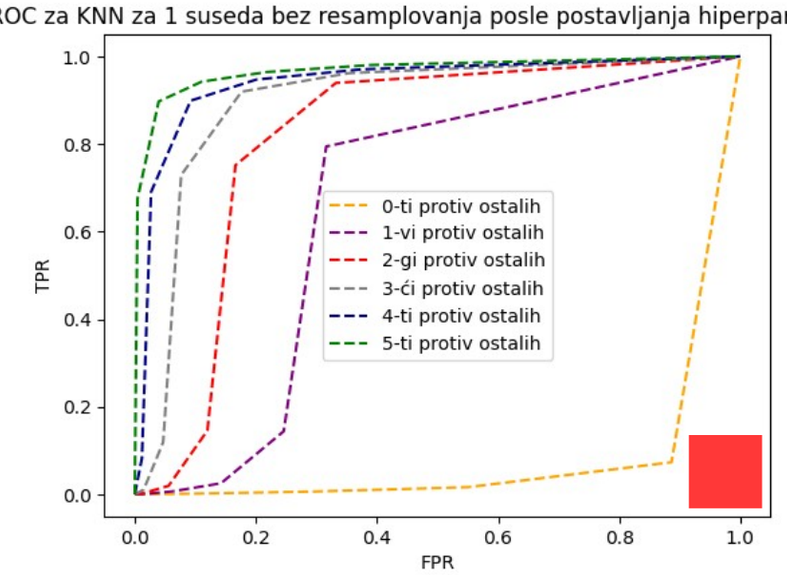
1-vi protiv ostalih
2-gi protiv ostalih
3-ći protiv ostalih
4-ti protiv ostalih
5-ti protiv ostalih
TPR
FPR
0.0
0.2
0.4
0.6
0.8
1.0


ROC za KNN za 1 suseda bez resamplovanja posle postavljanja hiperparametara
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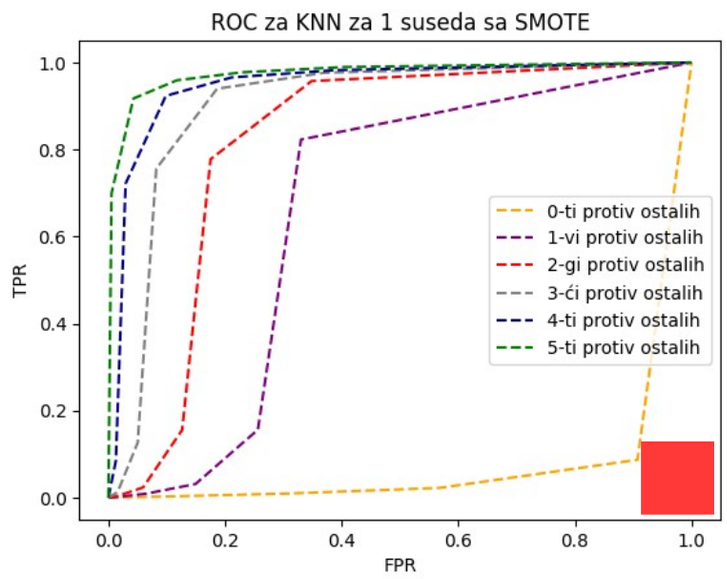
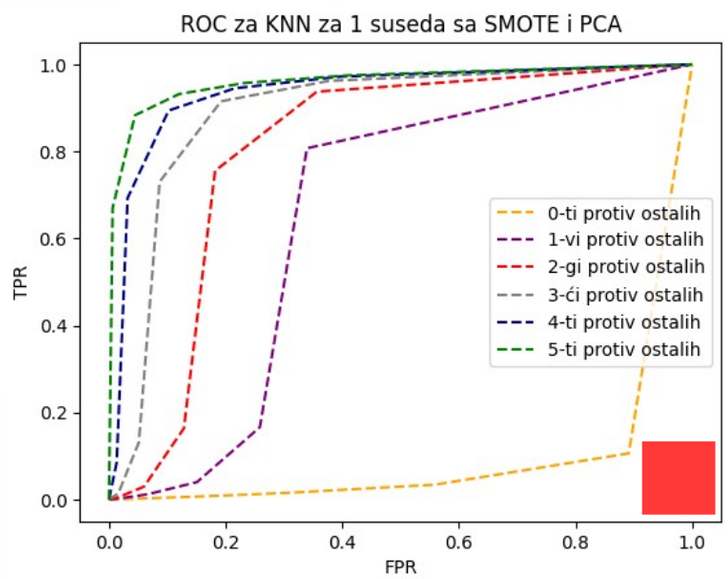
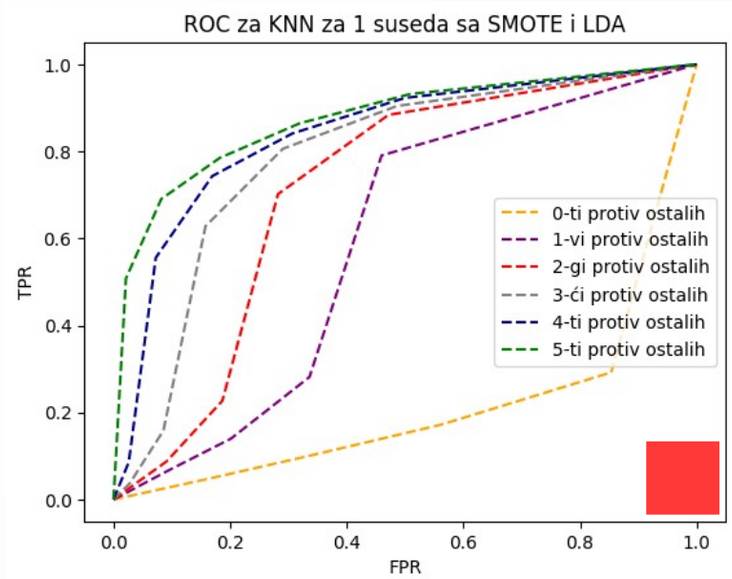
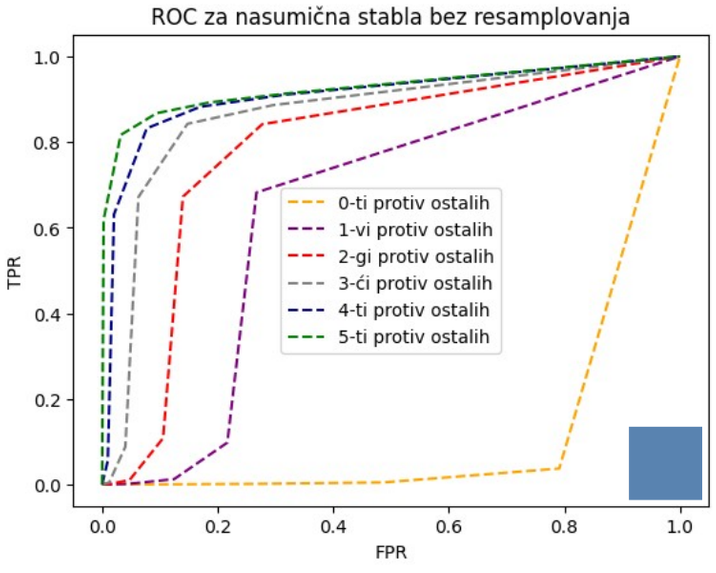
1-vi protiv ostalih
2-gi protiv ostalih
3-ći protiv ostalih
4-ti protiv ostalih
5-ti protiv ostalih
TPR
FPR
0.0
0.2
0.4
0.6
0.8
1.0


ROC za KNN za 1 suseda sa SMOTE
0-ti protiv ostalih
1-vi protiv ostalih
2-gi protiv ostalih
3-ći protiv ostalih
4-ti protiv ostalih
5-ti protiv ostalih
TPR
FPR
0.0
0.2
0.4
0.6
0.8
1.0


ROC za KNN za 1 suseda sa SMOTE i PCA
0-ti protiv ostalih
1-vi protiv ostalih
2-gi protiv ostalih
3-ći protiv ostalih
4-ti protiv ostalih
5-ti protiv ostalih
TPR
FPR
0.0
0.2
0.4
0.6
0.8
1.0


ROC za KNN za 1 suseda sa SMOTE i LDA
0-ti protiv ostalih
1-vi protiv ostalih
2-gi protiv ostalih
3-ći protiv ostalih
4-ti protiv ostalih
5-ti protiv ostalih
TPR
FPR
0.0
0.2
0.4
0.6
0.8
1.0


ROC za nasumična stabla bez resamplovanja
TPR
FPR
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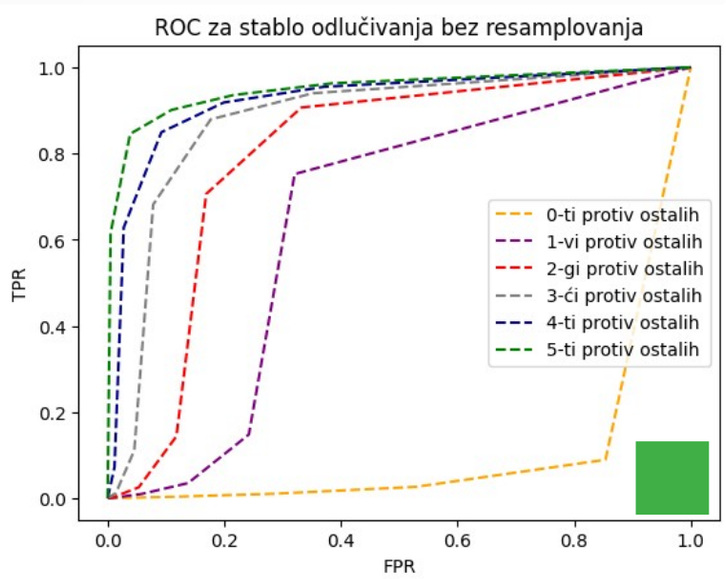
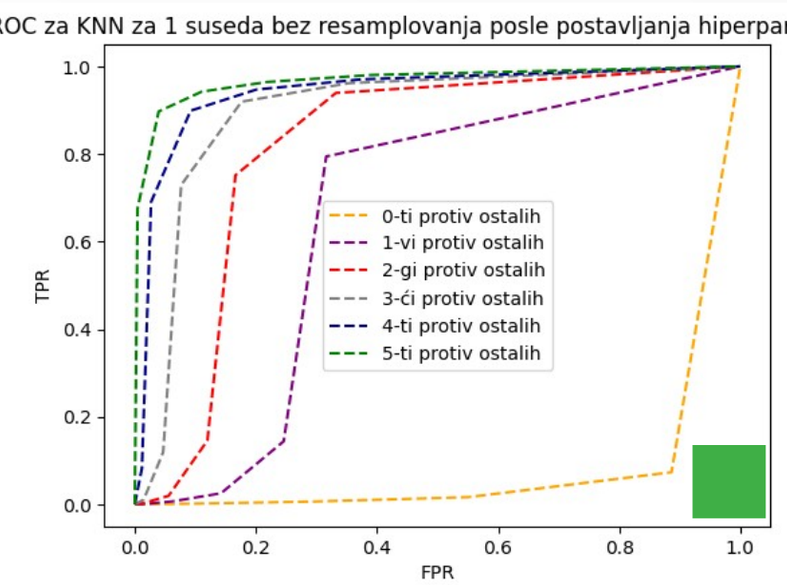
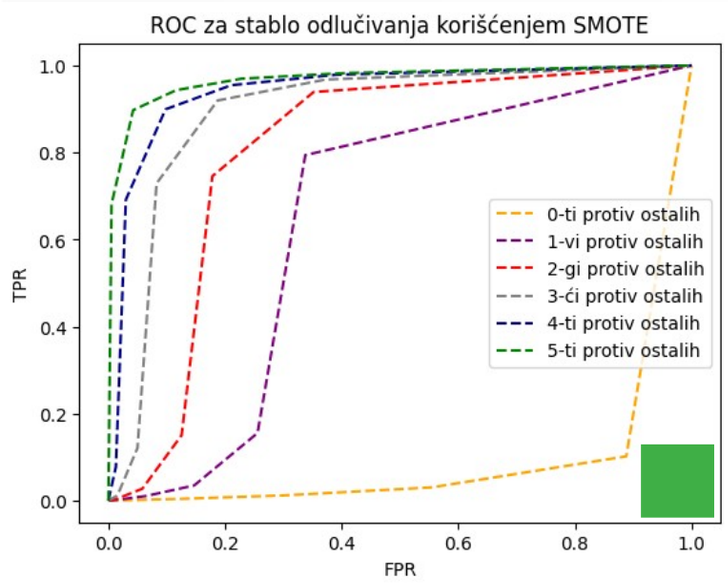
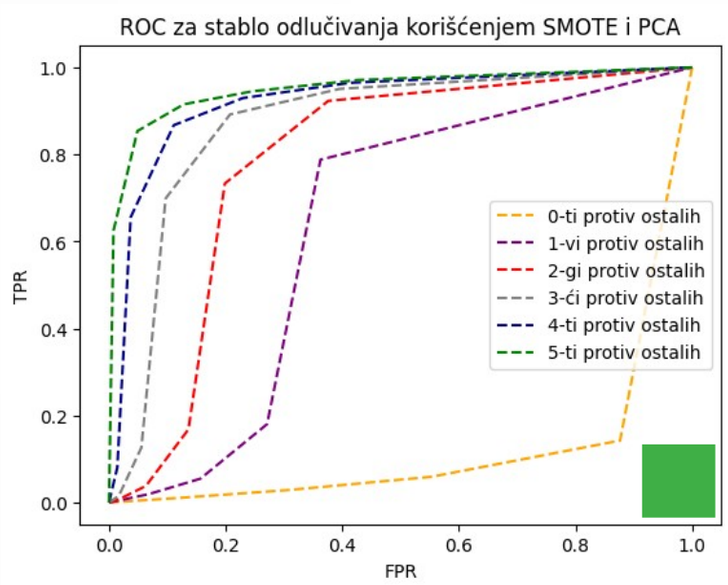
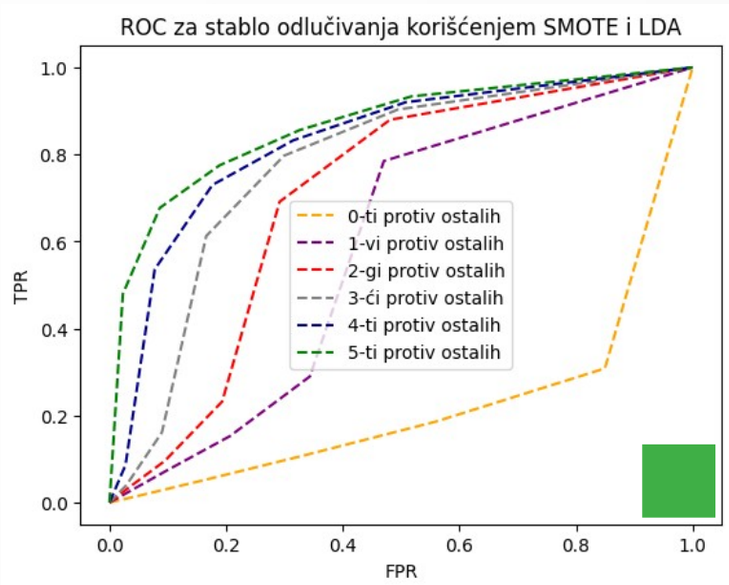
1-vi protiv ostalih
2-gi protiv ostalih
3-ći protiv ostalih
4-ti protiv ostalih
5-ti protiv ostalih

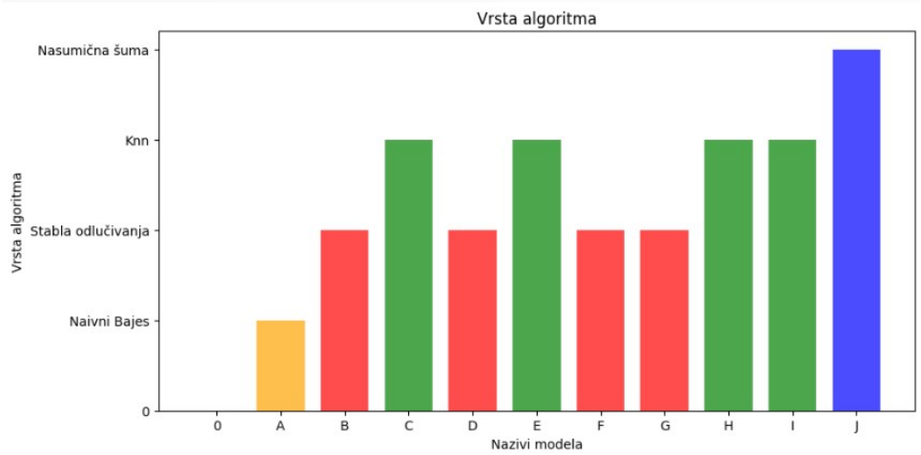

ROC za stablo odlučivanja bez resamplovanja
TPR
FPR
0-ti protiv ostalih
1-vi protiv ostalih
2-gi protiv ostalih
3-ći protiv ostalih
4-ti protiv ostalih
5-ti protiv ostalih

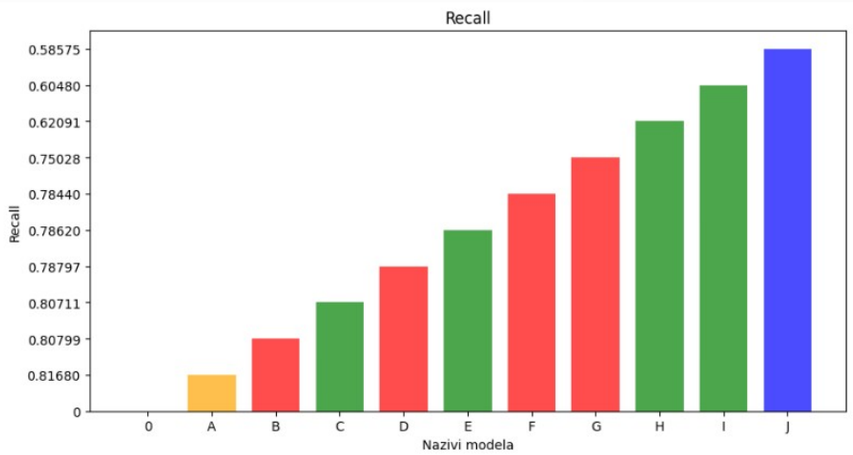

ROC za KNN za 1 suseda bez resamplovanja posle postavljanja hiperparametara
TPR
FPR
0-ti protiv ostalih
1-vi protiv ostalih
2-gi protiv ostalih
3-ći protiv ostalih
4-ti protiv ostalih
5-ti protiv ostalih

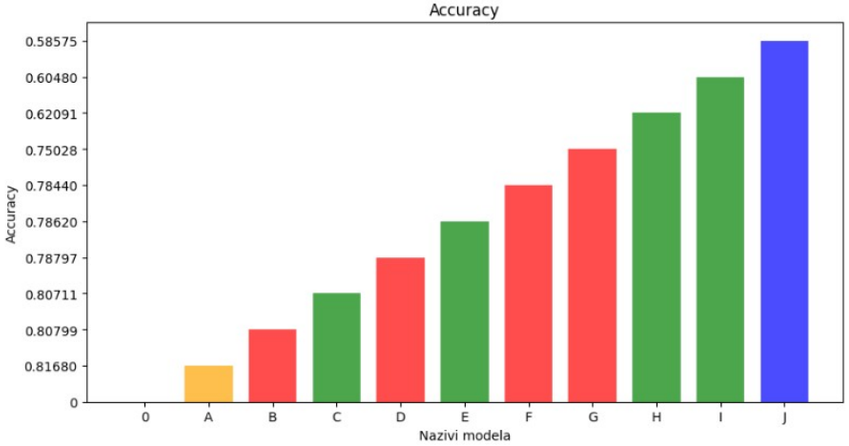

ROC za stablo odlučivanja korišćenjem SMOTE
TPR
FPR
0-ti protiv ostalih
1-vi protiv ostalih
2-gi protiv ostalih
3-ći protiv ostalih
4-ti protiv ostalih
5-ti protiv ostalih

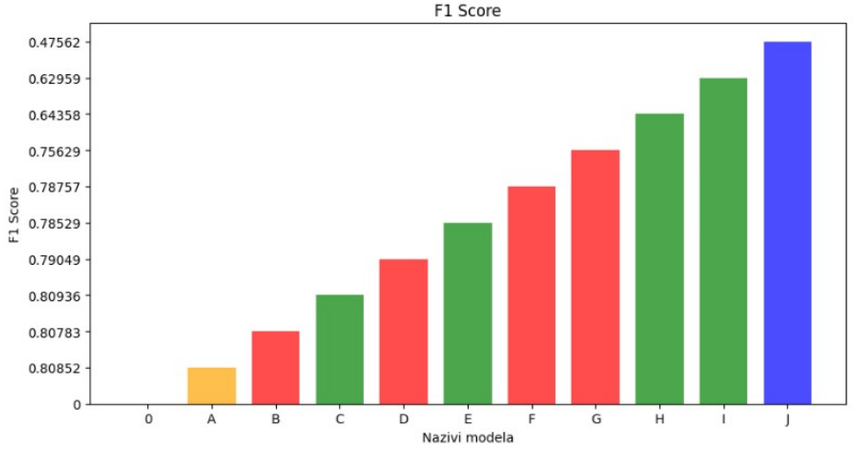

ROC za stablo odlučivanja korišćenjem SMOTE i PCA
TPR
FPR
0-ti protiv ostalih
1-vi protiv ostalih
2-gi protiv ostalih
3-ći protiv ostalih
4-ti protiv ostalih
5-ti protiv ostalih

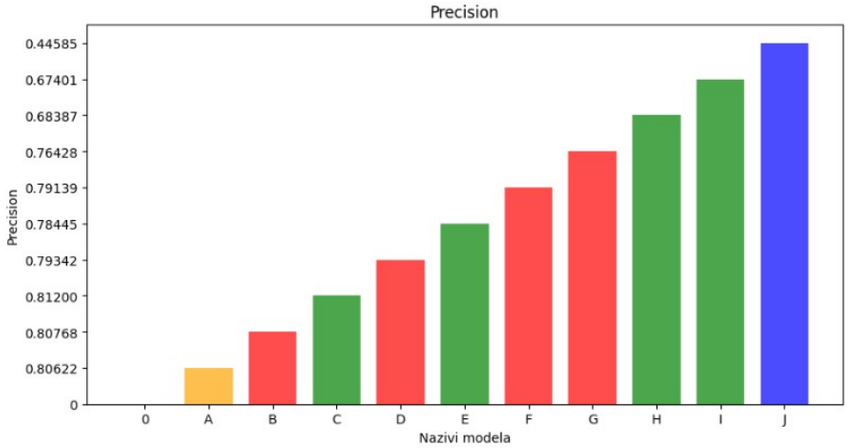

ROC za stablo odlučivanja korišćenjem SMOTE i LDA
TPR
FPR
0-ti protiv ostalih
1-vi protiv ostalih
2-gi protiv ostalih
3-ći protiv ostalih
4-ti protiv ostalih
5-ti protiv ostalih

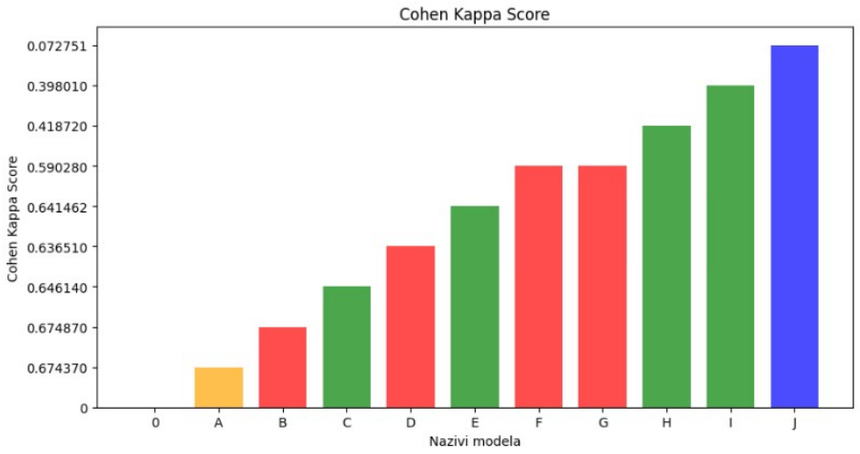










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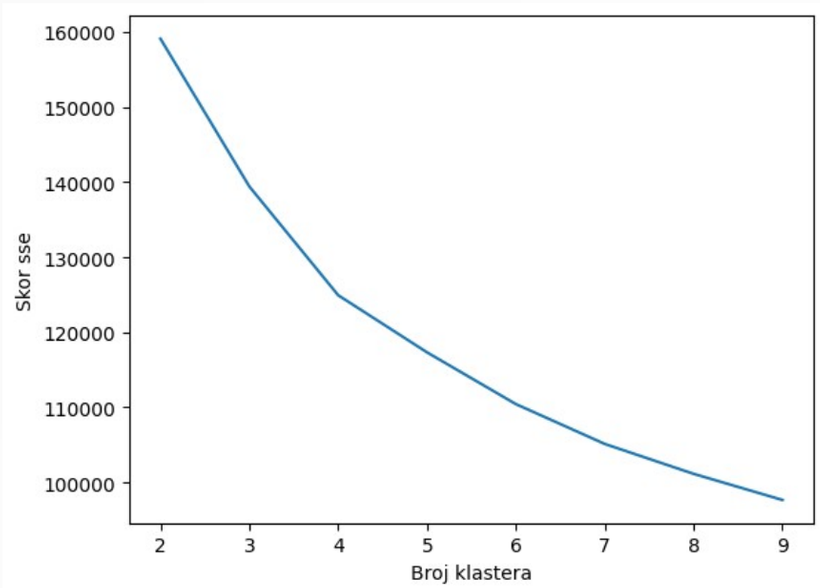
Model nasumične šume: plava
J = Nasumična šuma bez resamplovanja

Model stabla odlučivanja: crvena
F = Stabla odlučivanja bez resamplovanja
G = Stabla odlučivanja sa SMOTE
D = Stabla odlučivanja sa SMOTE i PCA
B = Stabla odlučivanja sa SMOTE i LDA

Model k najbližih suseda: zelena
I = KNN bez resamplovanja
H = KNN sa SMOTE
E = KNN sa SMOTE i PCA
C = KNN sa SMOTE i LDA

Model naivnog Bajesa: žuta
A = Naivni Bajes bez resamplovanja
```

	Algoritam	Accuracy	Precision	Recall	F1 Score	Cohen Kappa Score
4	Nasumična šuma bez resamplovanja	0.81680	0.80622	0.81680	0.80852	0.674370
5	KNN bez resamplovanja	0.80799	0.80768	0.80799	0.80783	0.674870
6	KNN sa SMOTE	0.80711	0.81200	0.80711	0.80936	0.641460
1	Stabla odlučivanja sa SMOTE	0.78797	0.79342	0.78797	0.79049	0.646140
0	Stabla odlučivanja bez resamplovanja	0.78620	0.78445	0.78620	0.78529	0.636510
7	KNN sa SMOTE i PCA	0.78440	0.79139	0.78440	0.78757	0.641462
2	Stabla odlučivanja sa SMOTE i PCA	0.75028	0.76428	0.75028	0.75629	0.590280
8	KNN sa SMOTE i LDA	0.62091	0.68387	0.62091	0.64358	0.418720
3	Stabla odlučivanja sa SMOTE i LDA	0.60480	0.67401	0.60480	0.62959	0.398010
9	Naivni Bajes bez resamplovanja	0.58575	0.44585	0.58575	0.47562	0.072751


Skor sse
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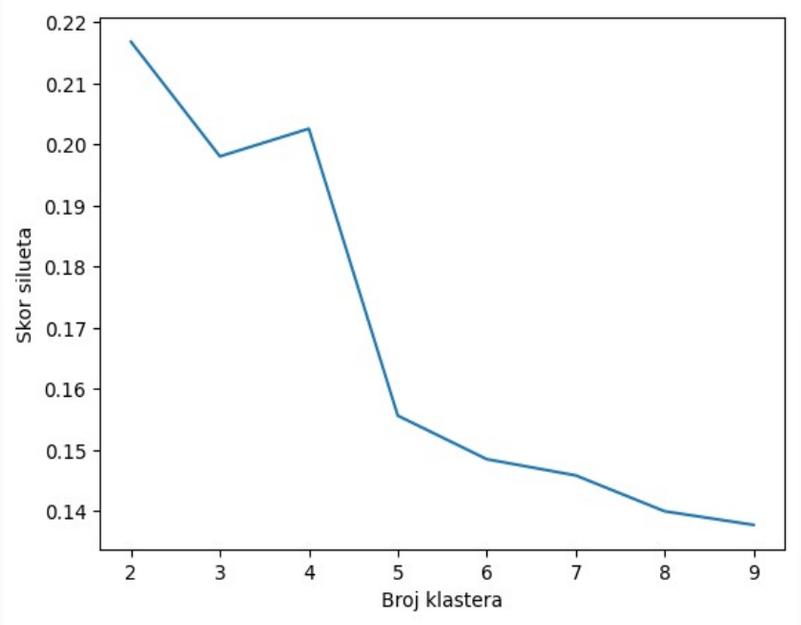
140000
130000
120000
110000
100000
2
3
4
5
6
7
8
9
Broj klastera


Skor silueta
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0.21
0.20
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0.18
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0.16
0.15
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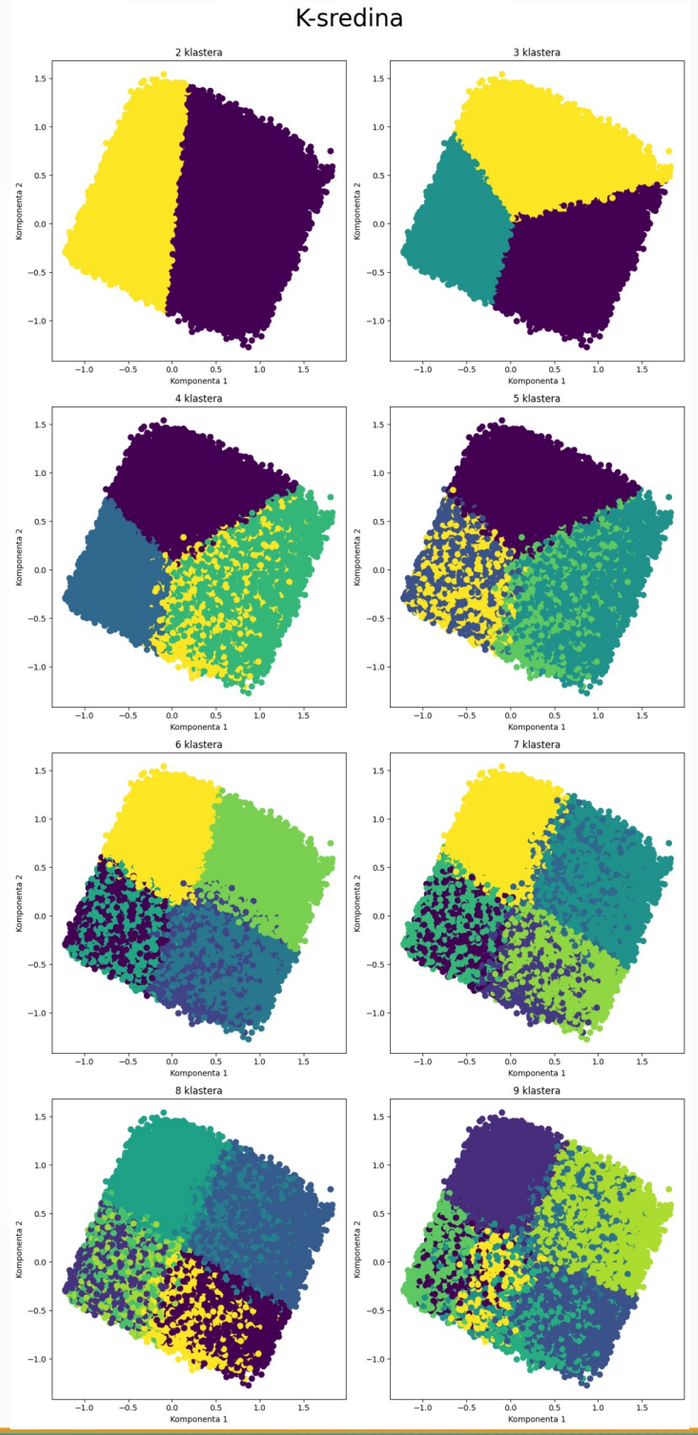
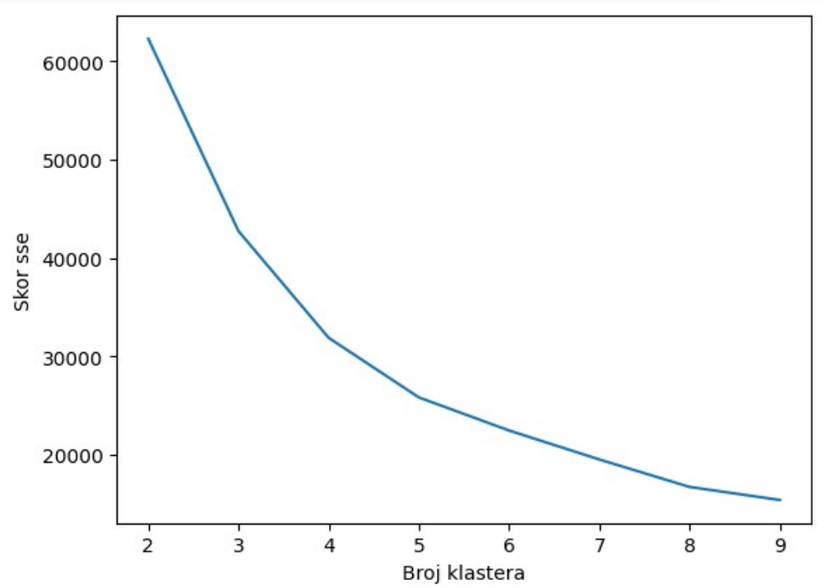
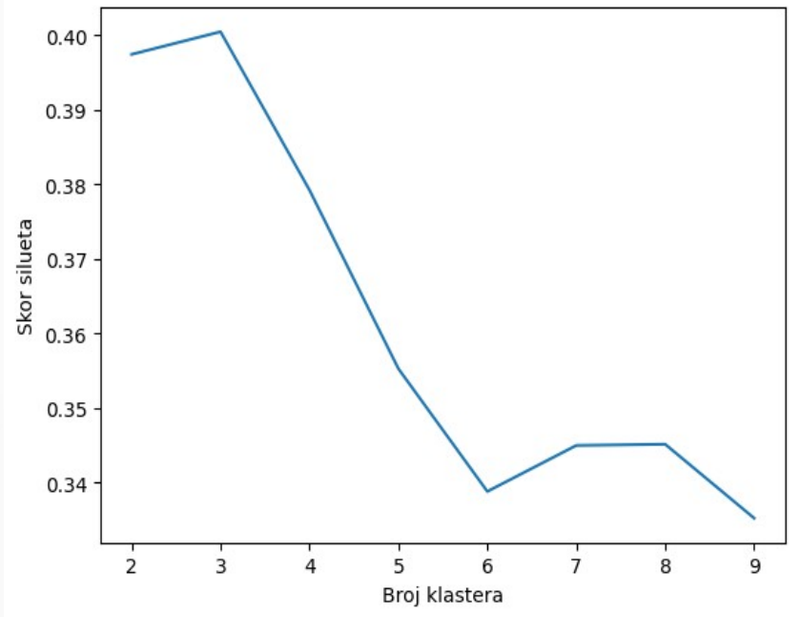
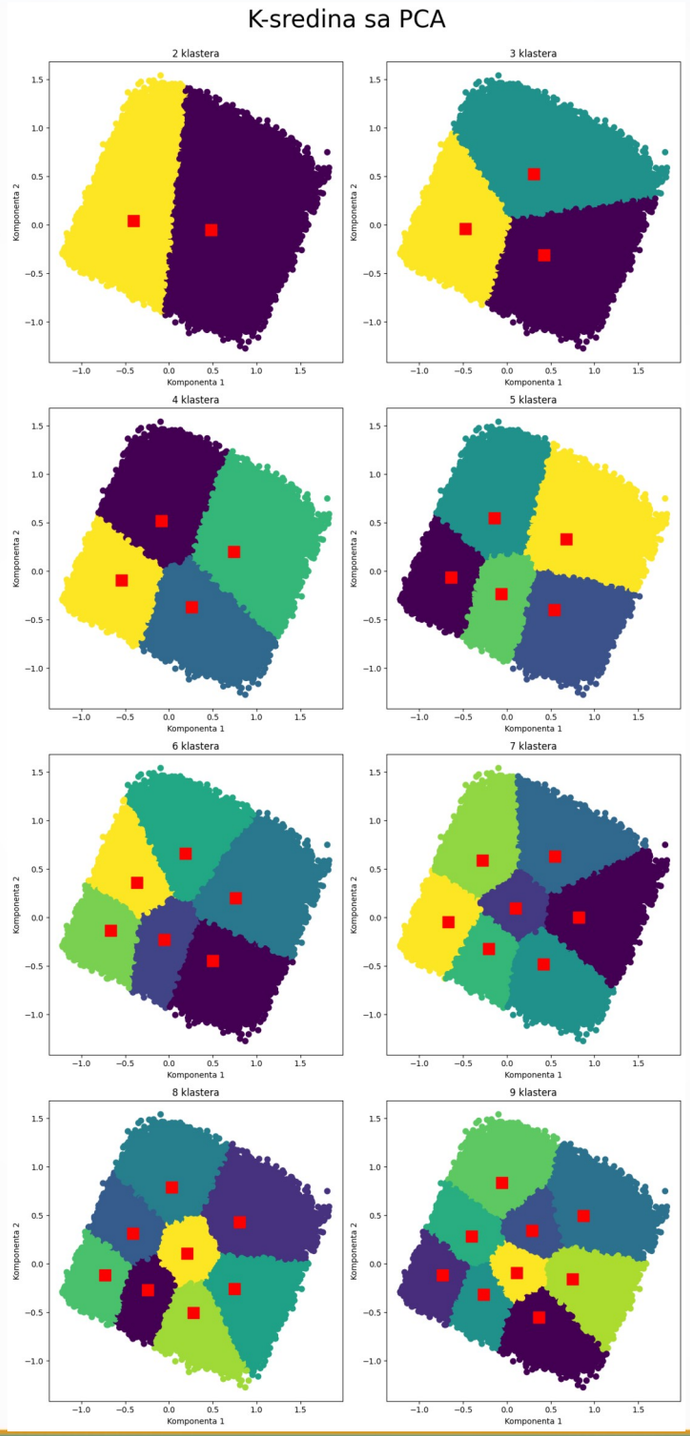
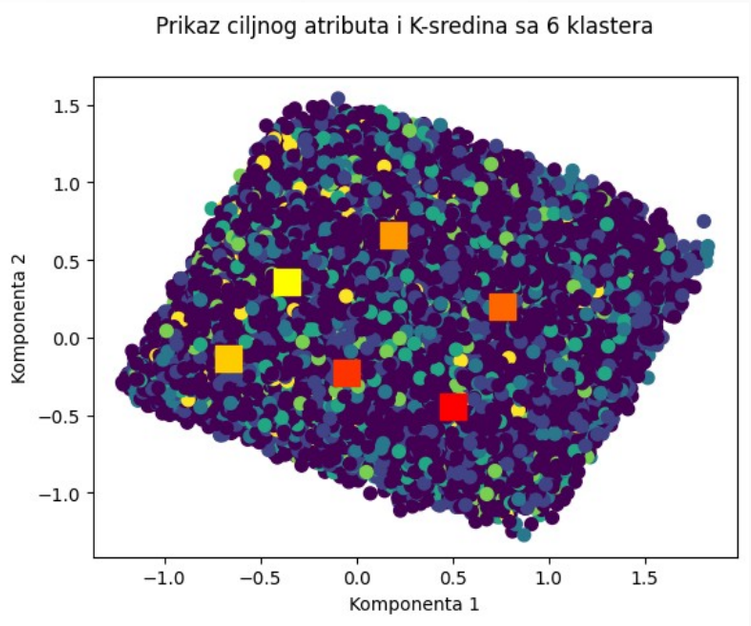
2
3
4
5
6
7
8
9
Broj klastera

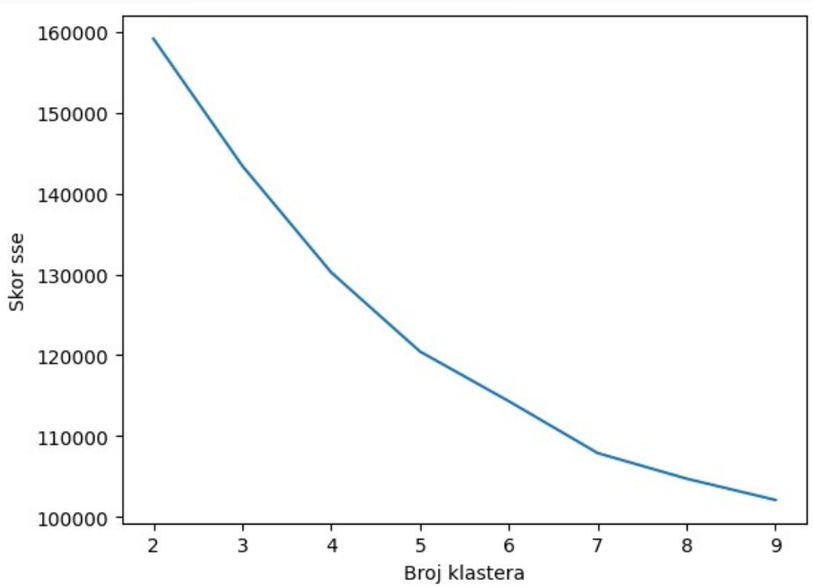

K-sredina
2 klastera
3 klastera
4 klastera
5 klastera
6 klastera
7 klastera
8 klastera
9 klastera
Komponenta 1
Komponenta 2

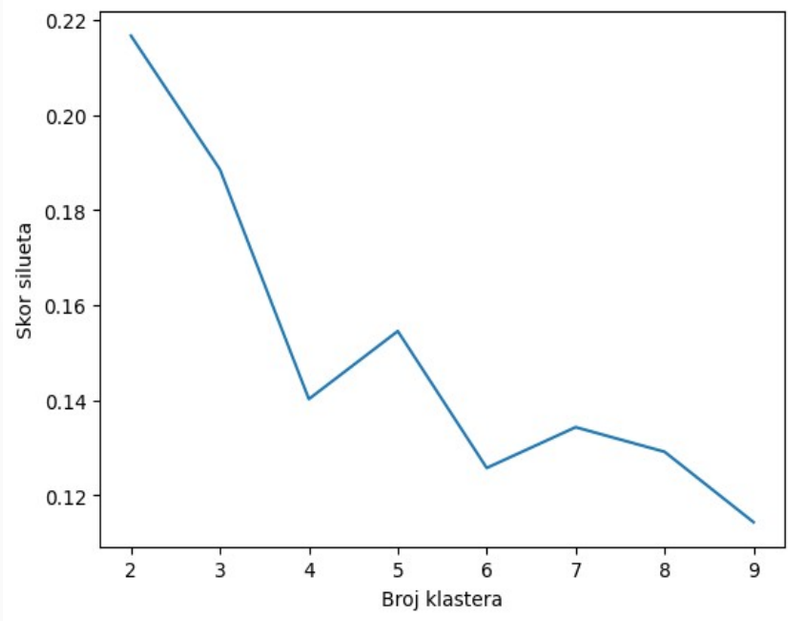

Skor sse
Broj klastera

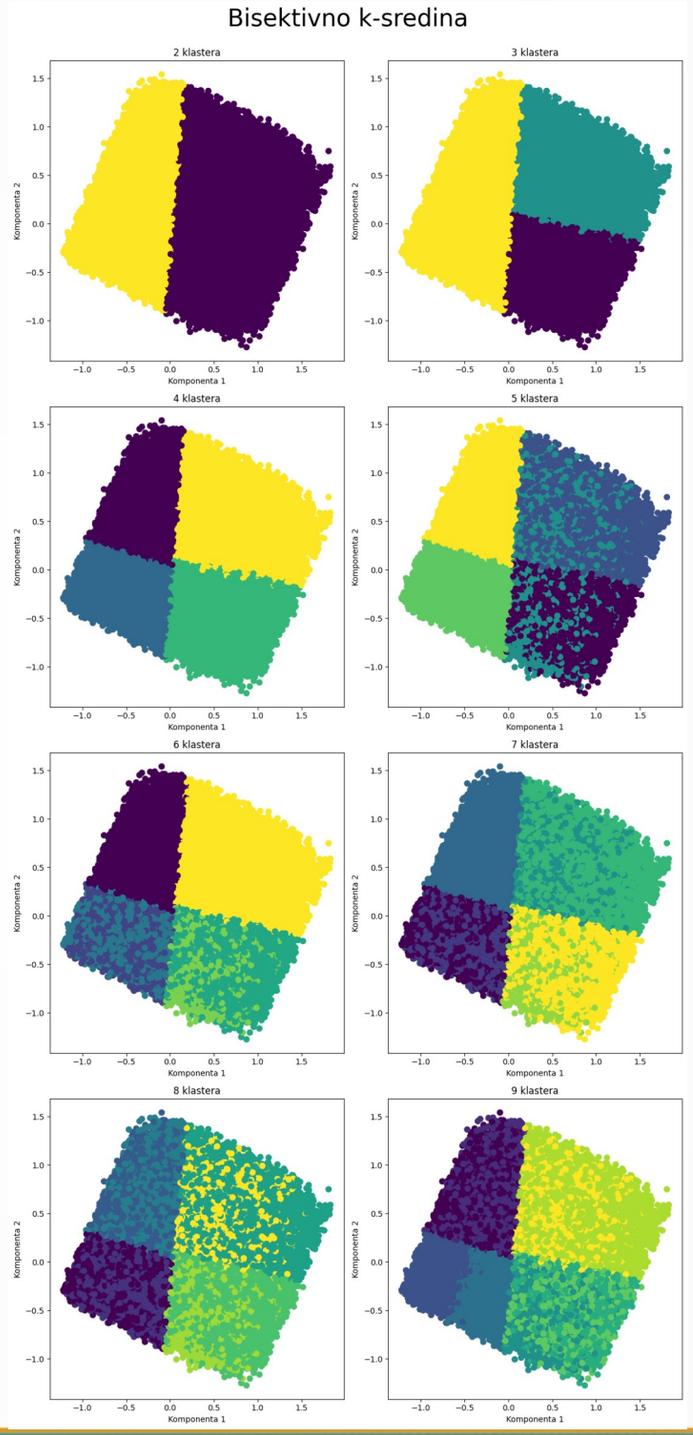

Skor silueta
Broj klastera

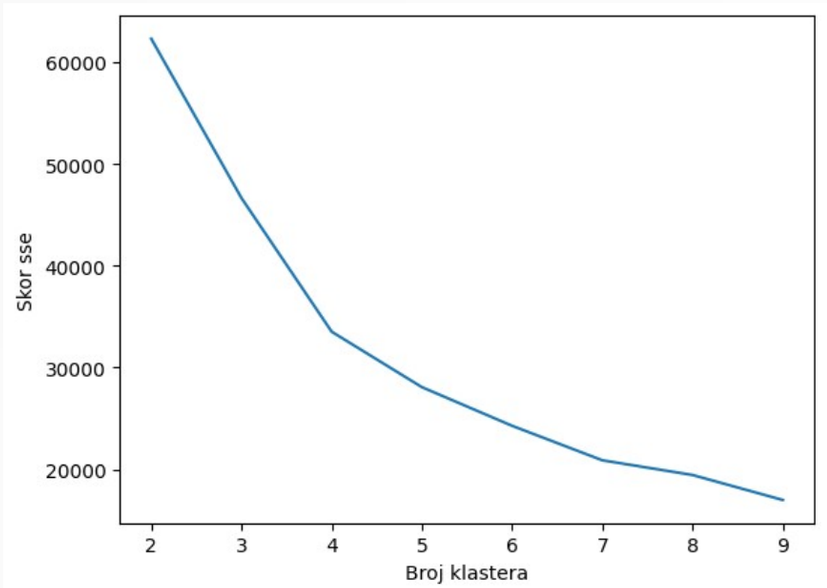

K-sredina sa PCA
2 klastera
3 klastera
4 klastera
5 klastera
6 klastera
7 klastera
8 klastera
9 klastera
Komponenta 1
Komponenta 2

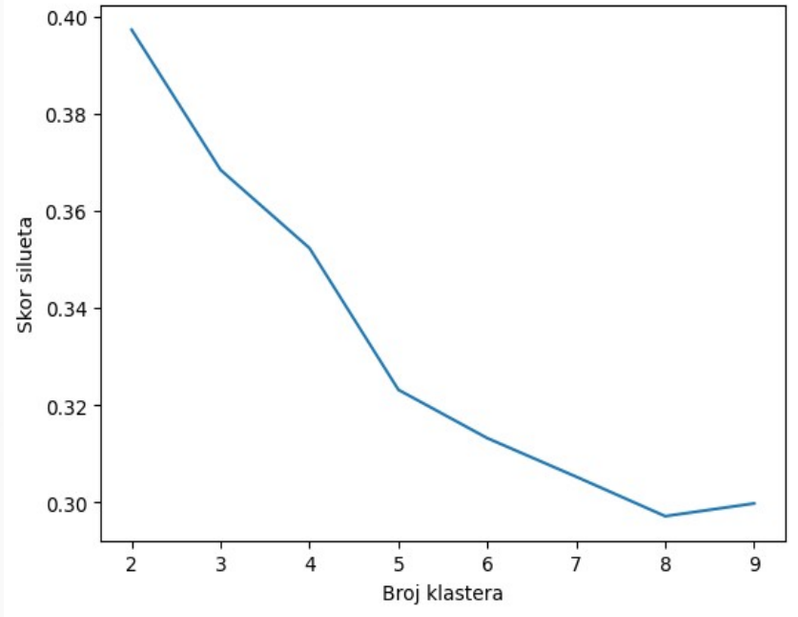

Prikaz ciljnog atributa i K-sredina sa 6 klastera
Komponenta 1
Komponenta 2

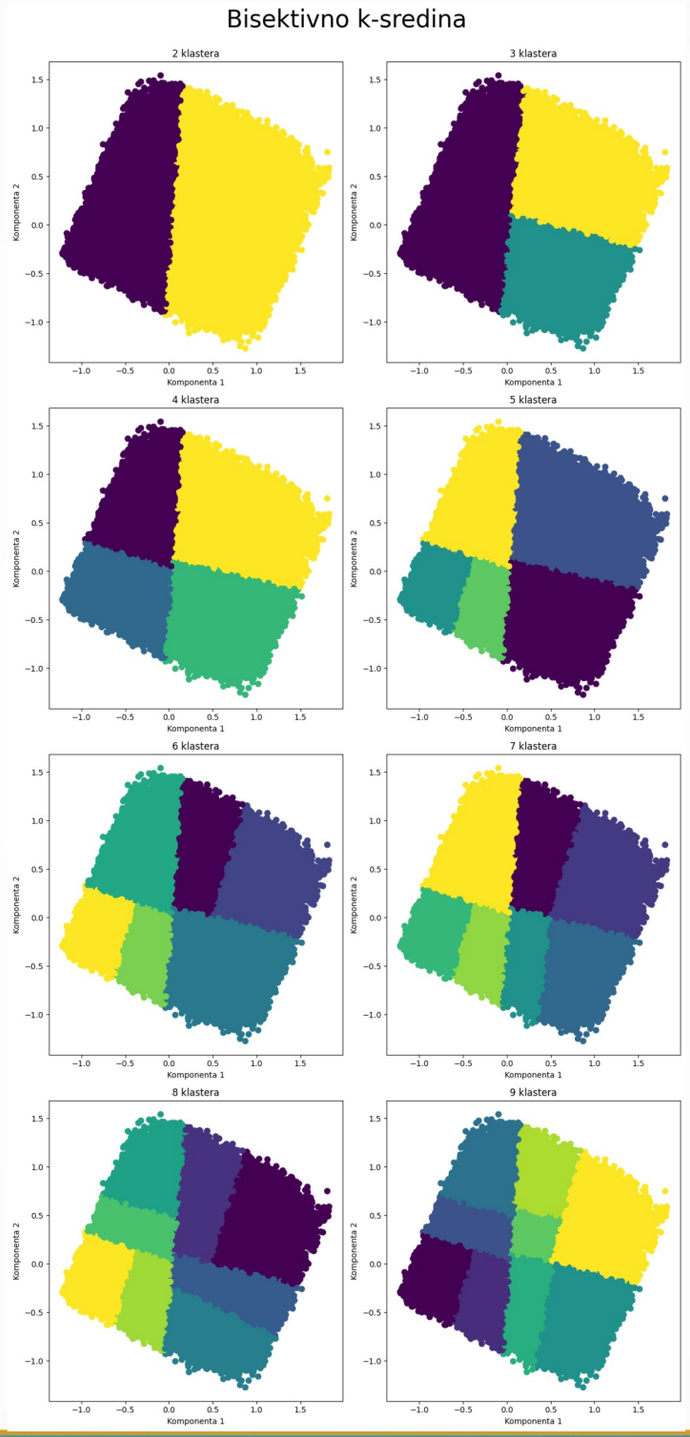

Skor sse
Broj klastera

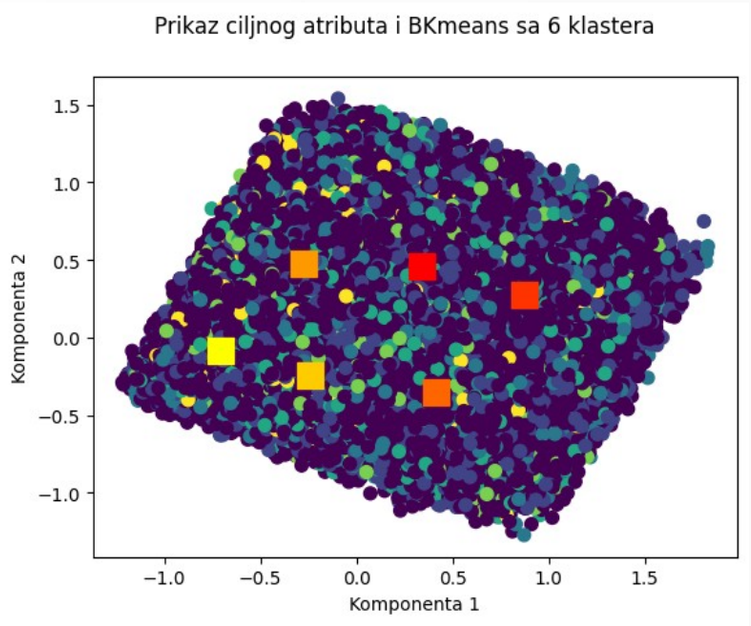

Skor silueta
Broj klastera


Bisektivno k-sredina
2 klastera
3 klastera
4 klastera
5 klastera
6 klastera
7 klastera
8 klastera
9 klastera
Komponenta 1
Komponenta 2

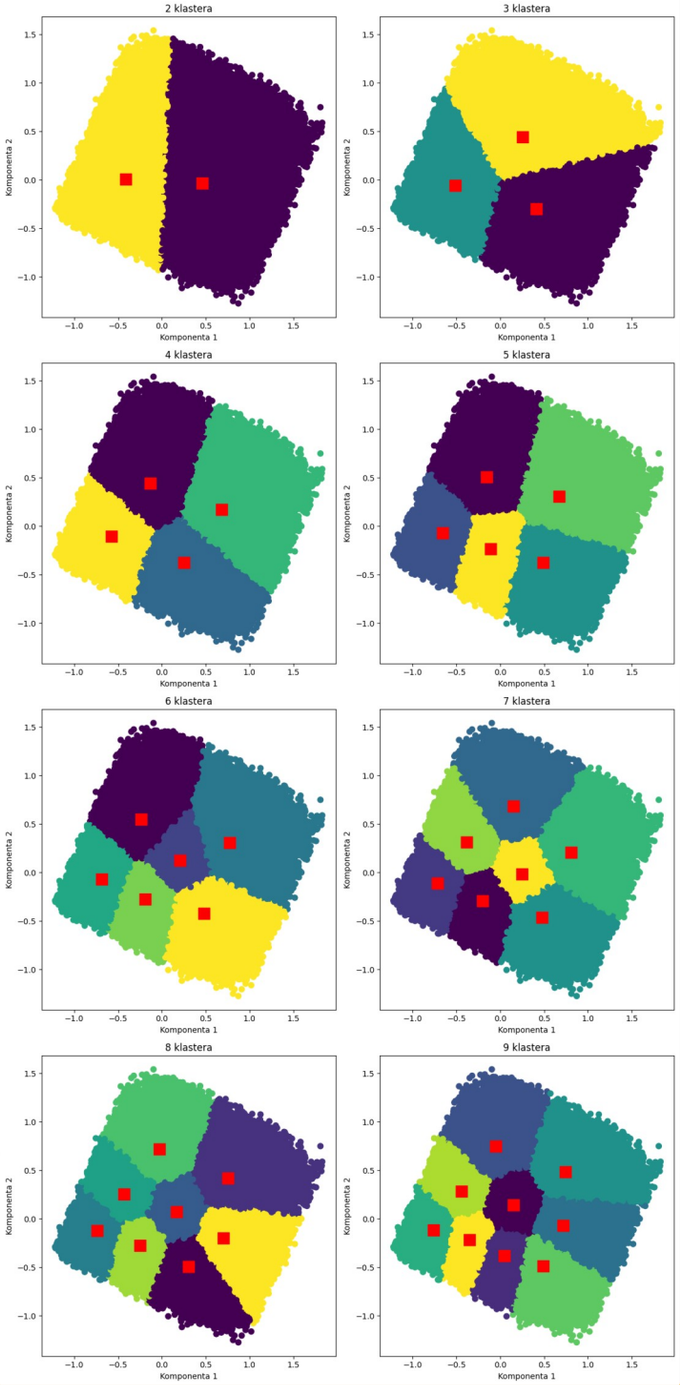

Skor sse
Broj klastera


Skor silueta
Broj klastera

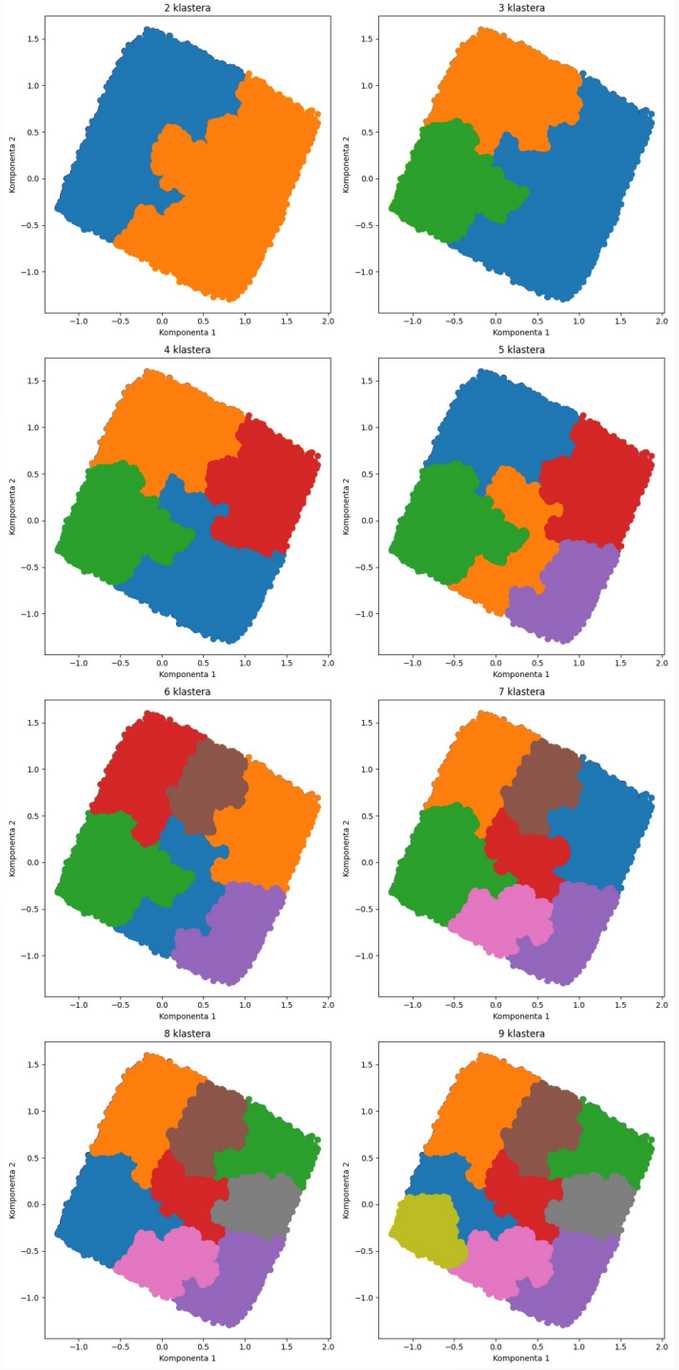

Bisektivno k-sredina
2 klastera
3 klastera
4 klastera
5 klastera
6 klastera
7 klastera
8 klastera
9 klastera
Komponenta 1
Komponenta 2


Prikaz ciljnog atributa i BKmeans sa 6 klastera
Komponenta 1
Komponenta 2

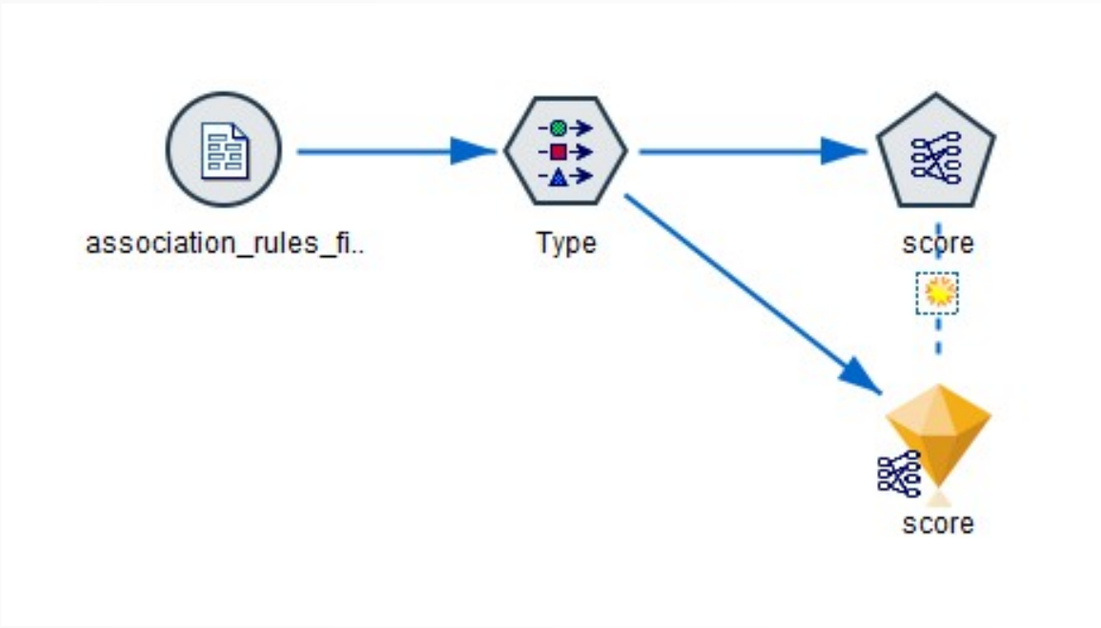
Fuzzy klasterovanje sa PCA



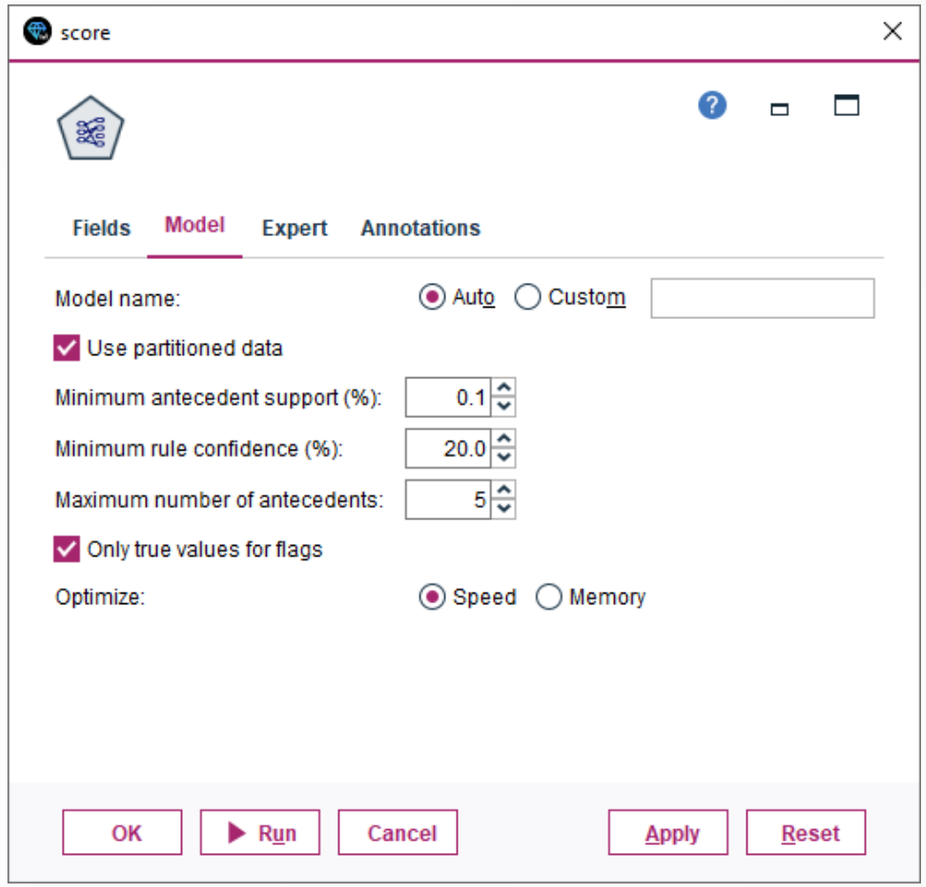
BIRCH



	Algoritam	Max Calinski-Harabasz	Max Calinski-Harabasz za broj klastera	Min Davies-Bouldin	Min Davies-Bouldin za broj klastera	Rang brzine izvršavanja	Broj klastera za lakat sse	Max skor siluete	Max skor siluete za broj klastera
5	BIRCH sa PCA	1.449756e+06	3	0.915970	8	1	nema	nema	nema
2	FCM sa PCA	2.065985e+05	5	0.842857	8	2	nedostupan	nedostupan	nedostupan
1	Kmean sa PCA	2.079651e+05	4	0.833051	8	3	5	0.400431	3
4	BKmean sa PCA	1.971135e+05	2	0.898224	5	4	4	0.397283	2
0	Kmean	7.723392e+04	2	1.646423	4	5	5	0.216731	2
3	BKmean	7.722877e+04	2	1.748488	2	6	5	0.216676	2



Consequent	Antecedent	Support %	Confidence %
score = (3.0, 4.0]	TS = (28.0, 40.0] QV2M = (8.0, 12.0] PS = (100.0, 104.0]	0.125	20.273
score = (3.0, 4.0]	TS = (28.0, 40.0] T2M_MAX = (32.0, 44.0] QV2M = (8.0, 12.0] PS = (100.0, 104.0]	0.124	20.21
score = (3.0, 4.0]	TS = (28.0, 40.0] T2M = (24.0, 35.0] QV2M = (8.0, 12.0] PS = (100.0, 104.0]	0.124	20.07
score = (3.0, 4.0]	TS = (28.0, 40.0] QV2M = (8.0, 12.0] PS = (100.0, 104.0] T2MDEW = (13.0, 22.0]	0.116	20.404
score = (3.0, 4.0]	TS = (28.0, 40.0] QV2M = (8.0, 12.0] PS = (100.0, 104.0] PRECTOT = (-0.001, 4.0]	0.125	20.273



score = (2.0, 3.0]	T2MDEW = (-14.0, -5.0] T2M_MIN = (-2.0, 9.0] T2M = (13.0, 24.0] T2M_MAX = (20.0, 32.0]	0.128	28.364
score = (2.0, 3.0]	T2MDEW = (-14.0, -5.0] T2MWET = (-13.0, -4.0] T2M_MIN = (-2.0, 9.0] T2M = (13.0, 24.0] T2M_MAX = (20.0, 32.0]	0.128	28.364
score = (2.0, 3.0]	T2MDEW = (-14.0, -5.0] QV2M = (-0.001, 4.0] T2M_MIN = (-2.0, 9.0] T2M = (13.0, 24.0] T2M_MAX = (20.0, 32.0]	0.128	28.364

score = (1.0, 2.0]	T2MDEW = (-14.0, -5.0] T2M = (13.0, 24.0]	0.237	24.033
score = (1.0, 2.0]	T2MDEW = (-14.0, -5.0] TS = (16.0, 28.0]	0.187	23.059
score = (1.0, 2.0]	T2MDEW = (-14.0, -5.0] T2M_MAX = (20.0, 32.0]	0.337	23.372
score = (1.0, 2.0]	T2MWET = (-13.0, -4.0] TS = (4.0, 16.0]	1.193	21.573
score = (1.0, 2.0]	T2MWET = (-13.0, -4.0] T2M_MIN = (-2.0, 9.0]	1.296	21.298

score = (-0.001, 1.0]	T2M_MIN = (9.0, 20.0] TS = (16.0, 28.0] T2M_MAX = (20.0, 32.0]	26.557	79.709
score = (-0.001, 1.0]	T2M = (13.0, 24.0] TS = (16.0, 28.0] T2M_MAX = (20.0, 32.0]	26.447	78.936
score = (-0.001, 1.0]	T2M = (13.0, 24.0] T2M_MAX = (20.0, 32.0] PRECTOT = (-0.001, 4.0]	26.423	77.435
score = (-0.001, 1.0]	T2M_MIN = (-2.0, 9.0] PRECTOT = (-0.001, 4.0]	26.382	76.687
score = (-0.001, 1.0]	T2M_MIN = (9.0, 20.0] T2M = (13.0, 24.0] T2M_MAX = (20.0, 32.0]	26.108	79.633