

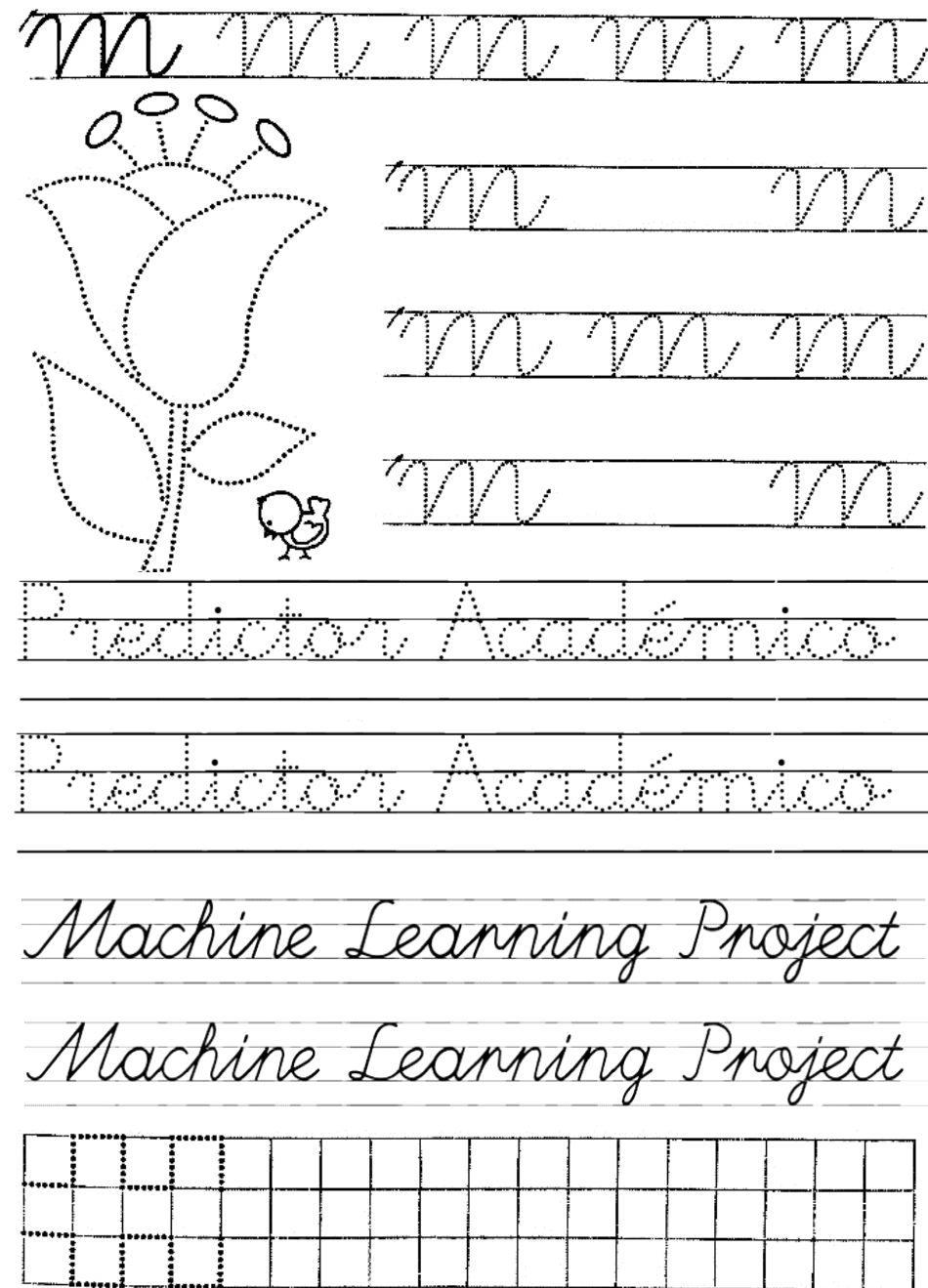
PREDICTOR

Académico

Machine Learning Project

Paula García Fernández

Noviembre 2024



DATOS DE EUROSTAT

España es líder europeo en fracaso escolar y en brecha educativa entre hombres y mujeres

Todavía un 14% de los jóvenes abandona sus estudios sin completarlos, pero en el caso de los hombres, escala al 16%. La UE ha fijado un objetivo del 9% en el año 2023



Manifestación por la educación pública en Madrid. (Europa Press/Fernando Sánchez)

España lidera la UE en abandono escolar pese a ser el país con más horas lectivas

- Los alumnos de secundaria reciben 181 horas anuales más que la media europea y lo hacen en jornada concentrada



La OCDE destaca la desviación de las horas lectivas de las escuelas españolas respecto a los países europeos y de la OCDE (Ana Jiménez / Propias)

Vinculan el abandono escolar en España con el Fútbol y lo elevan al 31%, pero es falso

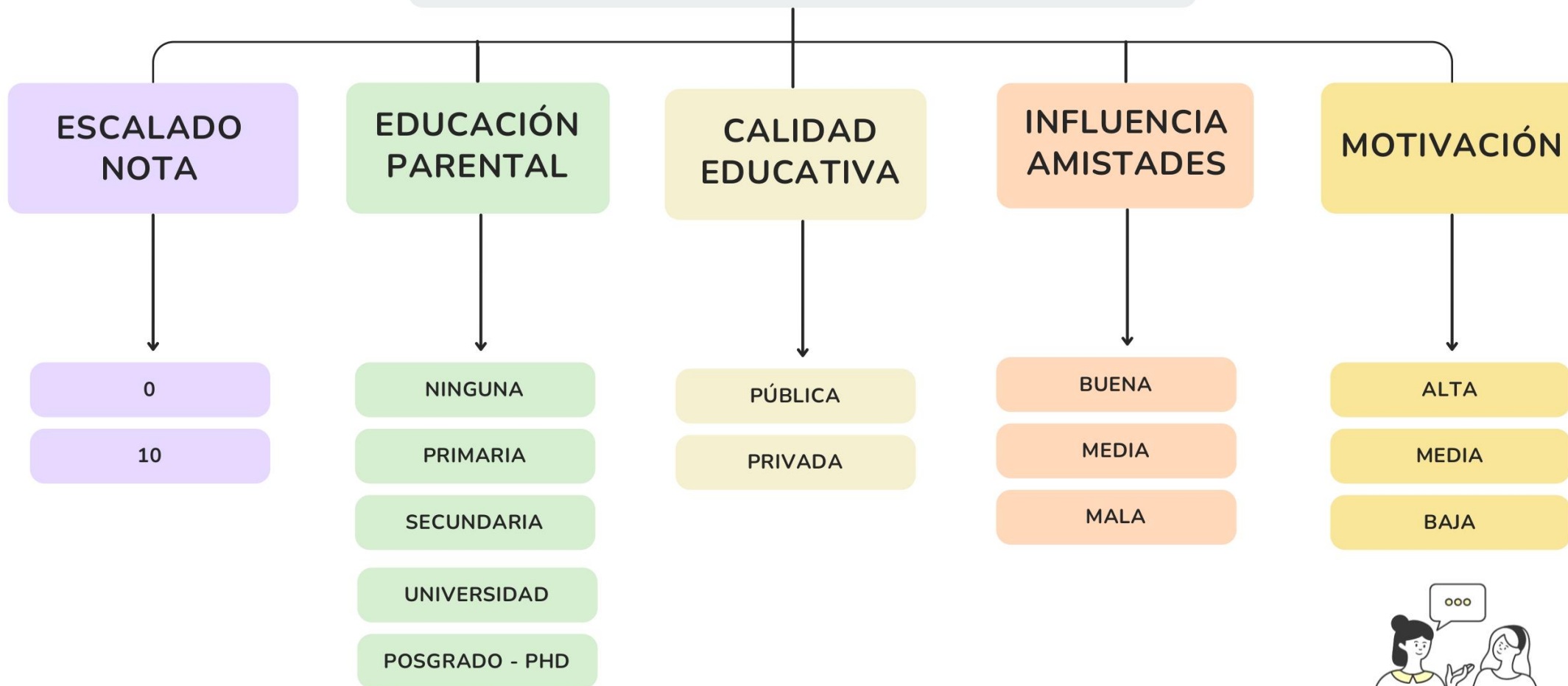


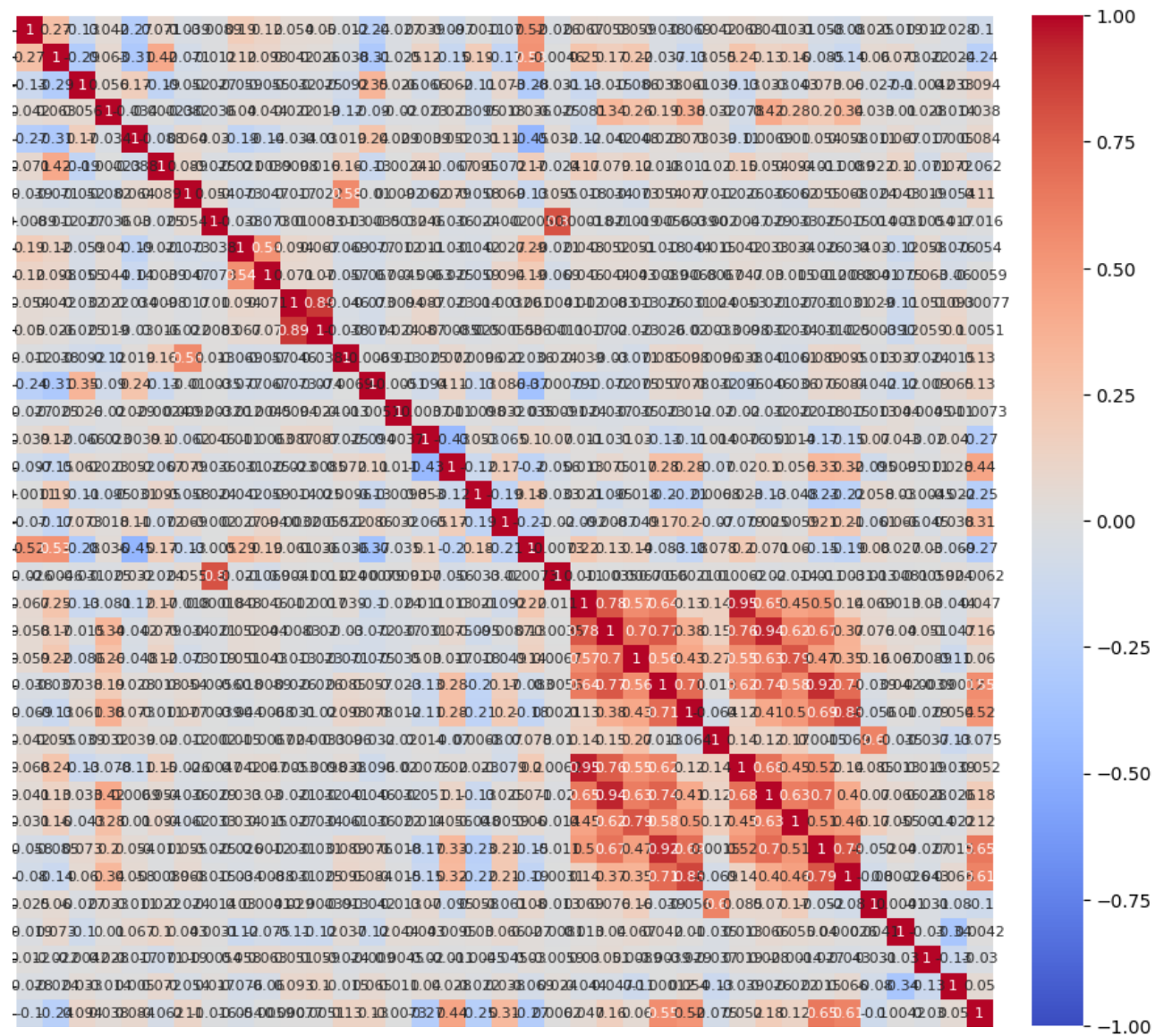
[illegible]



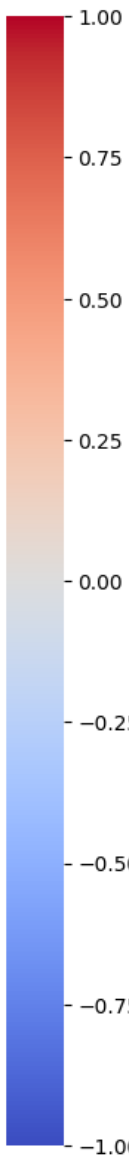
Andreas Gursky, *Paris Montparnasse*, 1993.

FEATURE ENGINEERING

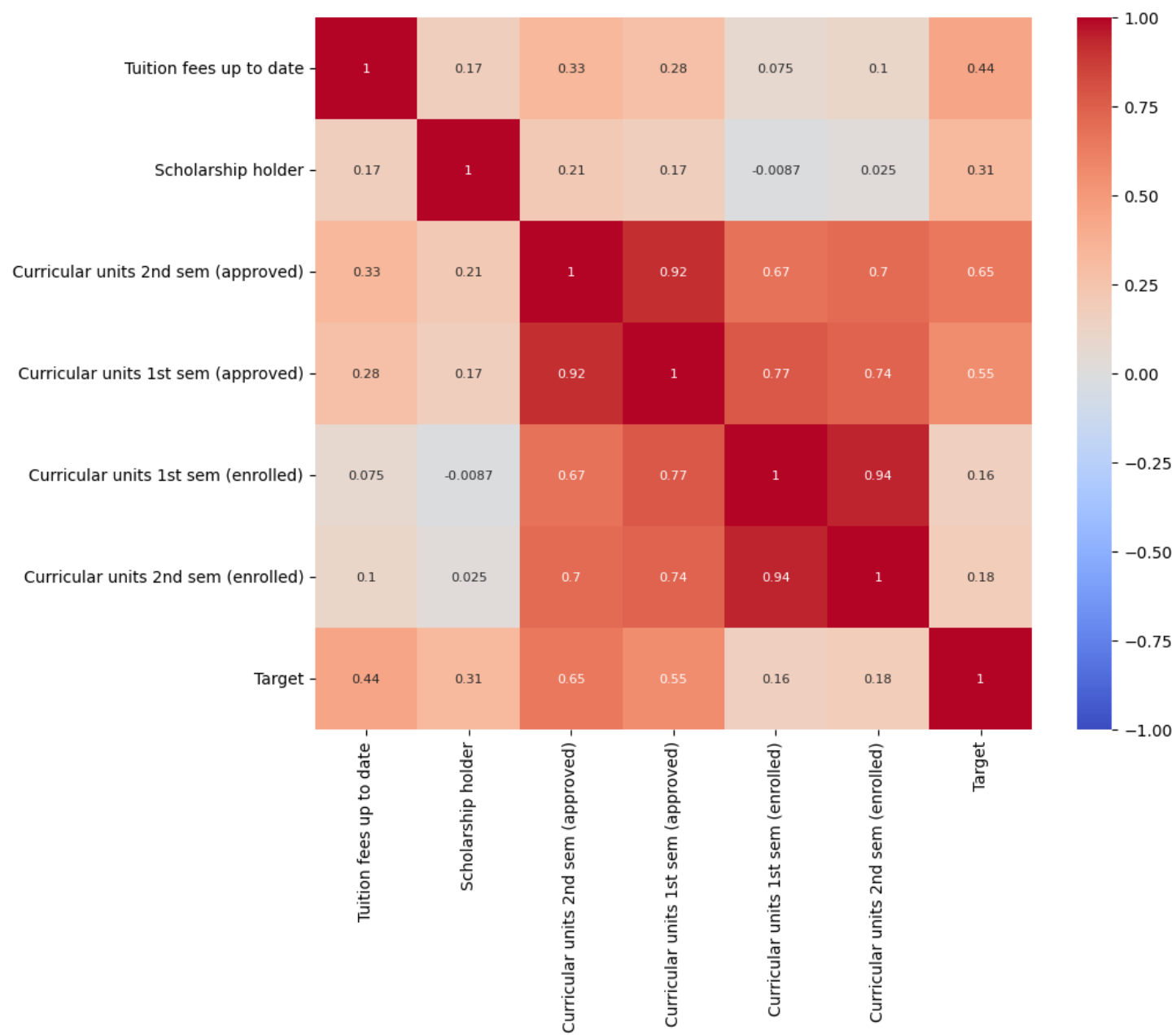


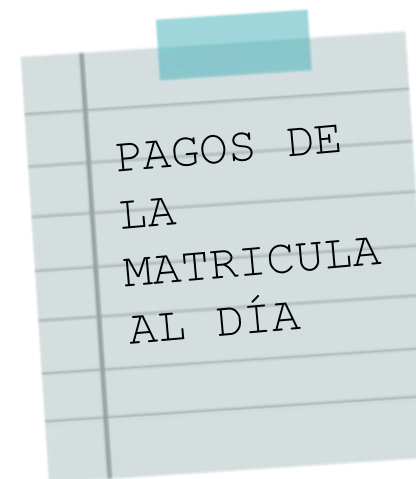
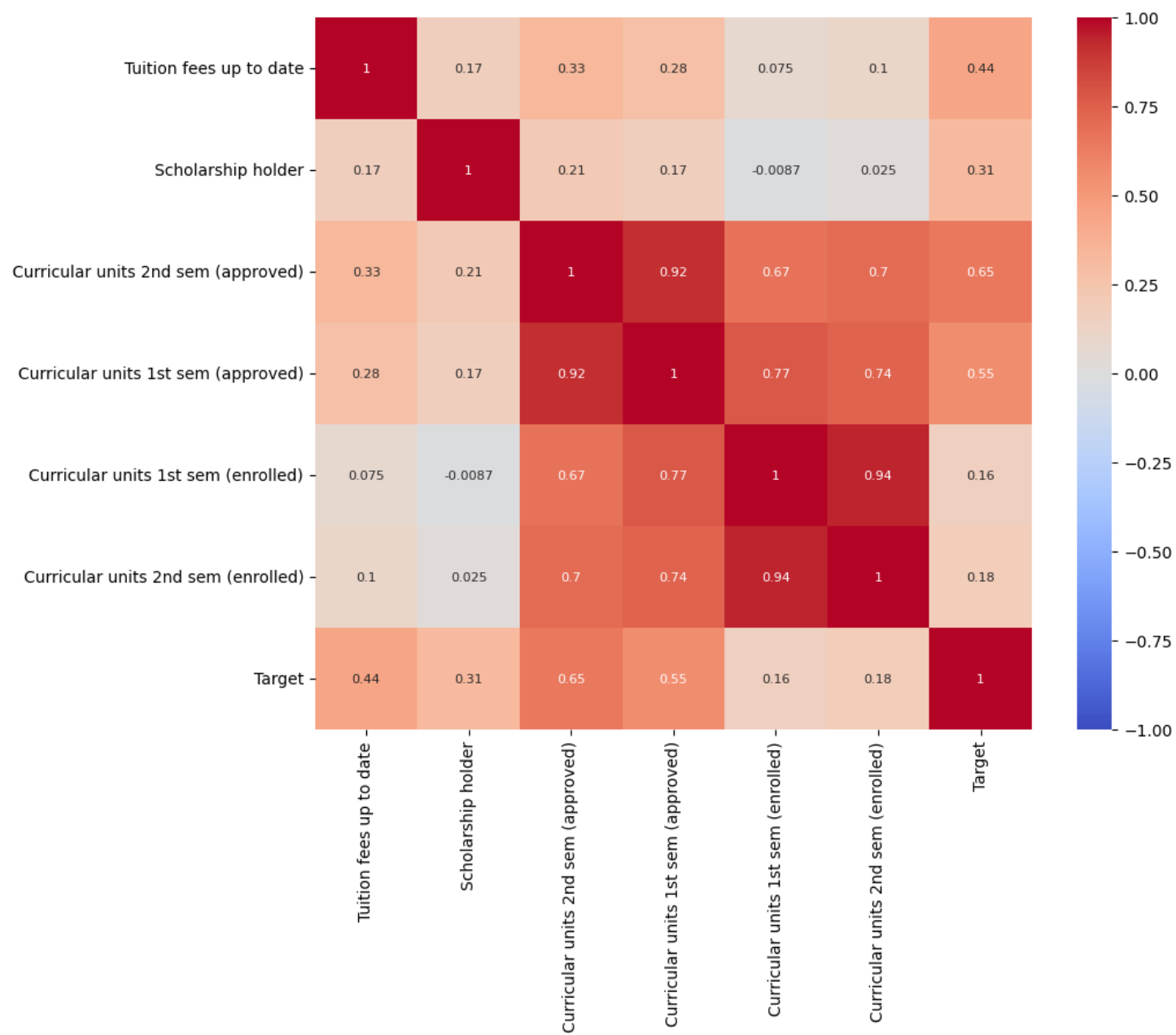


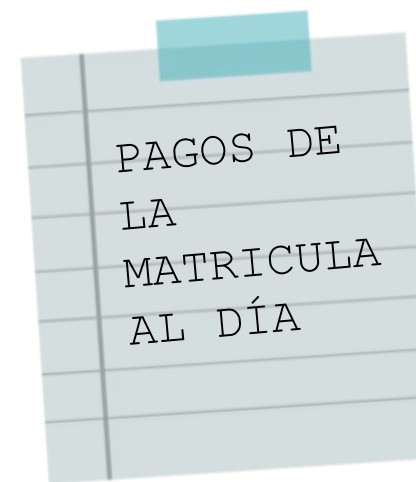
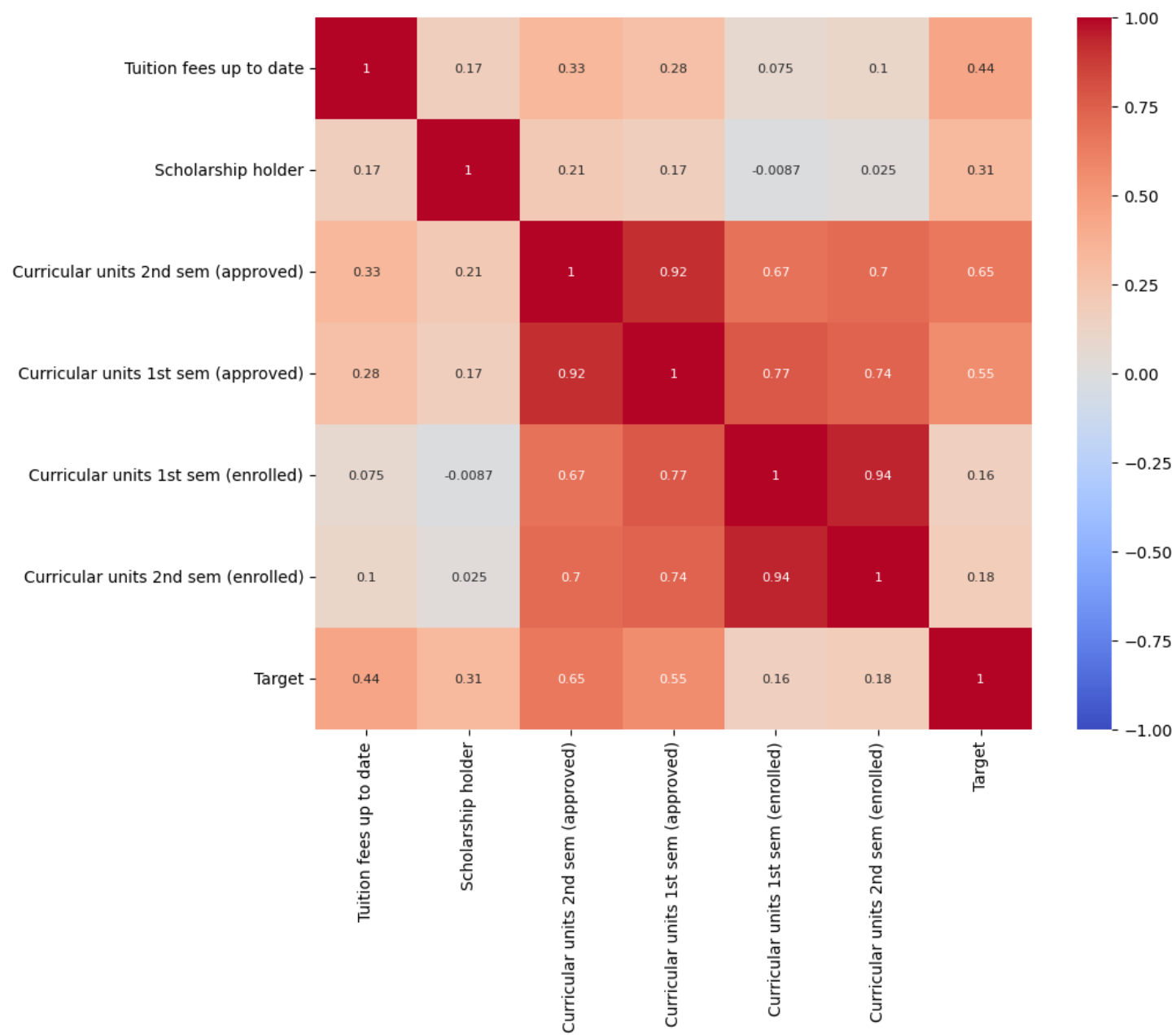
- 1 0.270.1a04b.207071089008919.10.054.0b.012.24.027039097010107.5b.026067058059038068042068041031.058.08.025.020.12.020.1
-0.27 1 0.2906b.3d.40.0710121b.098042026038.3d.025.120.1b.190.17.0.0046250.170.20.037.1a.058.240.130.14.085.14.060.78022024.24
-0.130.25 1 0.050.170.19.052027059055032025092.3b.026.066060.10.079.28.031.18.0450803061039.1a.030.043078.0b.0270.0.004028094
2.04206805.1b.0480042820360.0.044022019.120.090.02.028028056018036.025081.340.260.190.38.032078.420.280.20.34.038.0b.028014038
-0.270.3d.17b.03 1 0.08064.030.140.14.038.03019.24.089089052031110.4503b.12.042048028078039.11006801.054058011067017045084
2.070.420.0904288.110.089025020489098018.160.18002410.067095072170.024.10.079.12.0180110.020.18.054094.01.089220.10.071072062
9.03902105208206408 1 0.0540280470170205.0.010092062079058069.1a.055.01803407305407701202603602495068020448018054.11
1.008902202703808.025054 1 0.03807801100830130489038046.03602404200060061821049045603802048029038025015014030.054017016
-0.190.170.059040.19.02102803 1 0.050.094067.069027012011.031042027.29.021048052051.018044015042038034.026038030.120580206054
-0.18.098055044.04008904707354 1 0.070.070.057067039065025058094.19.069046044030989068067047.08.015041088041075068.060059
2.05404202022034008010708.09407 1 0.89.04607809487028040030280104102008301802601104005302102703101020.19.0510890077
-0.08.026025019.03018.022083067.07089 1 0.0380740240870882501586804101709.028026.020483089032034031028008920590.0051
9.022038092.12019.16050.03806905704603 1 0.069018025020098022028034039.03.0710285080098038041061089095.0120370.024016.13
-0.240.3d.350.090.240.130.011063077046702807406 1 0.065094110.18.0880870002790.02202507078032028046046038028084040.12.089068.13
9.027025026.0202900234902603210204509402400305 1 0.08704009832033069024037035028012.020.02.0320220180150130400405010073
2.039.120.065020309.10.06204604006887087.02508405 1 0.430590650.10.08.011031030.130.11.0404076051014.170.150.07048.02040.27
9.097.16062028052067079036031025020308972.10.0110.43 1 0.12.170.20.058018075018.280.280.07020.10.058.330.30.089089011028.44
1.001119.14.0850180950580240420589014029098018038052.12 1 0.19.140.083021045010.20.21008028.18.048230.22058.03089020.25
-0.07.107028018.140.07206901020270940082028085022085032065170.19 1 0.20.02.092087049170.20.07078029059210.20.061068045038.31
-0.520.520.28034049170.13.006290.19.061036036.370.039.1-0.20.180.21 1 0.002320.130.14.088.180780.2070.060.130.180.08020.08.069.27
9.0260808011025022024050.9.021106904100112400070910.056038.02007 1 0.0100338507056021101006202.014041008104208043904062
2.0670.250.18.080.120.10.018011848046020017390.2024011018021109220.01 1 0.780.570.60.130.140.950.650.450.50.18069018.08.044047
3.058.170.015340.0420790340210520440083020.08.0220270310250950871800378 1 0.70.770.380.150.760.940.620.670.370.780.0409104716
3.059.220.08828.048120.02801805104801802802102503508.0170180480140067570.7 1 0.50.430.270.550.630.740.470.350.16067089110.06
9.038027038.19.02801805400560180489026028085097028.18.280.20.130.089050640.77056 1 0.70.019.620.740.580.920.70.0890429028055
9.069.1a.060.380780110270938040068030.02098078012.110.280.210.20.180021130.380.450.71 1 0.064120.41050.690.890.05800.028054.52
2.04205502802039.08.02204204006804080909034.020140.07068007078.010.140.150.270.01806 1 0.140.120.170045060.0.035037.1a.075
3.068.240.18.078.110.19.0480804204047083089096.02202502.0280770.20060.950.760.550.60.120.14 1 0.680.450.520.14.085018018028052
3.040.18.038.42006804026028038.08.0210320410460320510.10.1a.0250740.02690.940.630.740.410.120.68 1 0.630.70.400.0406802802818
2.030.140.048280.01.094062018034015.027034061036022014095048059040.014450.620.790.580.50.170.450.63 1 0.510.480.10.05500142212
9.058085073.20.094011055025020604203102809078018.170.330.280.210.18.0110.5060.470.920.60015520.70.51 1 0.70.052040.02701.65
-0.080.140.060.3405800890801850840088011025095084018.19.320.220.210.180031140.370.350.710.890.069140.40.460.79 1 0.080802648060.61
2.028.040.0270380110220240114080041290809801804201a.040.055058061040.013069078.16.039050.0.088070.170.05208 1 0.041030.080.1
8.0190730.10.010670.10.04303112.075.110.120370.1204404309508.0850270080118.04.087040.040.035018068058.0400280 1 0.030.240042
2.012.02200428017071019005458068051059024008004502.0104504580005908.08104890302990370180280044027043030.03 1 0.130.03
9.0280240380104045072054017078.060930.10.015065010.04.0280220280690240440470100105.0.1a.039026022015060.040.340.11 1 0.05
-0.10.28094028084062140.016084008907021130.1a.002820.440.29.310.270820480.160.06050.580.25052.180.120.650.610.010042080.05 1

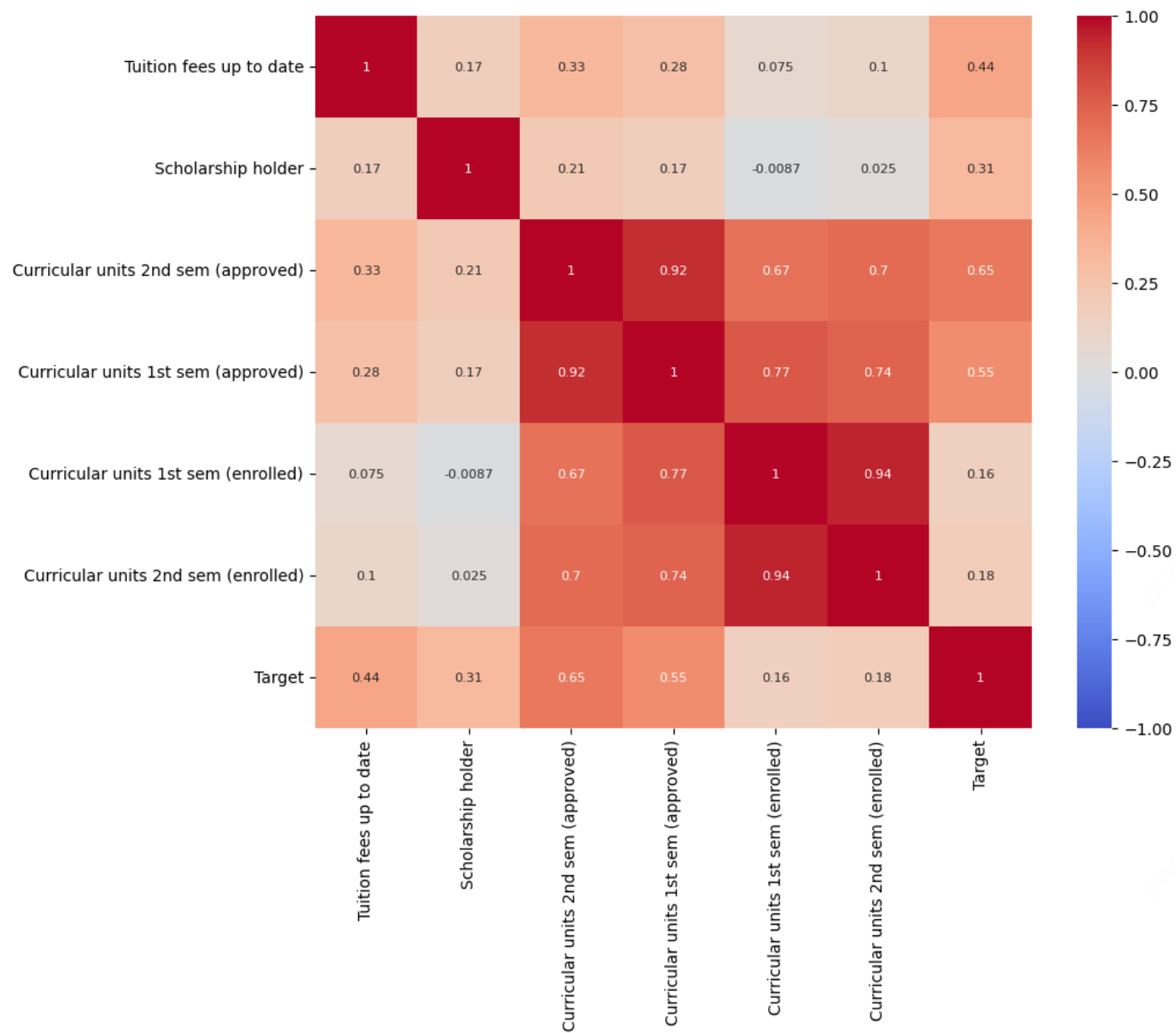


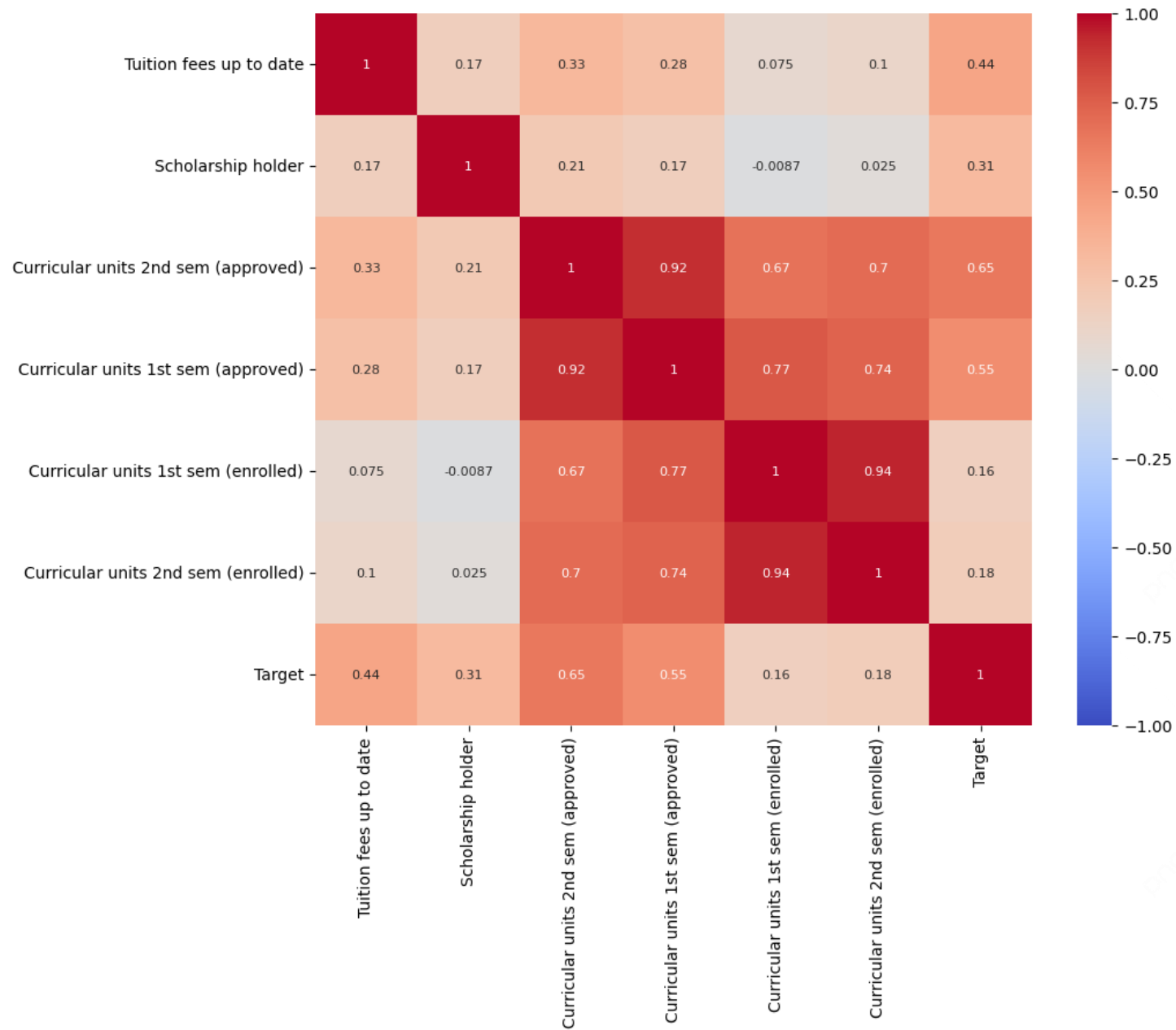
1 0.064-0.19-0.140.0190.0290.00390.052-0.0310.11-0.450.032-0.12-0.0420.0480.0280.073-0.110.00690.010.0540.0580.084
0.064 1 -0.0730.047 0.58 0.00920.0620.079-0.0580.069-0.130.055-0.0180.0340.0730.0540.077-0.0260.0360.0620.0550.0680.11
-0.19-0.073 1 0.54 -0.0690.0120.011-0.0310.0420.027 0.29 -0.0210.0480.0520.051-0.0180.0440.0420.0330.034-0.0260.0340.054
-0.14-0.047 0.54 1 -0.0570.00450.00630.0250.0590.094 0.19 -0.0690.0460.0440.0430.0080.00680.047 0.03 0.0150.00120.00880.0059
0.019 0.58 -0.0690.057 1 -0.0130.0250.0720.00960.022-0.0360.0240.039-0.03-0.0710.0850.0980.038-0.041-0.0610.0890.0950.13
0.0290.00920.0120.00450.013 1 0.00370.0110.00960.032-0.0380.00990.0240.0370.0350.0230.012-0.02-0.0320.0220.0180.0190.0073
0.00390.0620.0110.00630.0250.0037 1 -0.430.053-0.065 0.1 0.07 0.011-0.0310.03 -0.13 -0.110.00760.0510.014 -0.17 -0.15 -0.27
0.0520.079-0.0310.0250.0720.011 -0.43 1 -0.12 0.17 -0.2 -0.0560.0130.0750.017 0.28 0.28 0.02 0.1 0.056 0.33 0.32 0.44
-0.0310.0580.0420.0590.00960.00960.053 -0.12 1 -0.19 0.18 -0.0330.021-0.0950.018 -0.2 -0.21 0.023 -0.13-0.048-0.23 -0.22 -0.25
-0.11 0.0690.0270.0940.0220.032-0.065 0.17 -0.19 1 -0.21 -0.02-0.0920.00870.049 0.17 0.2 -0.0790.0250.00590.21 0.21 0.31
-0.45-0.13 0.29 0.19 -0.0360.035 0.1 -0.2 0.18 -0.21 1 0.00730.22 0.13 0.14 -0.083-0.18 0.2 0.071 0.06 -0.15 -0.19 -0.27
0.0320.055-0.0210.0690.0240.000910.07 -0.0560.033-0.020.0073 1 0.0110.00380.00670.00560.00210.0062-0.02-0.0140.0110.0030.0062
-0.12-0.0180.0480.0460.039-0.0240.0110.0130.021-0.092 0.22 0.011 1 0.78 0.57 0.64 0.13 0.95 0.65 0.45 0.5 0.14 0.047
-0.0420.0340.0520.044 -0.03-0.0370.0310.075-0.0950.00870.13-0.00350.78 1 0.7 0.77 0.38 0.76 0.94 0.62 0.67 0.37 0.16
-0.0480.0730.0510.043-0.071-0.035 0.03 0.017-0.0180.049 0.14 0.00670.57 0.7 1 0.56 0.43 0.55 0.63 0.79 0.47 0.35 0.06
0.0280.054-0.0180.00890.085-0.023-0.13 0.28 -0.2 0.17 -0.0830.00560.64 0.77 0.56 1 0.71 0.62 0.74 0.58 0.92 0.71 0.55
0.0730.077-0.0440.00680.098-0.012-0.11 0.28 -0.21 0.2 -0.180.00210.13 0.38 0.43 0.71 1 0.12 0.41 0.5 0.69 0.85 0.52
-0.11-0.0260.0420.047 0.038 -0.020.00760.02 0.023-0.079 0.2 0.00620.95 0.76 0.55 0.62 0.12 1 0.68 0.45 0.52 0.14 0.052
0.00690.0360.033 0.03 -0.041-0.0320.051 0.1 -0.13 0.025 0.071-0.02 0.65 0.94 0.63 0.74 0.41 0.68 1 0.63 0.7 0.4 0.18
-0.01-0.0620.0340.015-0.0610.0220.014 0.056-0.0480.00590.06 -0.014 0.45 0.62 0.79 0.58 0.5 0.45 0.63 1 0.51 0.46 0.12
0.0540.055-0.0260.00120.089-0.018-0.17 0.33 -0.23 0.21 -0.15-0.011 0.5 0.67 0.47 0.92 0.69 0.52 0.7 0.51 1 0.79 0.65
0.0580.068-0.0340.00880.095-0.015-0.15 0.32 -0.22 0.21 -0.190.00310.14 0.37 0.35 0.71 0.85 0.14 0.4 0.46 0.79 1 0.61
0.084 0.11 -0.0540.00590.13-0.00730.27 0.44 -0.25 0.31 -0.270.00620.047 0.16 0.06 0.55 0.52 0.052 0.18 0.12 0.65 0.61 1

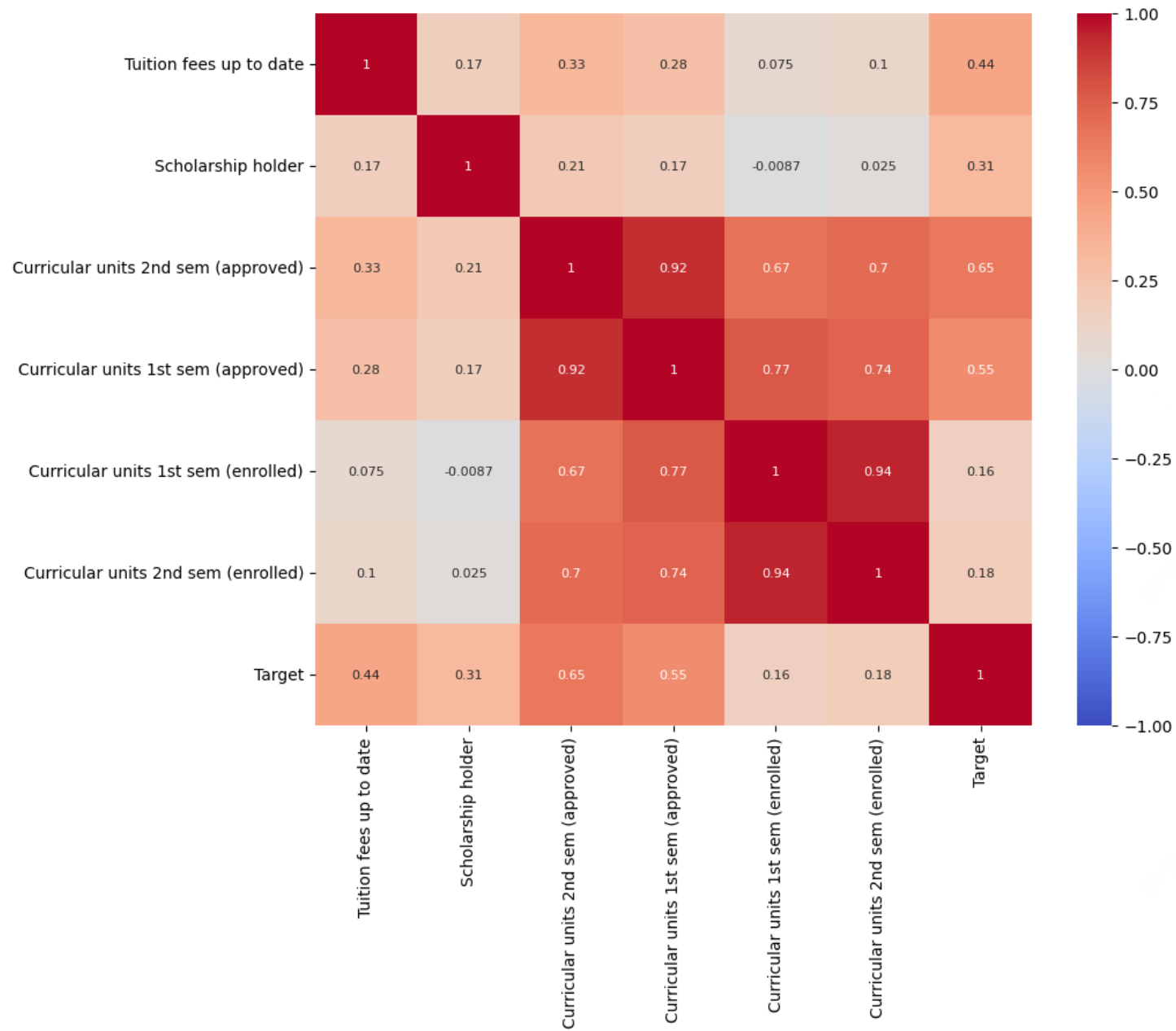


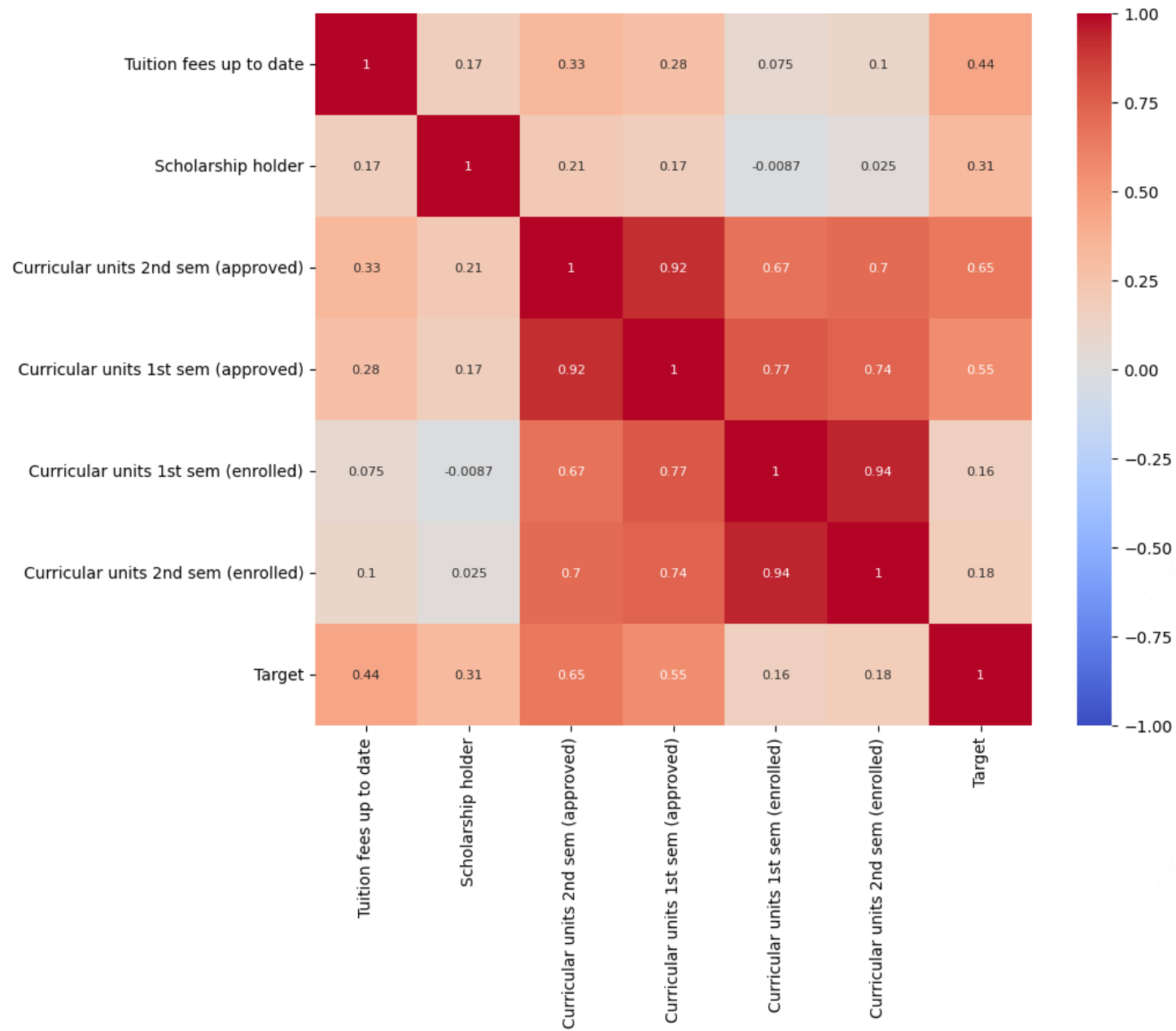


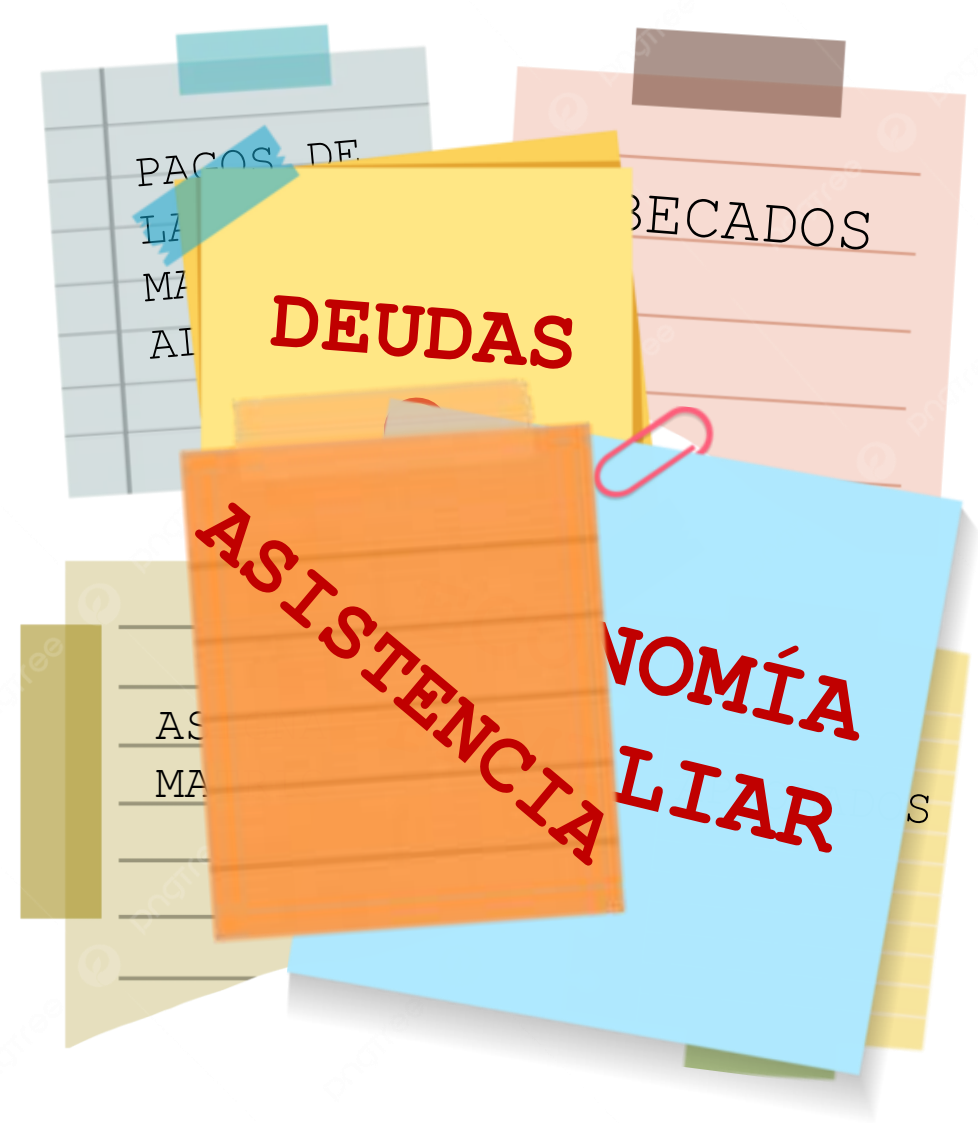
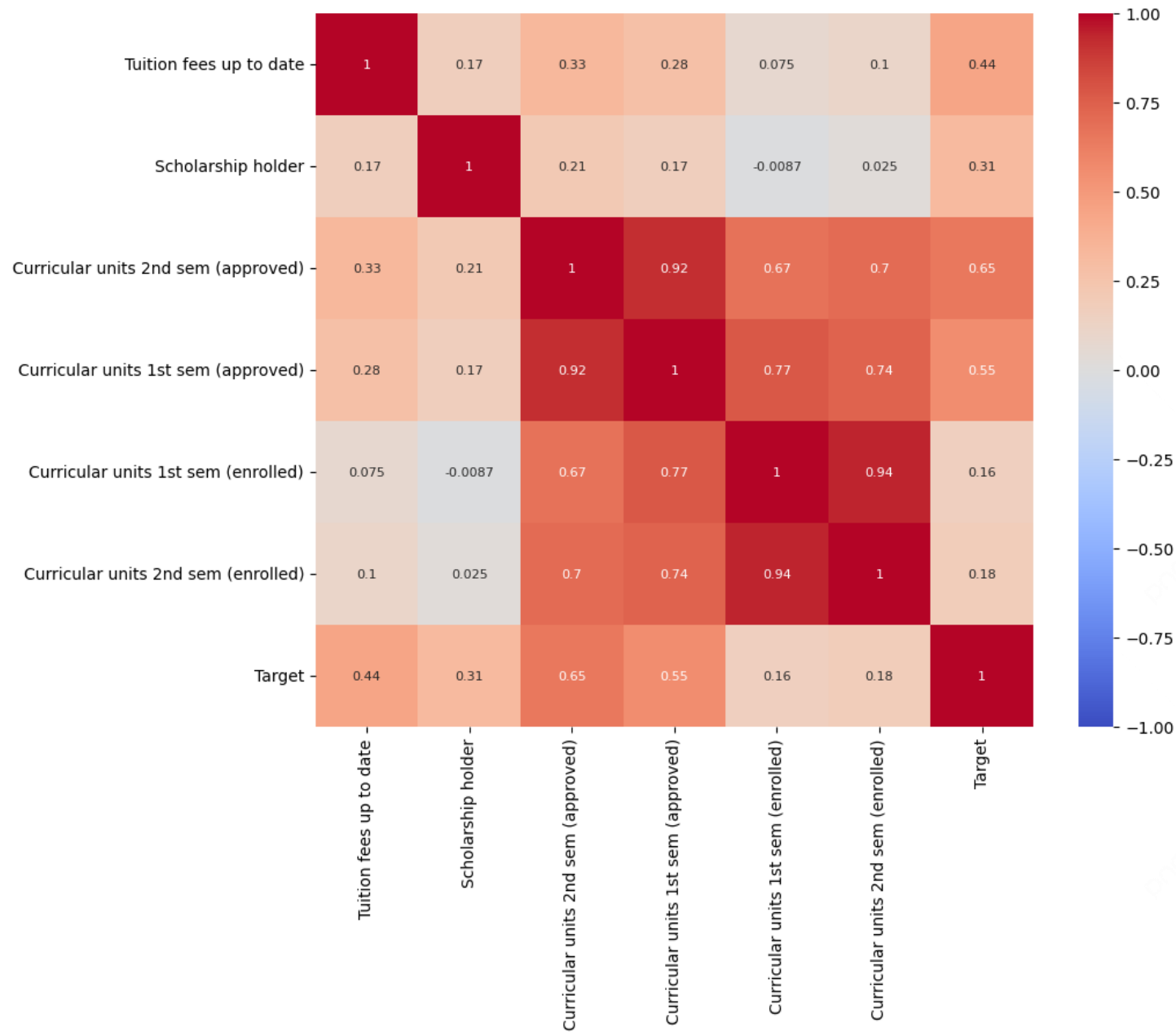


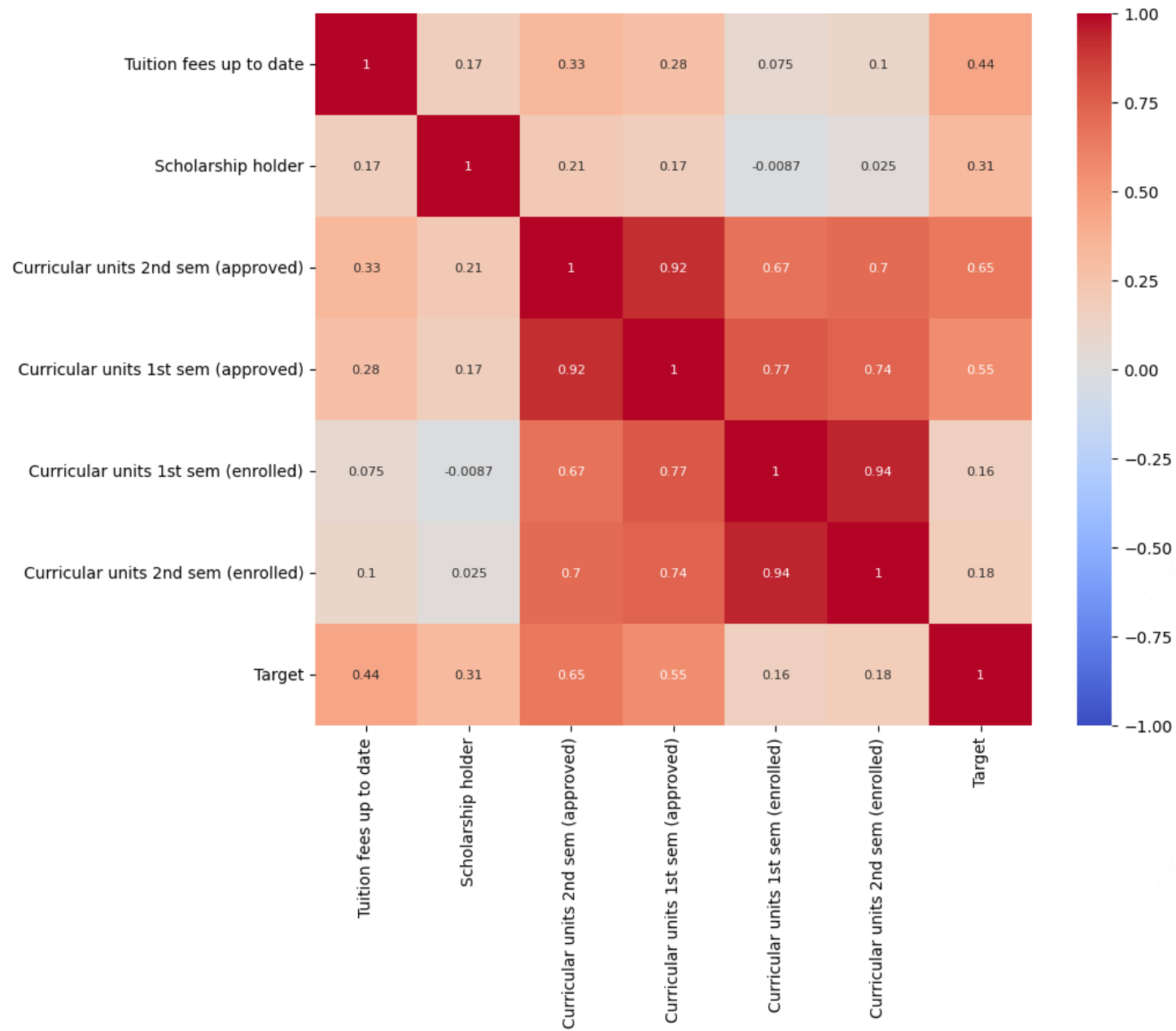


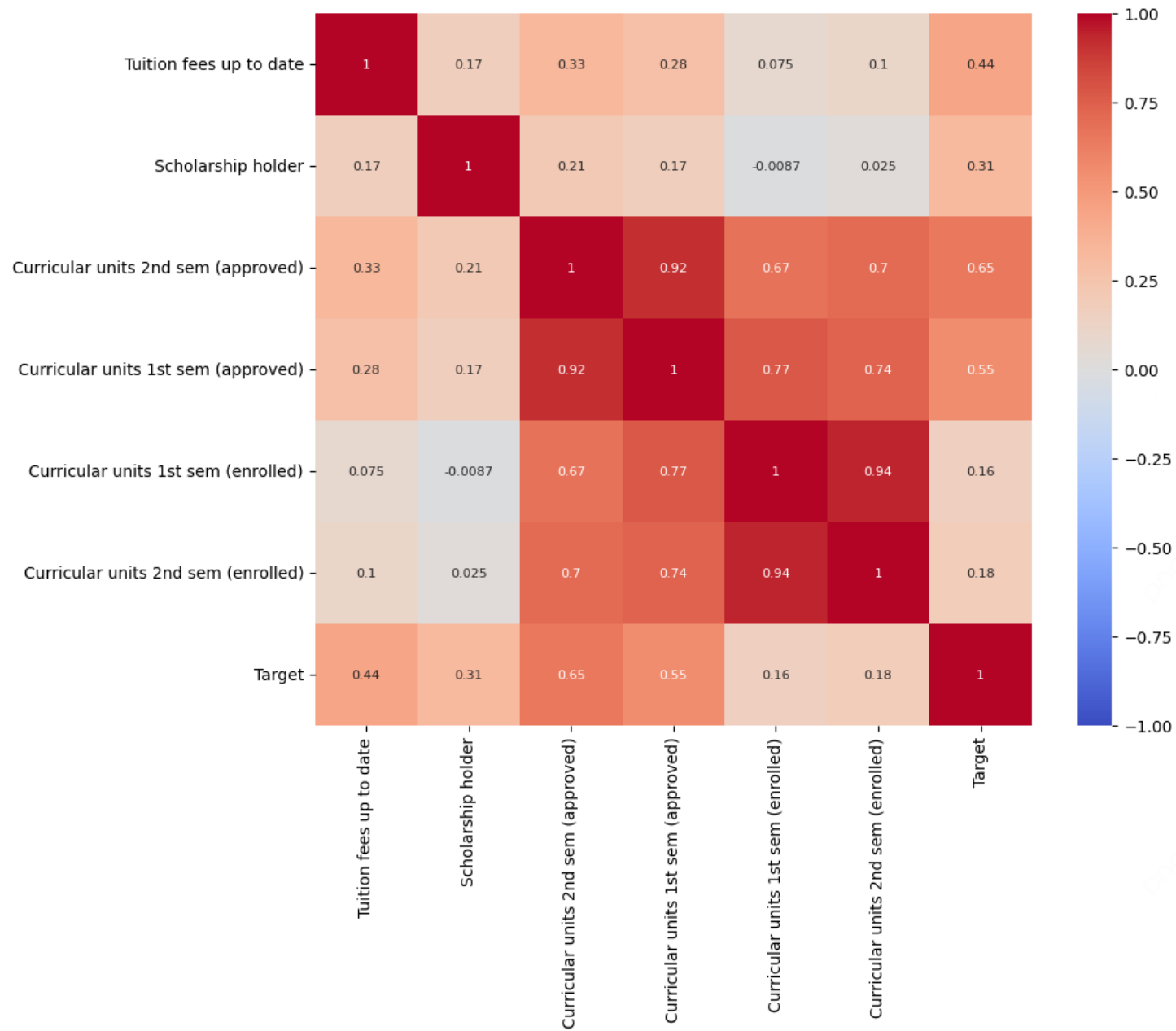


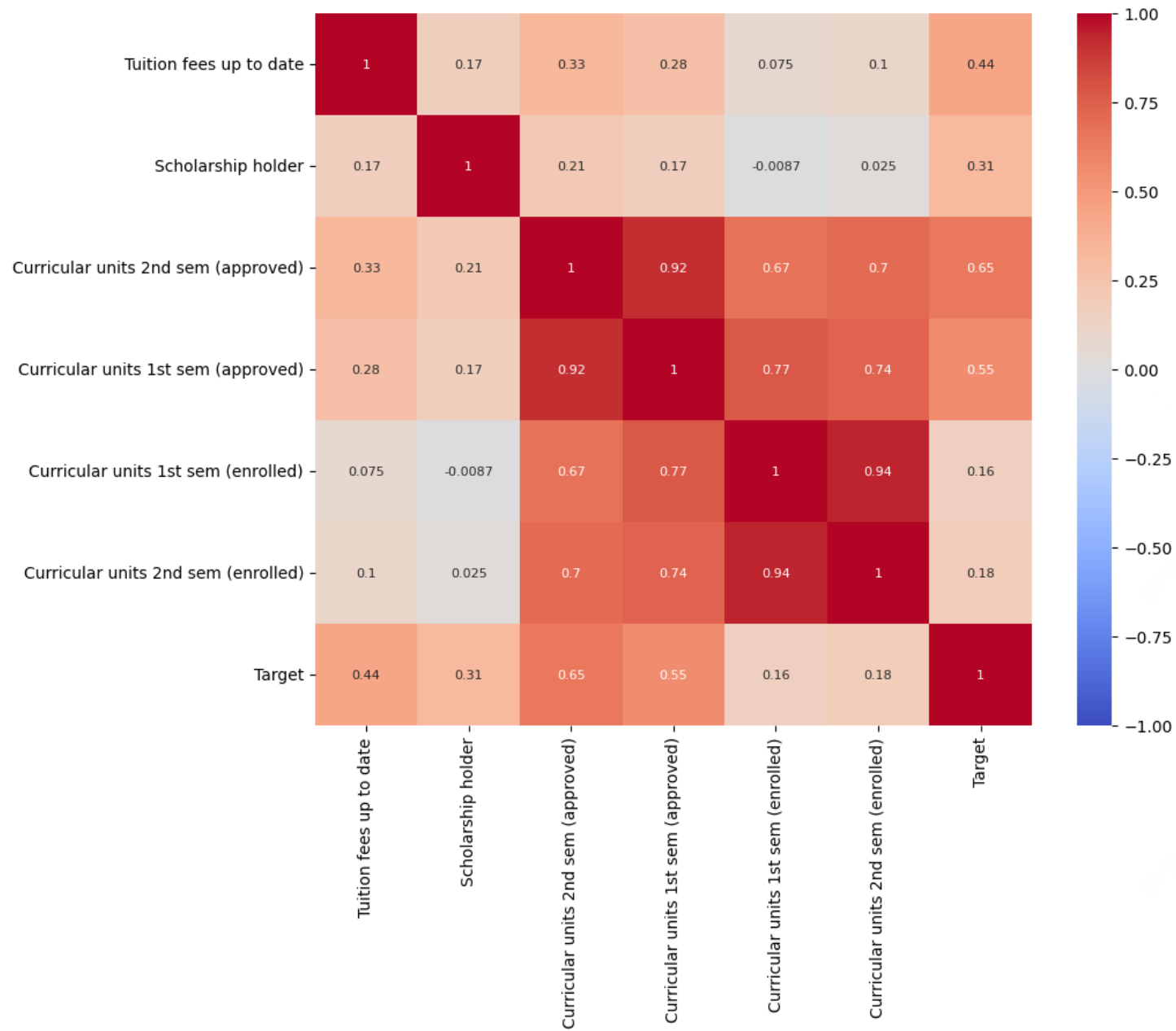






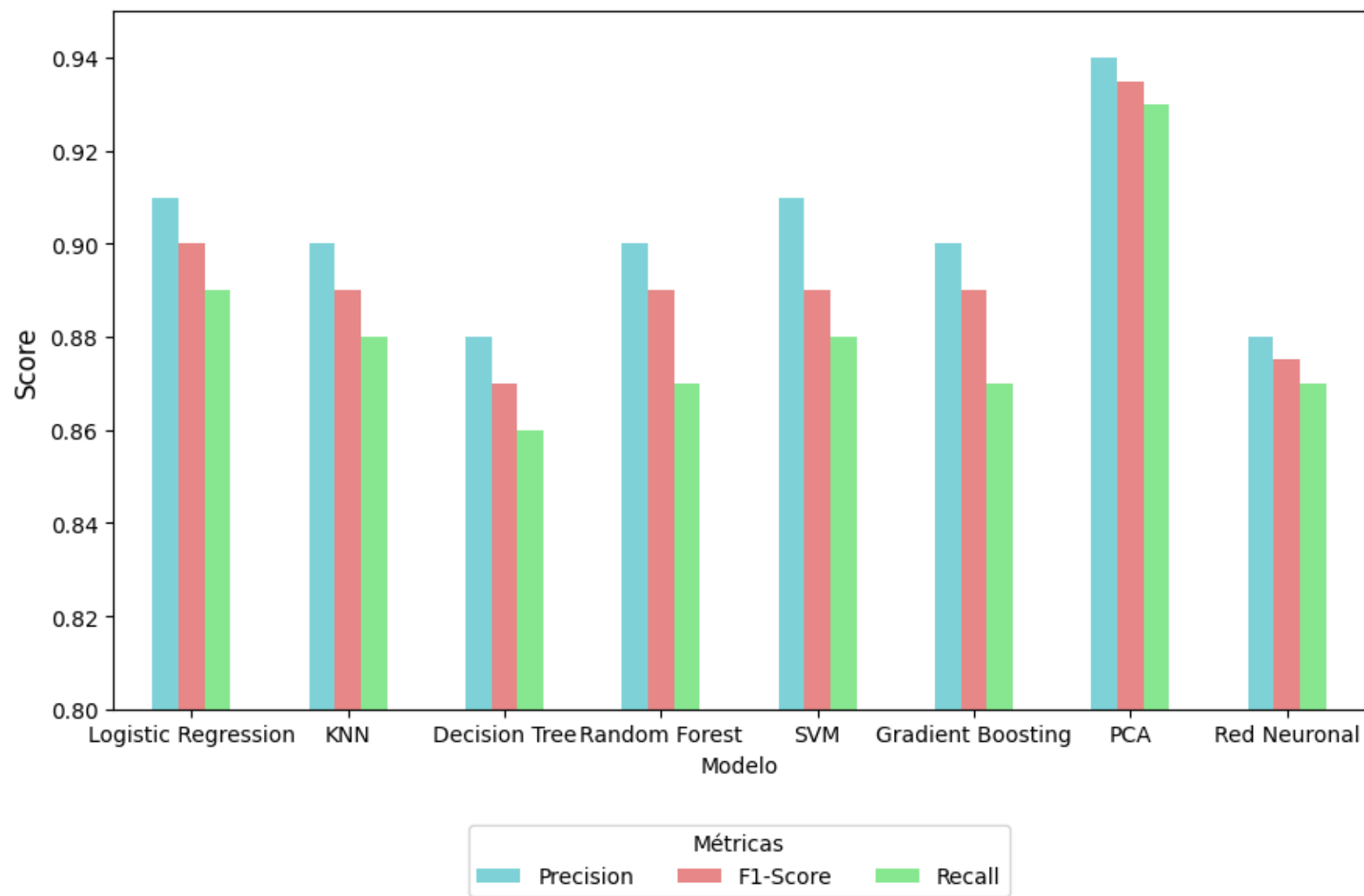




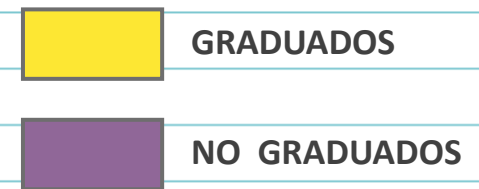
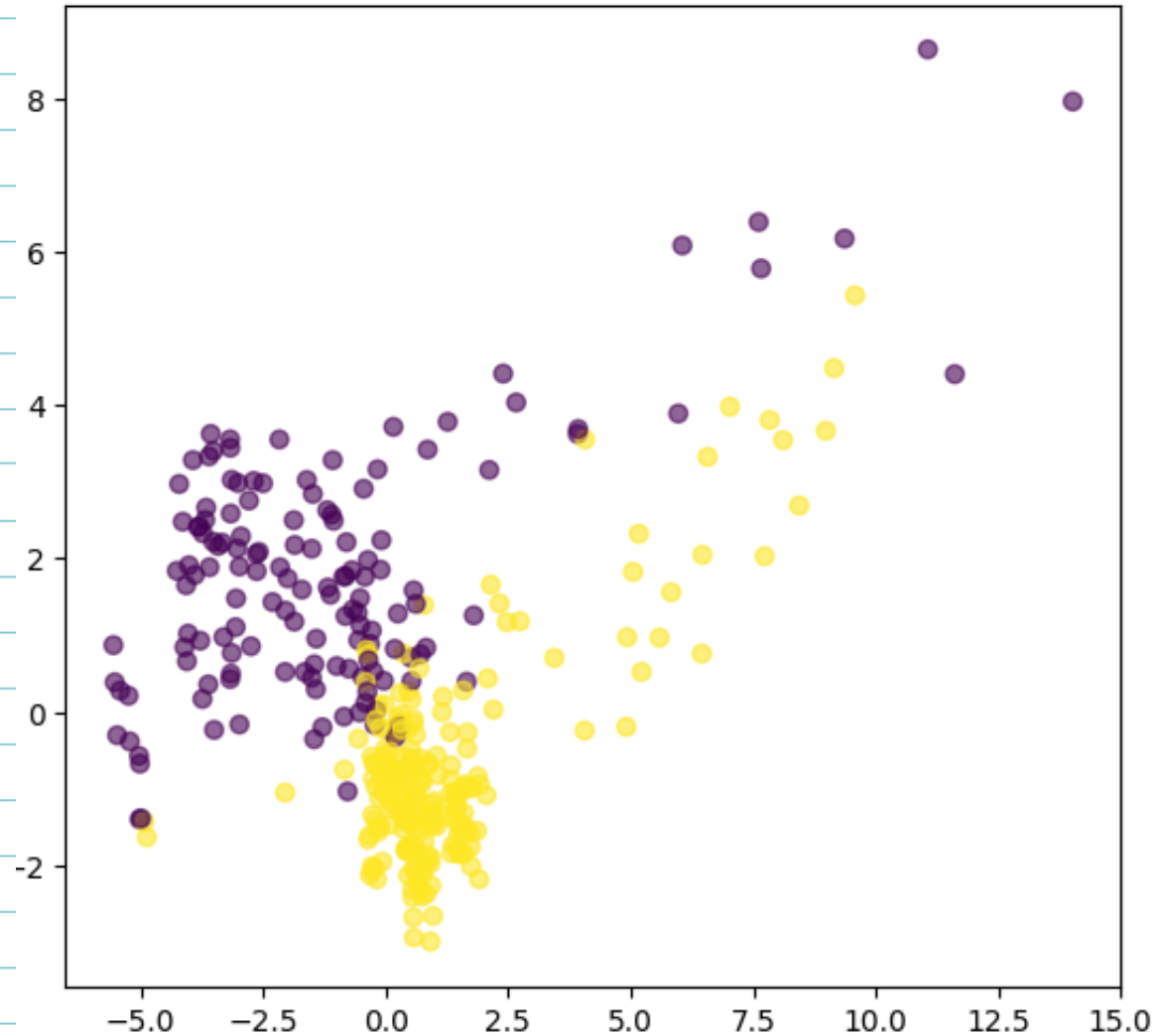




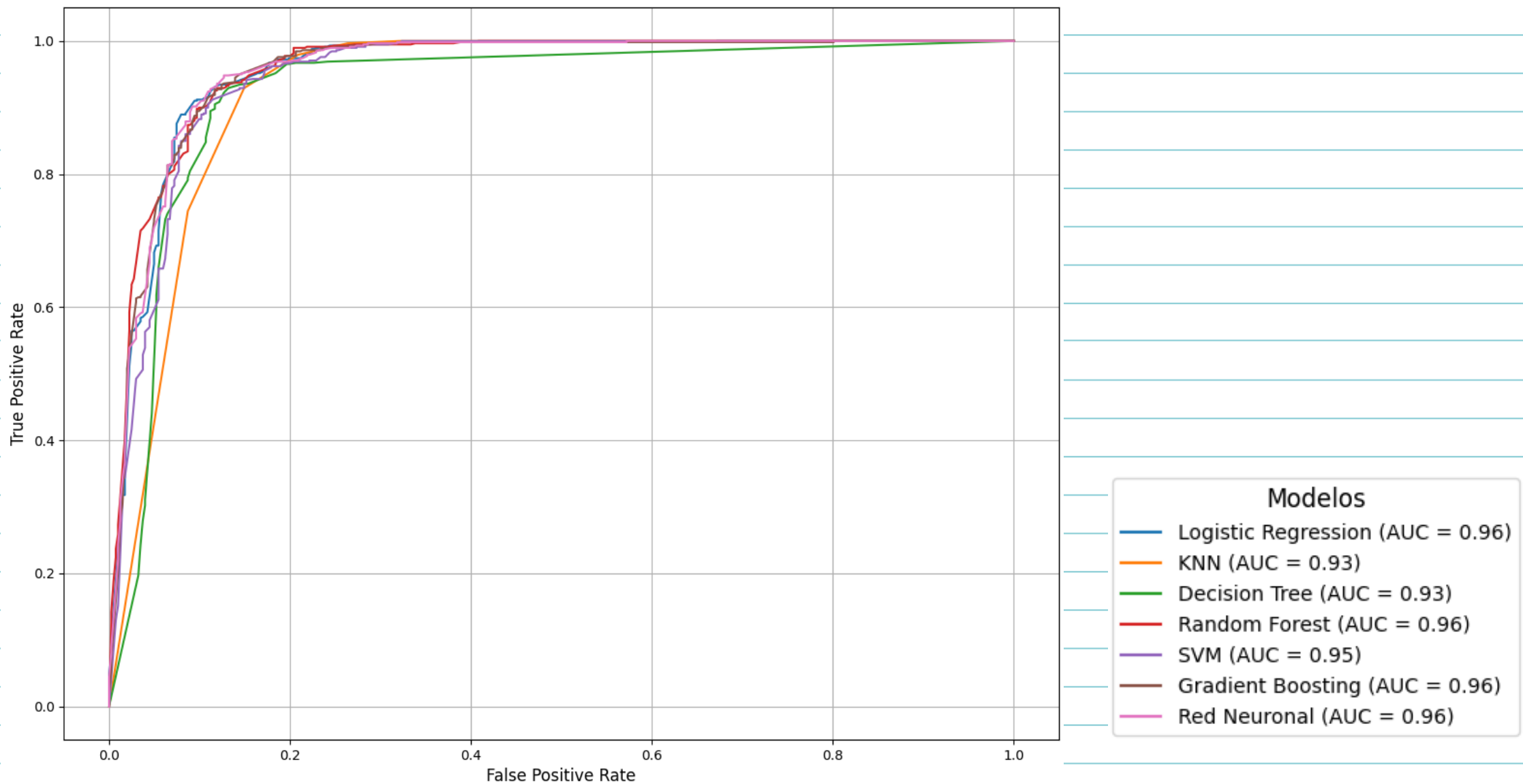
Modelos



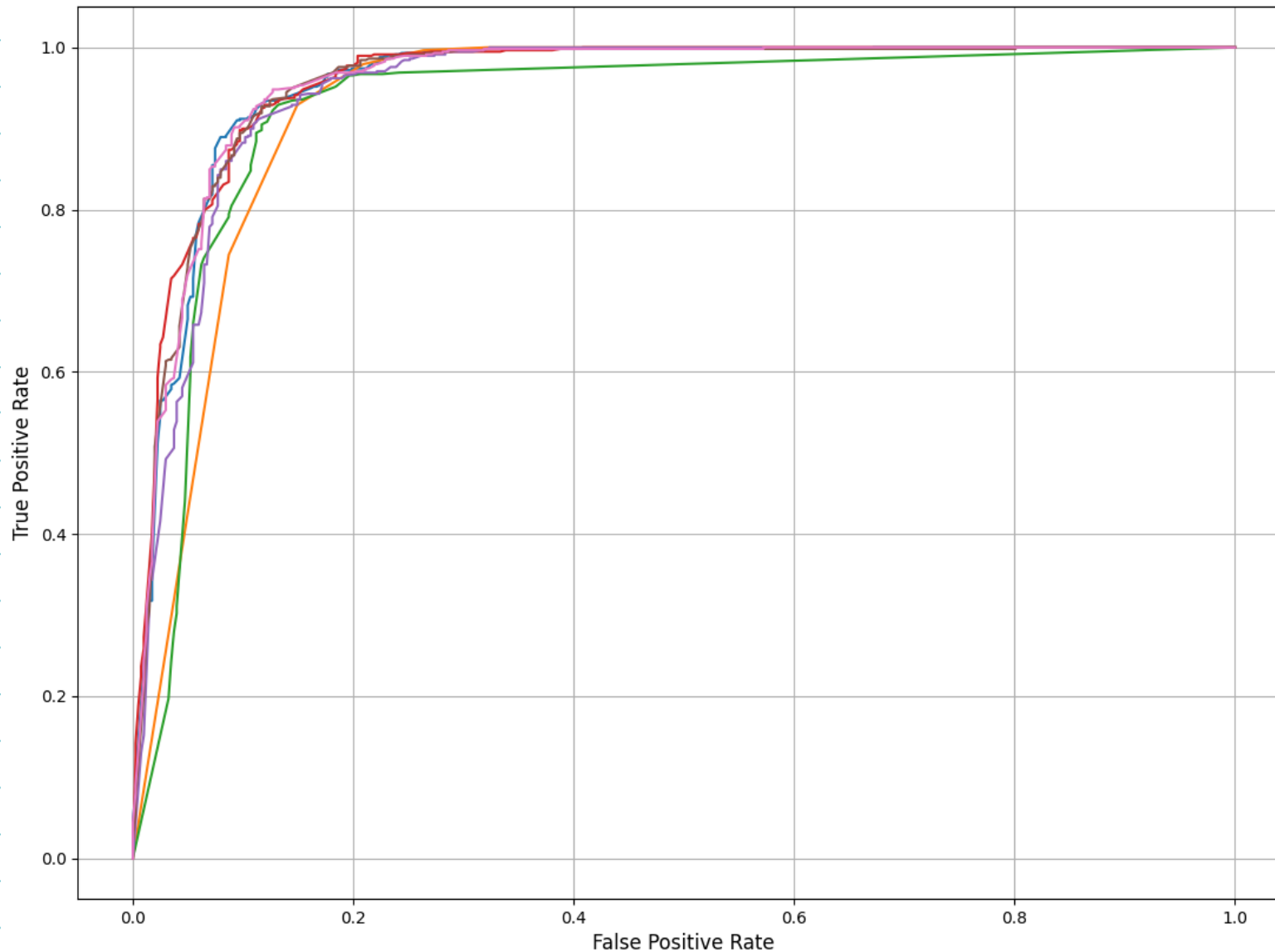
PCA - Logistic Regression



RQC curves



RQC curves



SVM

Standard Scaler

- $C = 0.1$

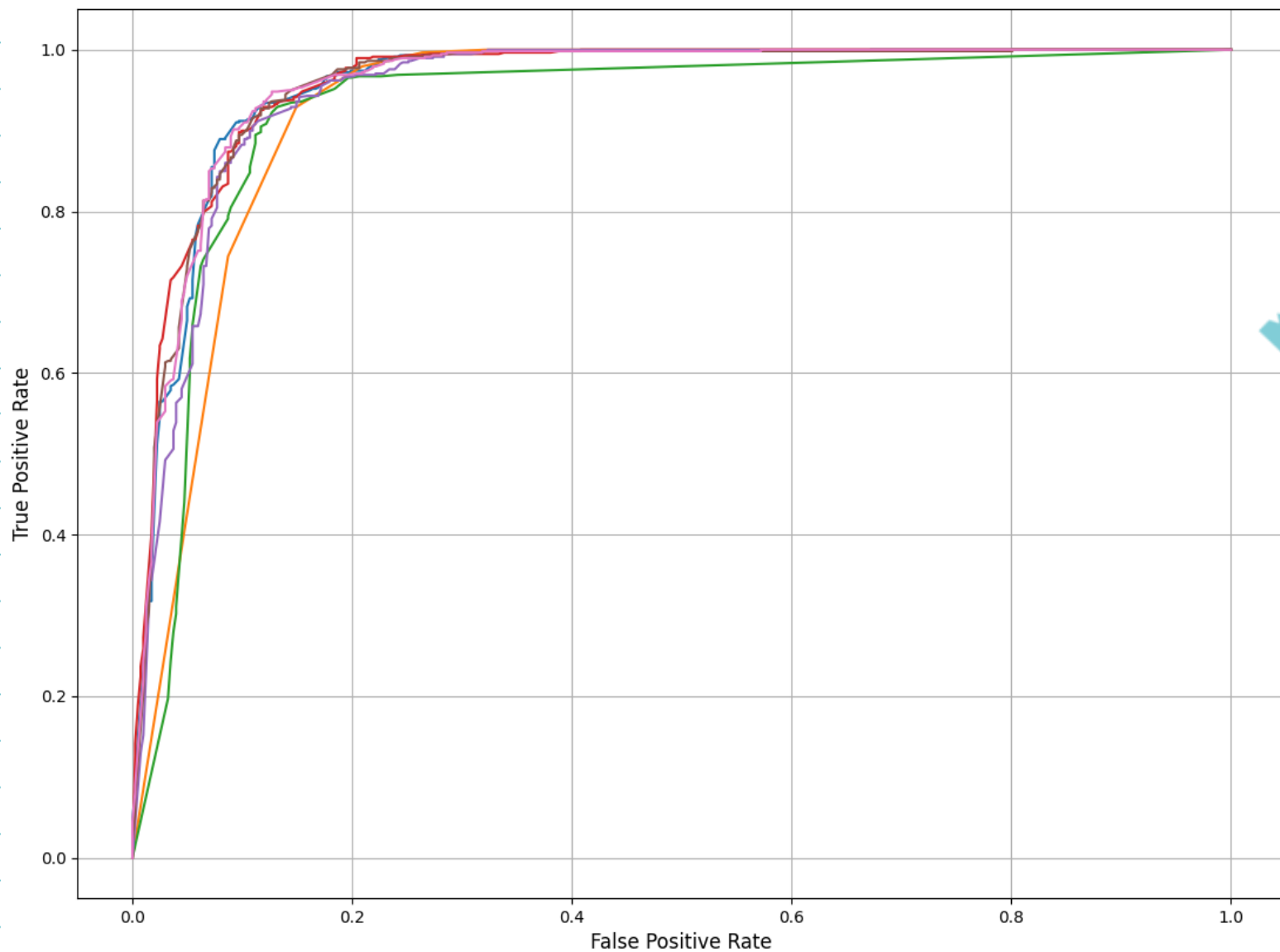
- kernel: "linear"

- gamma = "scale"

Modelos

- Logistic Regression (AUC = 0.96)
- KNN (AUC = 0.93)
- Decision Tree (AUC = 0.93)
- Random Forest (AUC = 0.96)
- SVM (AUC = 0.95)
- Gradient Boosting (AUC = 0.96)
- Red Neuronal (AUC = 0.96)

RQC curves

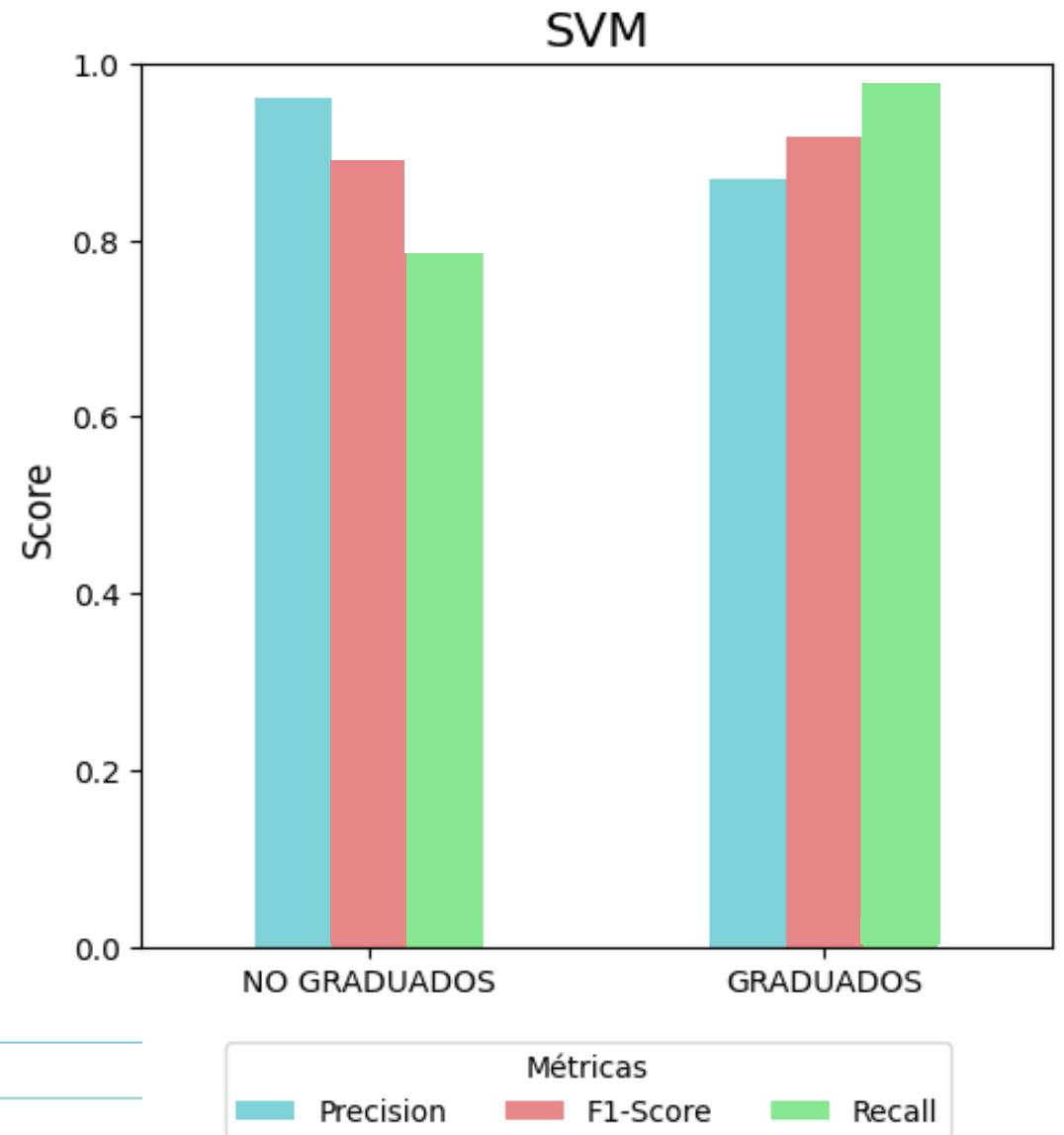
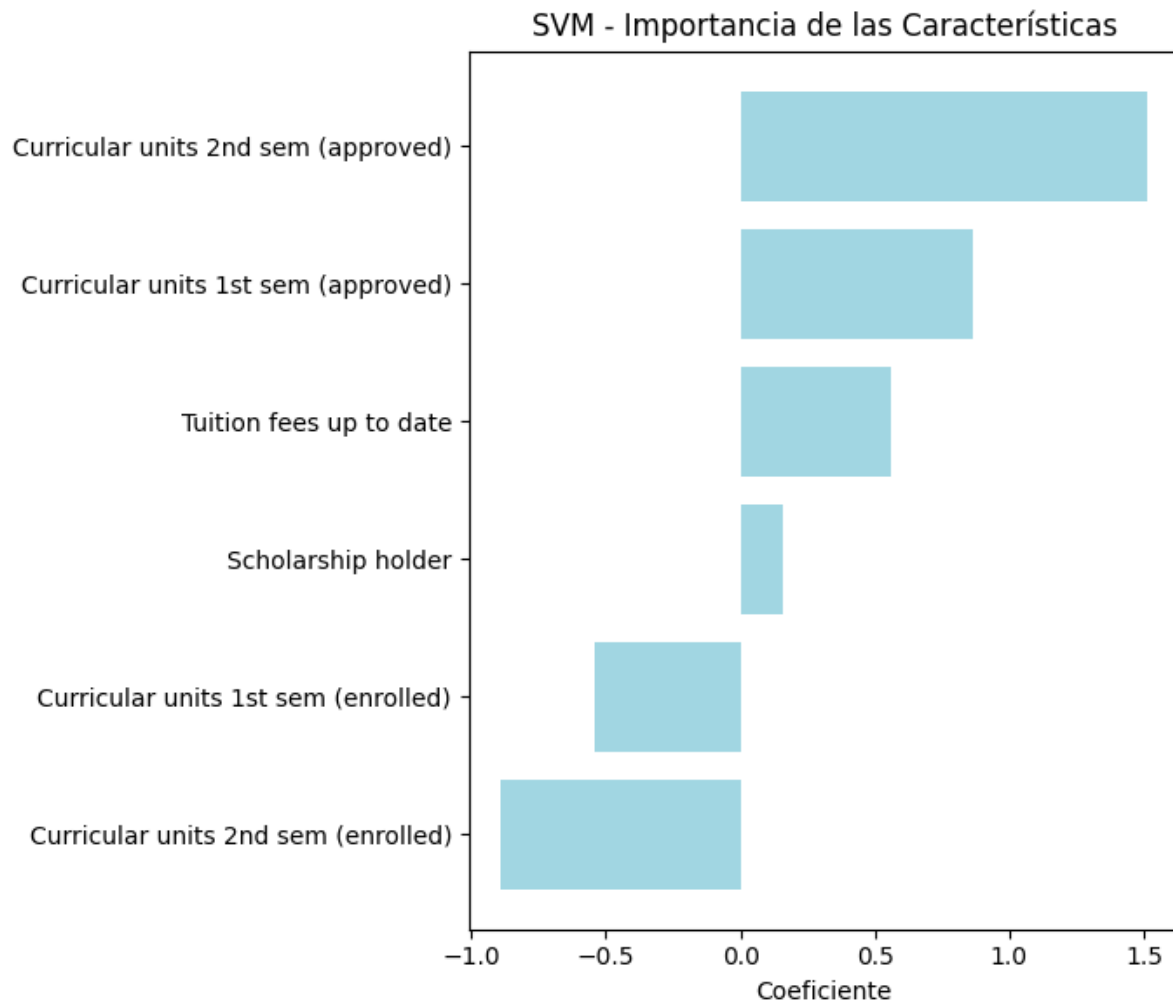


CLASIFICACIÓN

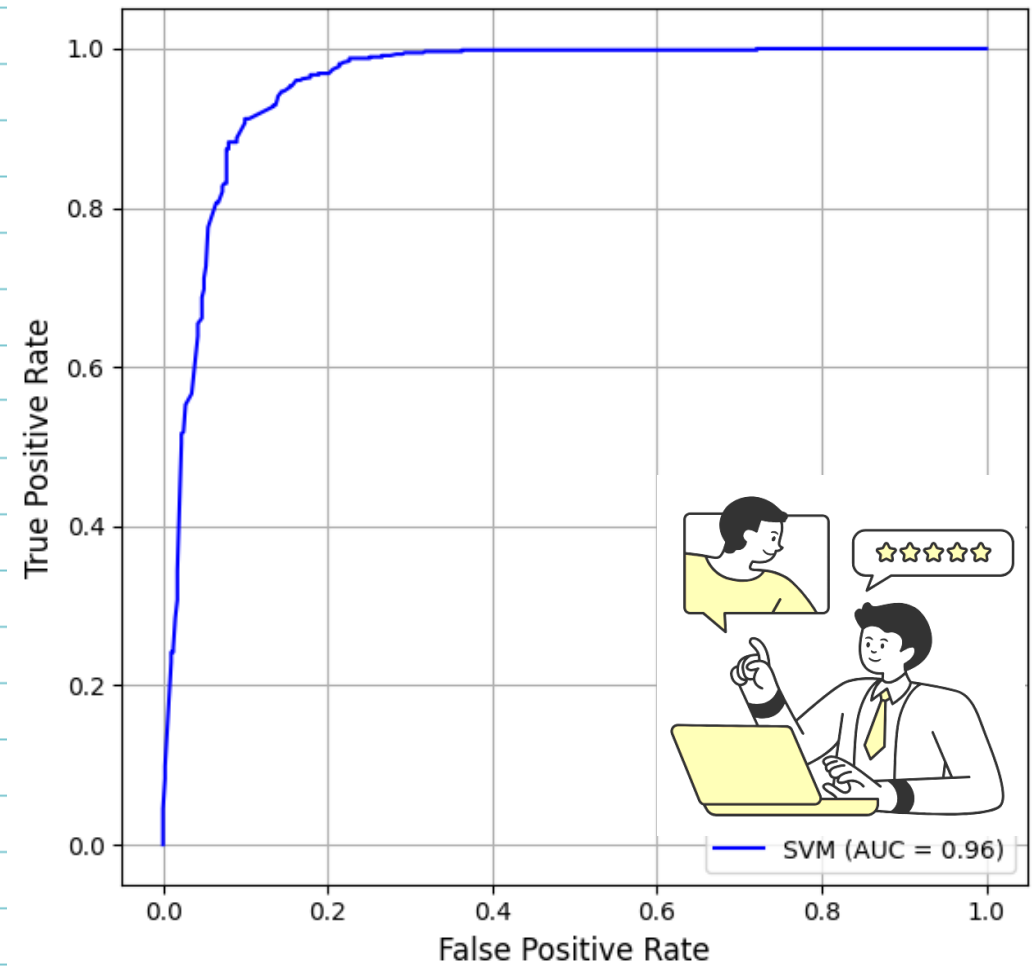
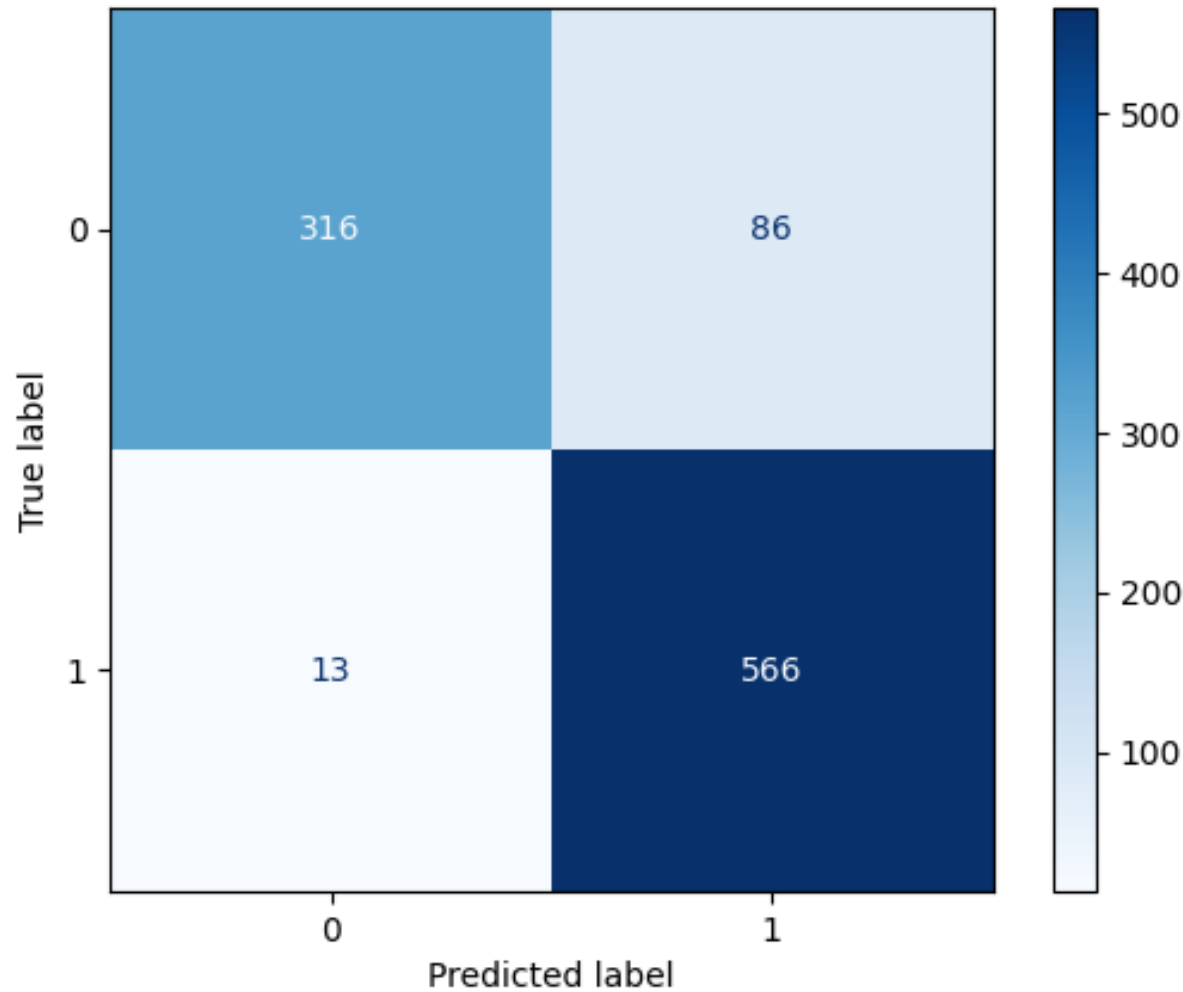
Modelos

- Logistic Regression (AUC = 0.96)
- KNN (AUC = 0.93)
- Decision Tree (AUC = 0.93)
- Random Forest (AUC = 0.96)
- SVM (AUC = 0.95)
- Gradient Boosting (AUC = 0.96)
- Red Neuronal (AUC = 0.96)

Support Vector Machine



Support Vector Machine



Más de 39.000 alumnos comienzan hoy los exámenes de la EvAU en los campus madrileños



La Comunidad de Madrid comienza hoy las pruebas de Evaluación para el Acceso a la Universidad (EvAU), que se celebrarán a lo largo de esta semana, en las que participan 39.243 alumnos. El consejero de Educación, Ciencia y Universidades, Emilio Viciano, ha visitado esta mañana el campus de Móstoles de la Rey Juan Carlos para conocer de primera mano el desarrollo de la primera jornada.



Código		TITULACIONES DE GRADO	Grupo 1 Ord.	Centro		Especialidad	NOTA FINAL
0	0001	Arqueología	5.000	Universidad Complutense de Madrid		Humanidades y Artes	5.000
1	0002	Bellas Artes	10.115	Universidad Complutense de Madrid		Humanidades y Artes	7.225
2	0019	Ciencias de las Religiones	5.000	Universidad Complutense de Madrid		Ciencias	5.000
3	0004	Conservación y Restauración del Patrimonio Cul...	10.100	Universidad Complutense de Madrid		Humanidades y Artes	7.214
4	0005	Diseño	11.818	Universidad Complutense de Madrid		Humanidades y Artes	8.441
...
567	0842	Derecho (Semipresencial)	5.000	CEDEU	Ciencias Sociales-Jurídicas		5.000
568	0931	Marketing	5.000	CEDEU	Ciencias Sociales-Jurídicas		5.000
569	0924	Protocolo, Organización de Eventos y Comunicac...	5.000	CEDEU	Ciencias Sociales-Jurídicas		5.000
570	0942	Administración y Dirección de Empresas	5.000	IUNIT	Ciencias Sociales-Jurídicas		5.000
571	0943	Administración y Dirección de Empresas (A dist...	5.000	IUNIT	Ciencias Sociales-Jurídicas		5.000

572 rows × 6 columns



Código		TITULACIONES DE GRADO	Grupo 1 Ord.	Centro		Especialidad	NOTA FINAL
0	0001	Arqueología	5.000	Universidad Complutense de Madrid		Humanidades y Artes	5.000
1	0002	Bellas Artes	10.115	Universidad Complutense de Madrid		Humanidades y Artes	7.225
2	0019	Ciencias de las Religiones	5.000	Universidad Complutense de Madrid		Ciencias	5.000
3	0004	Conservación y Restauración del Patrimonio Cul...	10.100	Universidad Complutense de Madrid		Humanidades y Artes	7.214
4	0005	Diseño	11.818	Universidad Complutense de Madrid		Humanidades y Artes	8.441
...
567	0842	Derecho (Semipresencial)	5.000	CEDEU	Ciencias Sociales-Jurídicas		5.000
568	0931	Marketing	5.000	CEDEU	Ciencias Sociales-Jurídicas		5.000
569	0924	Protocolo, Organización de Eventos y Comunicac...	5.000	CEDEU	Ciencias Sociales-Jurídicas		5.000
570	0942	Administración y Dirección de Empresas	5.000	IUNIT	Ciencias Sociales-Jurídicas		5.000
571	0943	Administración y Dirección de Empresas (A dist...	5.000	IUNIT	Ciencias Sociales-Jurídicas		5.000

572 rows × 6 columns

- Mayor extensión de datos
- Contexto Nacional
- Personalización



PREDICTOR

Académico

Machine Learning Project

Paula García Fernández

Noviembre 2024

