Mansurjonov Nurmuhammad

Loyiha Maqsadi

 Ushbu loyihada biz datani mse(mean_squared_errors) larini aniqlab uni uni darajasini tushurishga va r2_scoreni oshirishga harakat qildik.Bu uchun biz Random Forrest Regressor, KNN, Decision Tree Regressor va Linear Regression dan foydlandik.

Qilingan asosiy bosqichlar

1)Tushib qolgan malumotlarni toldirish
2)Claslarni ajratish va kerak emaslrni olib tashlash
3)Label Encoding orqali categoricaldan numericalga otkazish
4)Datani Train va testing qilish (4 model yordamida)
5)Yangi classlar yaratish va boshqatdan train va testing qilib(mse,r2_scorelarni tekshirish)
6)Standard Scale va Hyperparameter tuning scorelarini takshirdik
7)Mutal Information qilib qaysi calssimizni bogliqligini tekshirb chiqdik

Olingan Natijalar

Linear Regression Natija

Encoding:
mse:3.935435895180076
r2:-0.12044174898068061
Scaling:
mse:1.2840042942146643
r2:-0.28400429421466433
Hyperparameter tuning:
Linear Regression MSE: 4.223427855447351
Linear Regression R2: 0.07337303624817859

Decision Tree Regressor Natija

Encoding:
mse:4.954545454545454
r2:-0.4105882352941179
Scaling:
mse:1.2840042942146643
r2:-0.28400429421466433
Hyperparameter tuning:
Decision Tree MSE: 4.777170818874688
Decision Tree R2: -0.04811907358810008

Random Forrest Regressor Natija

Encoding:
mse:1.7157000000000004
r2:0.5115301176470586
Scaling:
mse:1.2840042942146643
r2:-0.28400429421466433
Hyperparameter tuning:
Random Forest MSE: 4.223427855447351
Random Forest R2: 0.07337303624817859

K-Nearest Neighbors (KNN) Natija

Encoding:
mse:1.7290909090909088
r2:0.5077176470588235
Scaling:
mse:1.2840042942146643
 r2:-0.28400429421466433
Hyperparameter tuning:
KNN MSE: 4.395132548551123
 KNN R2: 0.03570074637409637

Mutual Information score

Cumulative grade point average in the last seme… 0.228206
Revenue_Per_Scholarship 0.136465
 Reading frequency 0.136273
Student Age 0.098288
Sex 0.086814
Listening in classes 0.076345
Mother's education 0.067253
Scholarship type 0.053947
Weekly study hours 0.048066
Taking notes in classes 0.014777
Attendance to classes 0.001672

Xulosa

Ushbu loyihada biz barcha modellar orqali mse ni tushurish va r2 scoreni oshirish uchun bazi ishlarni qilib chiqdik va natijamiz shuni korsatyabtiki bizning datamiz Random Forrest Regressor orqali yahshi ishlashini kordik.