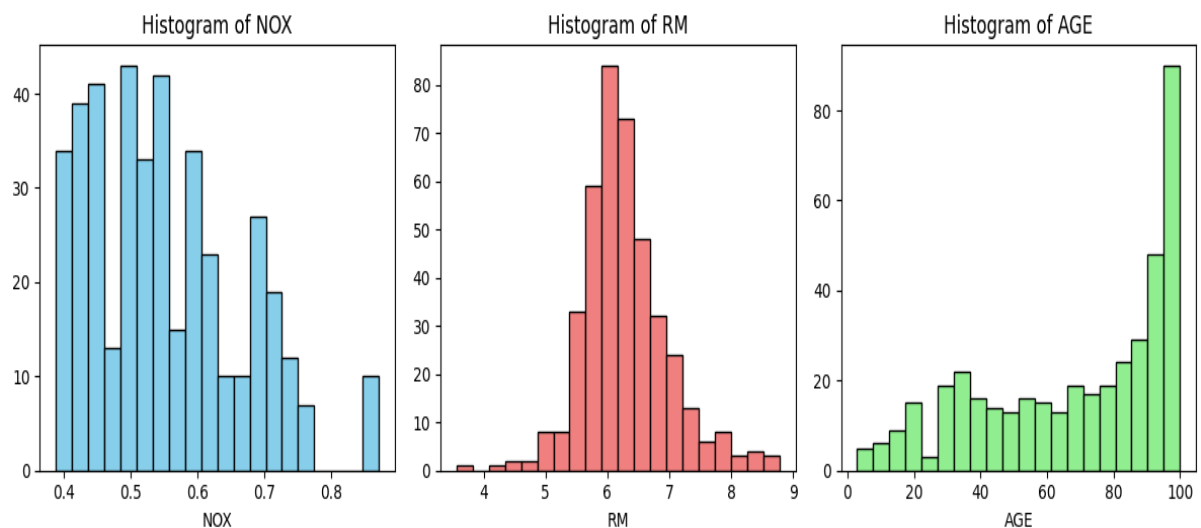
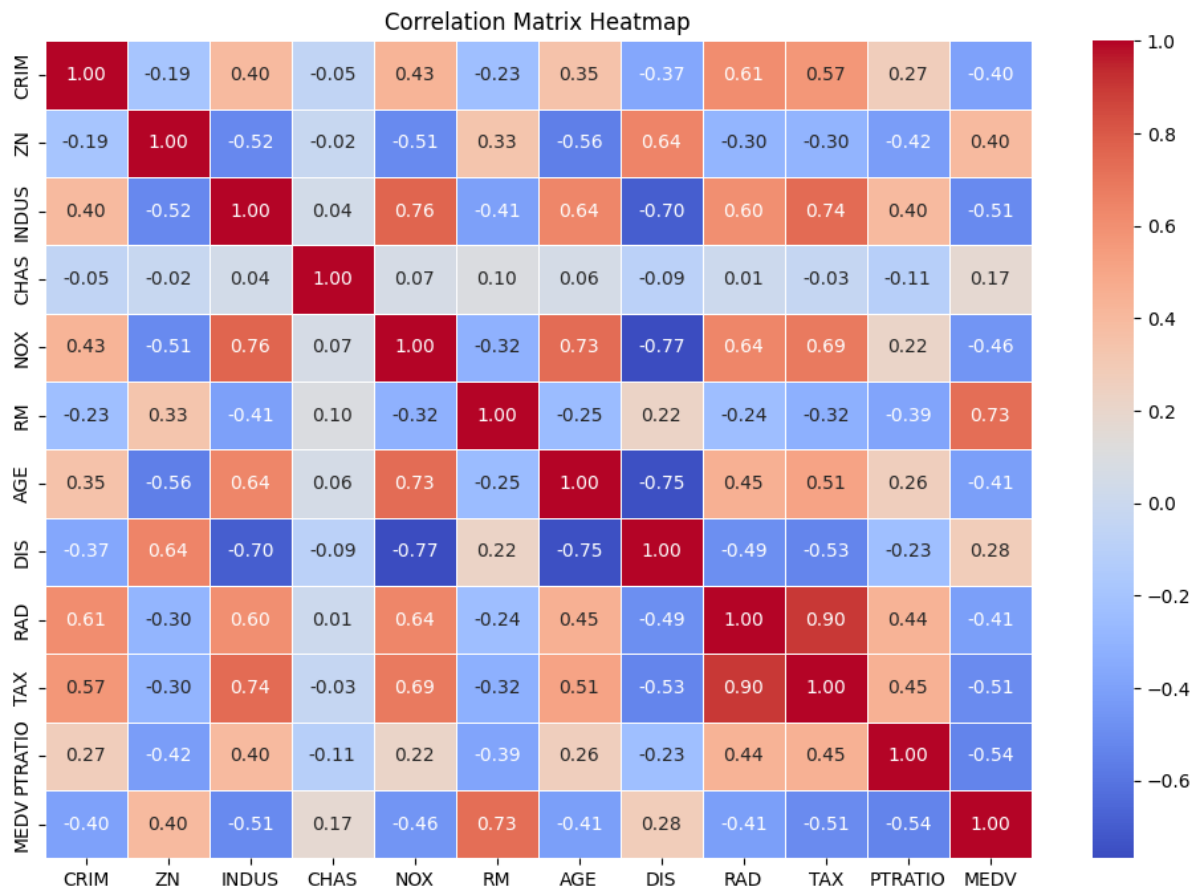


a. Experiment 1: A table containing the first 10 rows of dataset\_altered.

CRIM	ZN	INDUS	CHAS	NOX	RM	AGE	DIS	RAD	TAX	PTRATIO	MEDV
0.00632	18.0	2.31	0.0	0.538	6.575	65.2	4.09	1.0	296.0	15.3	24.0
0.02731	0.0	7.07	0.0	0.469	6.421	78.9	4.9671	2.0	242.0	17.8	21.6
0.02729	0.0	7.07	0.0	0.469	7.185	61.1	4.9671	2.0	242.0	17.8	34.7
0.03237	0.0	2.18	0.0	0.458	6.998	45.8	6.0622	3.0	222.0	18.7	33.4
0.06905	0.0	2.18	0.0	0.458	7.147	54.2	6.0622	3.0	222.0	18.7	36.2
0.02985	0.0	2.18	0.0	0.458	6.43	58.7	6.0622	3.0	222.0	18.7	28.7
0.14455	12.5	7.87	0.0	0.524	6.172	96.1	5.9505	5.0	311.0	15.2	27.1
0.21124	12.5	7.87	0.0	0.524	5.631	100.0	6.0821	5.0	311.0	15.2	16.5
0.22489	12.5	7.87	0.0	0.524	6.377	94.3	6.3467	5.0	311.0	15.2	15.0
0.11747	12.5	7.87	0.0	0.524	6.009	82.9	6.2267	5.0	311.0	15.2	18.9

b. Experiment 2: Histograms of “NOX”, “RM” and “AGE” for dataset\_altered; table containing correlation coefficients; correlation matrix heatmap. State what all you can infer from the correlation matrix.





The correlation matrix shows the relation between features.

b. Experiment 3: Print the shape of individual data matrices.

Features Training Set: (370, 11)

Features Testing Set: (42, 11)

Target Training Set: (370,)

Target Testing Set: (42,)

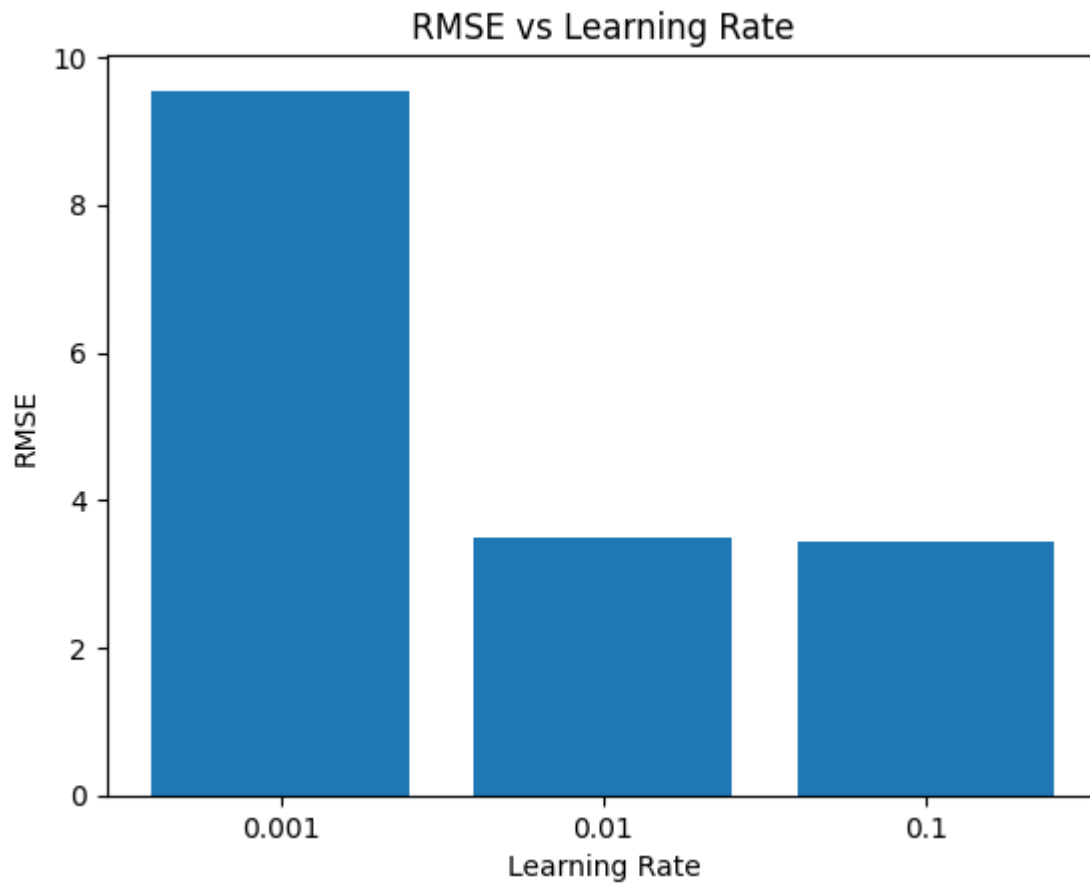
d. Experiment 4: Values for coefficients and intercept; RMSE value of predicted data with the testing data.

Coefficients: [-1.64988173e-01 3.73093490e-02 -9.87442617e-03 3.21391436e+00  
-2.27553707e+01 6.16182106e+00 -4.96702692e-02 -1.48516544e+00  
2.39856484e-01 -1.20609362e-02 -1.00154675e+00]

Intercept: 26.713825236556403

RMSE: 3.7846529574647403

e. Experiment 5: A bar plot of RMSEs vs learning rate. State the optimal learning rate, and corresponding values for coefficients and intercept.



Optimal learning rate: 0.1

Optimal coefficients: [-1.55908907 0.8865506 -0.06988328 0.82174483 -2.53634841 4.35916899  
-1.37712025 -3.05785509 2.09436154 -2.04512379 -2.13048576]

Optimal intercept: 22.47405405405404

RMSE: 3.443138526682574

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