**Program 2 :**

Develop a program to Compute the correlation matrix to understand the relationships between pairs of features. Visualize the correlation matrix using a heatmap to know which variables have strong positive/negative correlations. Create a pair plot to visualize pairwise relationships between features. Use California Housing dataset.

*import* pandas *as* pd

*import* seaborn *as* sns

*import* matplotlib.pyplot *as* plt

*from* sklearn.datasets *import* fetch\_california\_housing

*# Step 1: Load the California Housing Dataset*

california\_data = fetch\_california\_housing(*as\_frame*=True)

data = california\_data.frame

*# Step 2: Compute the correlation matrix*

correlation\_matrix = data.corr()

*# Step 3: Visualize the correlation matrix using a heatmap*

plt.figure(*figsize*=(10, 8))

sns.heatmap(correlation\_matrix, *annot*=True, *cmap*='coolwarm', *fmt*='.2f', *linewidths*=0.5)

plt.title('Correlation Matrix of California Housing Features')

plt.show()

*# Step 4: Create a pair plot to visualize pairwise relationships*

sns.pairplot(data, *diag\_kind*='kde', *plot\_kws*={'alpha': 0.5})

plt.suptitle('Pair Plot of California Housing Features', *y*=1.02)

plt.show()



