```
In [1]:  import pandas as pd
         from sklearn.naive_bayes import GaussianNB
         from sklearn.preprocessing import LabelEncoder
         from scipy.stats import chi2_contingency
         vsr={
             'age': ['<=30', '<=30', '31...40', '>40', '>40', '>40', '<=30', '<=30', '>40'
             'income': ['high', 'high', 'medium', 'low', 'low', 'low', 'medium', 'low', 'm
             'student': ['no', 'no', 'no', 'yes', 'yes', 'yes', 'no', 'no', 'yes', 'yes'],
             'credit_rating': ['fair', 'fair', 'fair', 'fair', 'fair', 'excellent', 'fair'
             'buys_computer': ['no', 'no', 'yes', 'no', 'yes', 'no', 'yes', 'no', 'yes',
         }
         df = pd.DataFrame(vsr)
```

```
In [2]:  #A1
         import pandas as pd
         class_counts = df['buys_computer'].value_counts()
         prior_probabilities = class_counts / len(df)
         print("Prior probabilities for each class:")
         print(prior_probabilities)
```

```
Prior probabilities for each class:
no     0.5
yes    0.5
Name: buys_computer, dtype: float64
```

```
In [3]:  #A2
         target_variable = 'buys_computer'
         X = df.drop(target_variable, axis=1)
         y = df[target_variable]
         label_encoder = LabelEncoder()
         X_encoded = X.apply(label_encoder.fit_transform)
         model = GaussianNB()
         model.fit(X_encoded, y)
         class_conditional_densities = model.theta_
         print("Class Conditional Densities:")
         print(class_conditional_densities)
```

```
Class Conditional Densities:
[[1.4 0.6 0.4 0.6]
 [1.  1.8 0.6 0.6]]
```