Exercise 1 - Categorical Naïve Bayes

The following data set has a number of categorical weather attributes and a binary target variable indicating whether some unspecified game was played or not.

Outlook	Temperature	Humidity	Windy	Play
Sunny	Hot	High	False	No
Sunny	Hot	High	True	No
Overcast	Hot	High	False	Yes
Rainy	Mild	High	False	Yes
Rainy	Cool	Normal	False	Yes
Rainy	Cool	Normal	True	No
Overcast	Cool	Normal	True	Yes
Sunny	Mild	High	False	No
Sunny	Cool	Normal	False	Yes
Rainy	Mild	Normal	False	Yes
Sunny	Mild	Normal	True	Yes
Overcast	Mild	High	True	Yes
Overcast	Hot	Normal	False	Yes
Rainy	Mild	High	True	No

Use the Naïve Bayes method to estimate the probability of the game being played when the weather attributes are:

```
Outlook:      Rainy
Temperature:  Mild
Humidity:     Normal
Windy:        True
```

Exercise 2 - Categorical Naïve Bayes

The following data set has a number of weather attributes and a binary target variable indicating whether some unspecified game was played or not. The assumption can be made that the numeric variables are normally distributed.

Outlook	Temperature	Humidity	Windy	Play
Sunny	85	85	False	No
Sunny	80	90	True	No
Overcast	83	86	False	Yes
Rainy	70	96	False	Yes
Rainy	68	80	False	Yes
Rainy	65	70	True	No
Overcast	64	65	True	Yes
Sunny	72	95	False	No
Sunny	69	70	False	Yes
Rainy	75	80	False	Yes
Sunny	75	70	True	Yes
Overcast	72	90	True	Yes
Overcast	81	75	False	Yes
Rainy	71	91	True	No

Use the Naïve Bayes method to estimate the probability of the game being played when the weather attributes are:

```
Outlook:      Rainy
Temperature:  80
Humidity:     80
Windy:        True
```

References

[DM] *Data Mining: Practical Machine Learning Tools and Techniques*, by Ian H. Witten, Eibe Frank, Mark A. Hall, Christopher J. Pal, Kindle Direct Publishing eBook, 2016.