In [1]:
```
from matplotlib import pyplot as plt
from sklearn.metrics import confusion_matrix , classification_report
import pandas as pd
import seaborn as sns
```

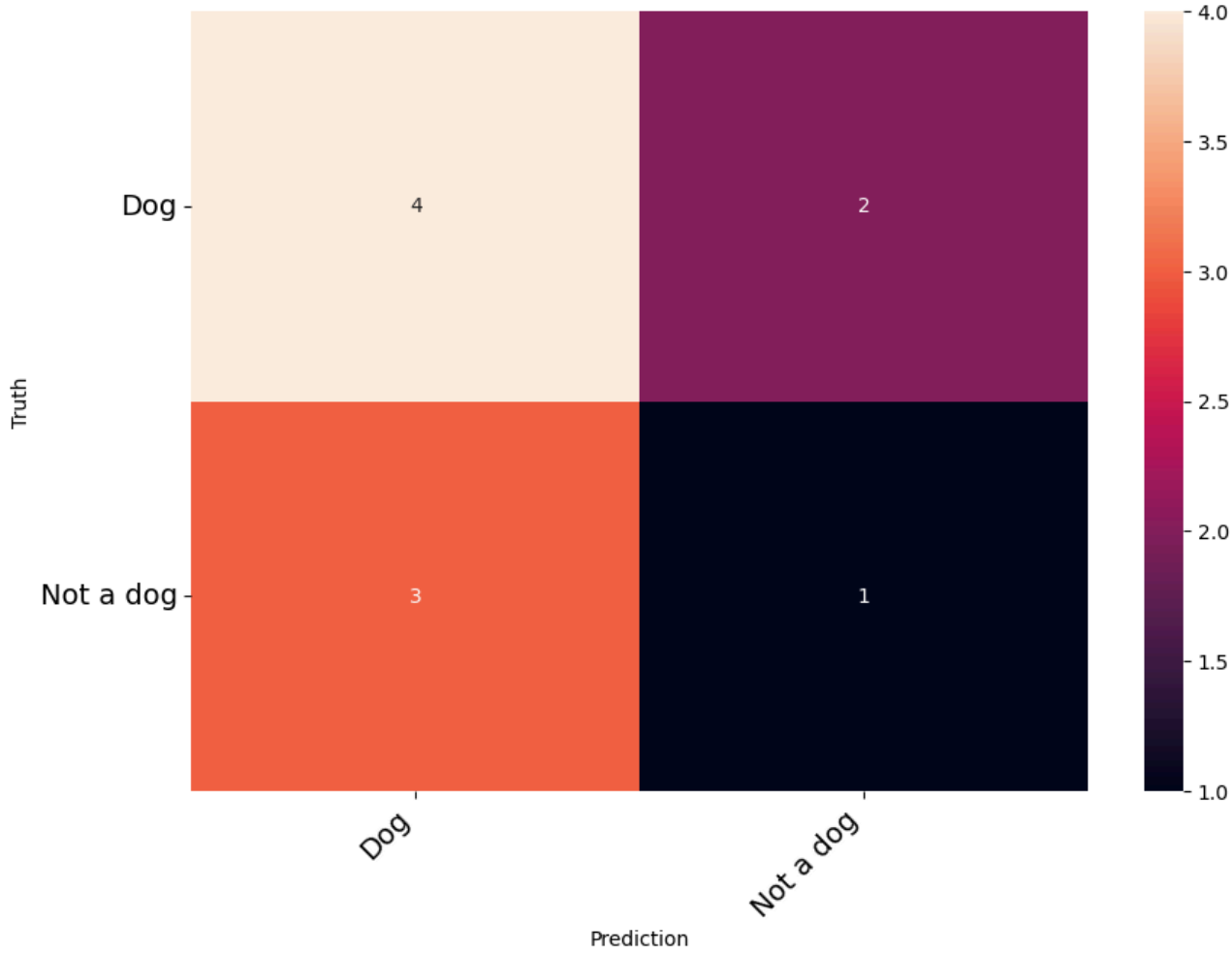
In [2]:
```
# Source code credit for this function: https://gist.github.com/shaypal5/94c53d765083101efc0240d776a23823
def print_confusion_matrix(confusion_matrix, class_names, figsize = (10,7), fontsize=14):
    """Prints a confusion matrix, as returned by sklearn.metrics.confusion_matrix, as a heatmap.

    Arguments
    ---------
    confusion_matrix: numpy.ndarray
        The numpy.ndarray object returned from a call to sklearn.metrics.confusion_matrix.
        Similarly constructed ndarrays can also be used.
    class_names: list
        An ordered list of class names, in the order they index the given confusion matrix.
    figsize: tuple
        A 2-long tuple, the first value determining the horizontal size of the ouputted figure,
        the second determining the vertical size. Defaults to (10,7).
    fontsize: int
        Font size for axes labels. Defaults to 14.

    Returns
    -------
    matplotlib.figure.Figure
        The resulting confusion matrix figure
    """
    df_cm = pd.DataFrame(
        confusion_matrix, index=class_names, columns=class_names,
    )
    fig = plt.figure(figsize=figsize)
    try:
        heatmap = sns.heatmap(df_cm, annot=True, fmt="d")
    except ValueError:
        raise ValueError("Confusion matrix values must be integers.")
    heatmap.yaxis.set_ticklabels(heatmap.yaxis.get_ticklabels(), rotation=0, ha='right', fontsize=fontsiz
    heatmap.xaxis.set_ticklabels(heatmap.xaxis.get_ticklabels(), rotation=45, ha='right', fontsize=fontsi
    plt.ylabel('Truth')
    plt.xlabel('Prediction')
```

In [3]:
```
truth =      ["Dog","Not a dog","Dog","Dog",      "Dog", "Not a dog", "Not a dog", "Dog",       "Dog", "N
prediction = ["Dog","Dog",      "Dog","Not a dog","Dog", "Not a dog", "Dog",       "Not a dog", "Dog", "D
```

In [4]:
```
cm = confusion_matrix(truth,prediction)
print_confusion_matrix(cm,["Dog","Not a dog"])
```



In [5]:
```
print(classification_report(truth, prediction))
```

```
              precision    recall  f1-score   support

         Dog       0.57      0.67      0.62         6
     Not a dog       0.33      0.25      0.29         4

    accuracy                           0.50        10
   macro avg       0.45      0.46      0.45        10
weighted avg       0.48      0.50      0.48        10
```

f1 score for Dog class

In [6]:
```
2*(0.57*0.67/(0.57+0.67))
```

Out[6]: 0.6159677419354839

f1 score for Not a dog class

In [7]:
```
2*(0.33*0.25/(0.33+0.25))
```

Out[7]: 0.2844827586206896

In [ ]: