

Programming Assignment 1

1. Name a list type variable as 'features' and initialize it with following values:

```
features = ["a", "c", "d", "b", "a", "d", "c", "a", "b", "b", "d", "a", "c", "d", "c"]
```

2. Name a list type variable as 'target' and initialize it with following values:

```
target = ["yes", "no", "no", "yes", "no", "yes", "yes", "no", "yes", "no", "no",  
"yes", "no", "yes", "yes"]
```

3. Find out $P(\text{target} \mid \text{features})$ for both of the target classes (Posterior Probability).

Hint : Formula for posterior probability in this case

$$P(\text{target} \mid \text{features}) = (P(\text{features} \mid \text{target}) * P(\text{target})) / P(\text{features})$$

Let's say, we want to find out $P(\text{target} = \text{"yes"} \mid \text{features})$

Then $P(\text{target} = \text{"yes"} \mid \text{features} = \text{"a"}) = (P(\text{features} = \text{"a"} \mid \text{target} = \text{"yes"}) * P(\text{target} = \text{yes})) / P(\text{features} = \text{"a"})$

Similarly, find out $P(\text{target} = \text{"yes"} \mid \text{features} = \text{"b"})$, $P(\text{target} = \text{"yes"} \mid \text{features} = \text{"c"})$ and $P(\text{target} = \text{"yes"} \mid \text{features} = \text{"d"})$ and multiply all the values. That will be the final value for $P(\text{target}=\text{"yes"} \mid \text{features})$

$P(\text{target}=\text{"no"} \mid \text{features})$ can be found out using the same strategy.

***** Best of luck *****