DS 501: STATISTICAL AND MATHEMATICAL METHODS FOR DATA SCIENCE

REPORT FOR ASSIGNMENT 02

ROLL No.: 18L-1890

IMPORTANT: Do not submit more than one page for this assignment.

Problem 1: MAP Probabilities using naïve Bayes' assumption

You can paste values from R here. Make sure the table is formatted properly.

No.	**MAP probability:** P(C=0|**x**)	**MAP probability** P(C=1|**x**)	**Predicted label**
1	0.119851016	0.8801490	1
2	0.132664715	0.8673353	1
3	0.050996380	0.9490036	1
4	0.114101422	0.8858986	1
5	0.126388682	0.8736113	1
6	0.417314179	0.5826858	1
7	0.002126477	0.9978735	1
8	0.074970187	0.9250298	1
9	0.092562296	0.9074377	1
10	0.153146501	0.8468535	1

Problem 2: ML Probabilities using naïve Bayes' assumption

No.	**ML probability:** P(**x**|C=0)	**ML probability** P(**x**|C=1)	**Predicted label (ML)**
1	4.252127E-03	0.0122240289	1
2	7.145020E-03	0.0182864222	1
3	1.692770E-03	0.0123316198	1
4	4.252127E-03	0.0129238779	1
5	7.145020E-03	0.0193333547	1
6	1.471218E-02	0.0080415928	0
7	1.750011E-05	0.0032147659	1
8	9.525516E-05	0.0004600969	1
9	7.598912E-04	0.0029162705	1
10	4.147858E-03	0.0089788103	1

Problem 3: In two or three lines comment on the two methods. MAP finds the posterior probabilities and ML just gives the Likelihoods. ML can be termed as a special case of MAP as while finding ML we ignore the priors & evidences and just calculate the likelihoods.