Centro Federal de Educação Tecnológica - CEFET

Inteligência Artificial

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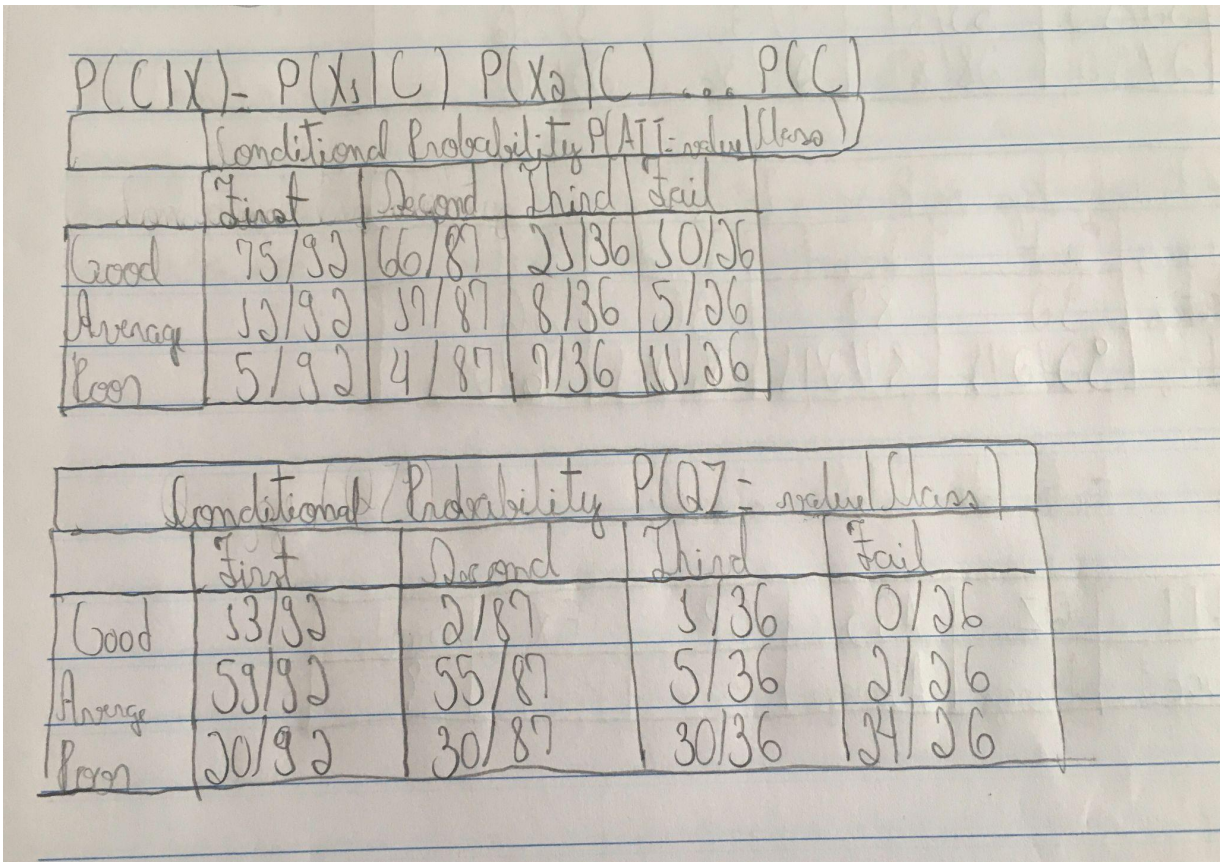

P(C|X) = P(X1|C) P(X2|C) ... P(C)

Conditional Probability P(ATT = value|Class)

	First	Second	Third	Fail
Good	75/92	66/87	23/36	10/26
Average	13/92	17/87	8/36	5/26
Poor	5/92	4/87	7/36	11/26

Conditional Probability P(QZ = value|Class)

	First	Second	Third	Fail
Good	13/92	2/87	1/36	0/26
Average	59/92	55/87	5/36	2/26
Poor	20/92	30/87	30/36	24/26

Conditional Probability P(Ass - value | Class)				
	First	Second	Third	Fail
Good	20/92	43/87	9/36	3/36
Average	38/92	35/87	8/36	5/36
Poor	4/92	57/87	19/36	28/36

Conditional Probability P(CP - value | Class)				
	First	Second	Third	Fail
Good	57/92	42/87	7/36	3/36
Average	23/92	24/87	8/36	8/36
Poor	12/92	21/87	21/36	25/36

Conditional Probability P(EX - value | Class)				
	First	Second	Third	Fail
Good	38/92	6/87	3/36	5/36
Average	52/92	53/87	7/36	3/36
Poor	2/92	28/87	26/36	28/36

Prior Probability of Response variables				
	First	Second	Third	Fail
No of Instances	92	87	36	36
Probability	92/245	87/245	36/245	36/245

Aplicando o teste da Tabela abaixo:

ATT	QZ	ASS	CP	EX	Grade
Good	Average	Average	Poor	Poor	?

Utilizamos agora as probabilidades calculadas das tabelas:

	Prova	ATT	QZ	ASS	CP	Ex	
P(First|An) =	93/245 *	75/93 *	59/93 *	58/93 *	53/93 *	03/93 =	0,000107293
P(Second|An) =	87/245 *	66/87 *	55/87 *	33/87 *	33/87 *	38/87 =	0,003344153
P(Third|An) =	36/245 *	33/36 *	5/36 *	8/36 *	33/36 *	36/36 =	0,001533303
P(Fail|An) =	36/245 *	6/36 *	3/36 *	1/36 *	15/36 *	33/36 =	0,000599851

Total: 0,0005 + 0,003 + 0,001 + 0,00006 = 0,00456

First: 0,0001 * 100/0,00456 = 2,4%
Second: 0,003 * 100/0,00456 = 73,1%
Third: 0,001 * 100/0,00456 = 24,03%
Fail: 0,00006 * 100/0,00456 = 1,44%.

Com isso podemos observar que ele ficaria no "Second".

2- Com a mudança apresentada teríamos um probabilidade 0 no quizz, dessa forma teríamos que utilizar a suavização de laplace para voltar ao calculo, ela tem como base acrescentar 1 em todos os dados da tabela em questão para suavização.