## 2nd Quiz: Probabilistic Machine Learning (16th March 2022)

**Due** 16 Mar 2022 at 11:00 **Points** 10 **Questions** 10 **Available** 16 Mar 2022 at 10:00 - 16 Mar 2022 at 11:05 1 hour and 5 minutes **Time limit** None

This quiz was locked 16 Mar 2022 at 11:05.

## Attempt history

Correct!

LATEST <u>Attempt</u>	<u>1</u> 34 m	minutes 7 out	of 10

Score for this quiz: **7** out of 10 Submitted 16 Mar 2022 at 10:34 This attempt took 34 minutes.

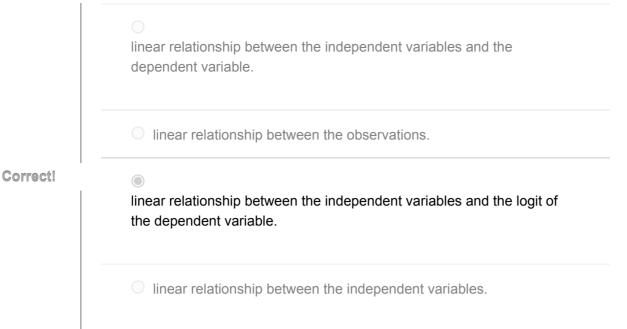
Question 1	1 / 1 pts
What is the main reason we favor the log-likelihood over function?	the likelihood
Because the logarithm can accept many different bases (e. \$\log_{10}\$) and we can choose the one most suitable to or	
Because it is a convex function and thus can only have one	maximum.
Because the logarithm can only take on positive inputs.	
Because the likelihood function often has the form of a proctaking logarithms changes a product to a sum which is easi differentiate.	

	Question 2	I / 1 pts
	Which of the following values the likelihood function of a parame only take?	eter can
	O 2	
	O -0.5	
Correct!	© 0.25	
	O 1.1	
L		

	Question 3 1/1 p	ts
	Logistic regression is used when you want to	
	Predict a continuous variable from binary variables.	
	Predict a binary variable from binary variables only.	
	Predict a continuous variable from binary or continuous variables.	
Correct!	Predict a binary variable from continuous or binary variables.	

Question 4 1/1 pts

Logistic regression assumes



Question 5	1 / 1 pts
A predicted logit of 0 can be transformed into a probab	ility of
0.25	
O 1	
0.5	
O 0	

Correct!

## Question 6 0 / 1 pts Suppose we fit a linear regression model with one dependent variable, x, and one independent variable, y, of the following form $\hat{y}=\theta_0+\theta_1 x$ where $\theta_0,\theta_1\in\mathbb{R}$ are the parameters of the fitted model. What is the interpretation of $\theta_0$

orrect answer	The predicted value of y when the value of x is 0.	
	The mean predicted value of y over all possible values of x.	
	It has no direct meaning to the model.	
ou Answered	The predicted increase of y when x increases by 1 unit.	
	1/1 nte	

	Question 7	1 / 1 pts
	The entropy of a random variable X can be informally interpre measure of	ted as a
	the ratio between the largest and smallest values of X.	
	the least probable outcome of X.	
Correct!	the uncertainty of X.	
	the most probable outcome of X.	

	Question 8	0 / 1 pts
	What is the entropy of a variable that can only take on one val	ue?
	O 1 bit	
orrect answer	○ 0 bit.	
	O.333 bit	
ou Answered	<ul><li>0.5 bit</li></ul>	

	Question 9	0 / 1 pts
	Suppose we have two discrete random variables X and Y and y be the most probable outcomes of X and Y respectively. If Pr Pr(y), what is the relationship between the entropies H(X) and	(x) <
ou Answered		
orrect answer	There are other factors that influence the relationship between H(X) H(Y)	() and
	○ H(X)=H(Y)	
	H(X)>H(Y)	

	Question 10	/ 1 pts
	Suppose we have two coins X and Y whose probabilities of heads and y respectively where $0.5 \le x < y$ . What is the relationship betw the entropies H(X) and H(Y)?	
	○ H(X) <h(y)< td=""><td></td></h(y)<>	
Correct!	H(X)>H(Y)	
	There are other factors that influence the relationship between H(X) at H(Y).	nd
	○ H(X=H(Y)	

Quiz score: 7 out of 10