Liver Disease predictions

Web application Guide

By Santiago González Berruga

santiagogonzalezberruga

1. Data and Results:

In the following table you can observe the variables required to make predictions in the web application.

Variable	Description	Type	Range/Levels
ID	Identification code of the patient	All types	-
Age	Age of the patient (years)	Numeric	[1,130]
Gender	Gender of the patient	Categorical	Female/Male
TB	Total Bilirubin (mg/dL)	Numeric	Bigger than 0
DB	Direct Bilirubin (mg/dL)	Numeric	Bigger than 0
Alkphos	Alkaline Phosphatase (units/L)	Numeric	Bigger than 0
Sgpt	Alanine Aminotransferase (units/L)	Numeric	Bigger than 0
Sgot	Aspartate Aminotransferase (units/L)	Numeric	Bigger than 0
TP	Total Proteins (g/dL)	Numeric	Bigger than 0
ALB	Albumin (g/dL)	Numeric	Bigger than 0
AG	Albumin and Globulin Ratio (g/dL)	Numeric	Bigger than 0

The results of the predictions with a 77% precision could be two ***LD*** *(Liver disease patient)* or ***H*** *(Non liver disease patient)*. Along with the Prediction results, the results can also be displayed graphically, comparing them with the data used to train the predictive model.

Results*	Description
LD	Liver disease patient
H	Non liver disease patient

* Please note that these results are not a final diagnosis, but a support tool for specialists.

2. Types of predictions:

Different types of predictions and ways to upload the data are offered. However, in all cases all variables must be provided and presented in the correct format to make the prediction.

Prediction	Description	Upload data
Unique	Prediction of a single record/patient	CSV file/Form
Multiple	Prediction of more than one record/patient	CSV file

3. Predictive model:

To make the predictions, we use a classification model* created with a single-hidden-layer artificial neural network algorithm and trained with the ILPD (Indian Liver Patient Dataset) data set obtained from the UCI machine learning repository. The performance of the model obtained during his training was:

Accuracy	Error rate	kappa	Sensibility	Specificity	Precision	Recall	F1-score
0.75	0.25	0.27	0.94	0.29	0.77	0.94	0.84

* You could obtain more information about how the model was created and the data used to train it in the paper of *González Berruga, S (2021) called "Diagnóstico de enfermedad hepática mediante técnicas de Aprendizaje automático y su implementación en una aplicación web"*.