



Liver Disease predictions

Web application Guide



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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
<i>ID</i>	Identification code of the patient	All types	-
<i>Age</i>	Age of the patient (years)	Numeric	[1,130]
<i>Gender</i>	Gender of the patient	Categorical	Female/Male
<i>TB</i>	Total Bilirubin (mg/dL)	Numeric	Bigger than 0
<i>DB</i>	Direct Bilirubin (mg/dL)	Numeric	Bigger than 0
<i>Alkphos</i>	Alkaline Phosphatase (units/L)	Numeric	Bigger than 0
<i>Sgpt</i>	Alanine Aminotransferase (units/L)	Numeric	Bigger than 0
<i>Sgot</i>	Aspartate Aminotransferase (units/L)	Numeric	Bigger than 0
<i>TP</i>	Total Proteins (g/dL)	Numeric	Bigger than 0
<i>ALB</i>	Albumin (g/dL)	Numeric	Bigger than 0
<i>AG</i>	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
<i>LD</i>	Liver disease patient
<i>H</i>	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
<i>Unique</i>	Prediction of a single record/patient	CSV file/Form
<i>Multiple</i>	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"*.