Statistical Machine Learning Approaches to Liver Disease Prediction

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Exploratory Data Analysis

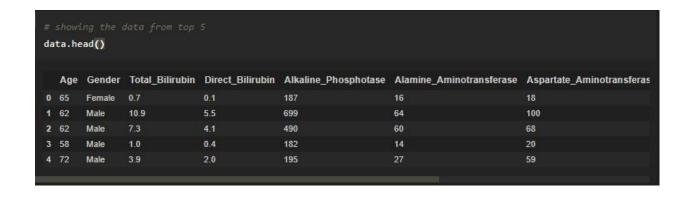
The exploratory data analysis (EDA) notebook is designed to assist you with discovering patterns in data, checking data sanity, and summarizing the relevant data for predictive models.

The EDA notebook example was optimized with web-based data in mind and consists of two parts. Part one starts with using Query Service to view trends and data snapshots. Next, with a goal in mind for exploratory data analysis, the data is aggregated at the profile and visitor level.

Part two starts by performing descriptive analysis on aggregated data using Python libraries. This notebook showcases visualizations such as histograms, scatter plots, box plots, and a correlation matrix to derive actionable insights used to determine which features are most likely to be helpful in predicting a goal.

[4];		Year	Month	Count_days	First_date	Last_date	Count_hits
	0	2020	1	1	31	31	117060
	1	2020	2	29	1	29	3503948

head(): To check the first five rows of the dataset, we have a function called head().



Tail(): To check the last five rows of the dataset, we have a function called tail().

data	.tail	1()					
	Age	Gender	Total_Bilirubin	Direct_Bilirubin	Alkaline_Phosphotase	Alamine_Aminotransferase	Aspartate_Aminotransfer
578	60	Male	0.5	0.1	500	20	34
579	40	Male	0.6	0.1	98	35	31
580	52	Male	8.0	0.2	245	48	49
581	31	Male	1.3	0.5	184	29	32
582	38	Male	1.0	0.3	216	21	24

Will see how our dataset is, by using the info() method.

```
data.info()
 <class 'pandas.core.frame.DataFrame'>
  RangeIndex: 583 entries, 0 to 582
  Data columns (total 11 columns):
                                               Non-Null Count Dtype
   # Column
                                               583 non-null int64
583 non-null object

        0
        Age
        583 non-null int64

        1
        Gender
        583 non-null object

        2
        Total_Bilirubin
        583 non-null float64

        3
        Direct_Bilirubin
        583 non-null float64

        4
        Alkaline_Phosphotase
        583 non-null int64

        Age
       Alamine_Aminotransferase 583 non-null int64
       Aspartate_Aminotransferase 583 non-null int64
   7 Total_Protiens
8 Albumin
                                                  583 non-null
                                                                          float64
                                               583 non-null float64
        Albumin_and_Globulin_Ratio 579 non-null
                                                                          float64
                                                  583 non-null
  dtypes: float64(5), int64(5), object(1)
  memory usage: 50.2+ KB
```

describe(): functions are used to compute values like count, mean, standard deviation and IQR(Inter Quantile Ranges) and give a summary of numeric type data.

data.describe()

data.describe() Age Total_Bilirubin Direct_Bilirubin Alkaline_Phosphotase Alamine_Aminotransferase Aspartate_Aminotransfera count 583.000000 583.000000 583.000000 583.000000 583.000000 583.000000 44.746141 3.298799 1.486106 290.576329 80.713551 109.910806 16.189833 6.209522 2.808498 242.937989 182.620356 288.918529 4.000000 0.400000 63.000000 0.100000 10.000000 10.000000 min 33.000000 0.800000 0.200000 175.500000 23.000000 25.000000 50% 45.000000 1.000000 0.300000 208.000000 35.000000 42.000000 75% 58.000000 2.600000 1.300000 298.000000 60.500000 87.000000 90.000000 75.000000 19.700000 2110.000000 2000.000000 4929.000000