DATA SCIENCE WITH AIML

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PROJECT : Disease prediction from symptoms

Industry: E Commerce, Retail

1. **Project Overview**

This project aims to develop an advance demand Forecasting model to maximum facilitates the retailers. For this purpose it is necessary to optimize retail inventory management and supply chain operations. For this purpose, we have to analyse sales history, promotional events, seasonal trends and economic indicators. The projects objective is to accurately predict product demand and minimise issues such as excess inventory and stockouts.

To develop this model, we consider the following aspects:

a. **Data Collection – Collect various time period data to validate maximum authenticity.**

b. **Data processing – To find an algorithm between them.**

c. **Model Development – Considering various aspects we develop a model to detect the maximum possibility areas of demand creation.**

Contents

PROJECT OVER VIEW

Disease prediction from symptoms.

Disease prediction…….

-> Problem Statement:

1.Classical diagnosis method is a process where the patient has to visit a doctor, undergo various medical test and then come to a conclusion.

2.This process is very time consuming.

-> Our Solution:

1.To save the time required and also money for initial process of diagnosis symptoms, this project proposes an automated disease prediction sysem that relies on user input.

2.The system takes input from user and provides a list of probable diseases.

-> More about project:

1.Disease will be predicted using Naive Bayesian algorithm which works on probabilistic approach more specifically Multinomial NB since multiple symptoms are taken.

2.According to literature survey, this algorithm results in maximum accuracy for larger dataset.

3.The dataset contains disease as labels and for each disease symptoms are given.

-> Have fun guyzzz !!!!!

TKINTER LIBRARY

➔ Python offers multiple options for developing GUI (Graphical User Interface).

Out of all the GUI methods, tkinter is the most commonly used method.

It is a standard Python interface to the Tk GUI toolkit shipped with Python.

Python with tkinter is the fastest and easiest way to create the GUI applications.

Creating a GUI using tkinter is an easy task.

To create a tkinter app:

➔ Importing the module – tkinter

Create the main window (container)

Add any number of widgets to the main window

Apply the event Trigger on the widgets.

Importing tkinter is same as importing any other module in the Python code. Note that the name of the module in Python 2.x is 'Tkinter' and in Python 3.x it is 'tkinter'.

import tkinter

There are two main methods used which the user needs to remember while creating the Python application with GUI.

Tk(screenName=None, baseName=None, className='Tk', useTk=1): To create a main window, tkinter offers a method 'Tk(screenName=None, baseName=None, className='Tk', useTk=1)'. To change the name of the window, you can change the className to the desired one. The basic code used to create the main window of the application is:

m=tkinter.Tk() where m is the name of the main window object

mainloop(): There is a method known by the name mainloop() is used when your application is ready to run. mainloop() is an infinite loop used to run the application, wait for an event to occur and process the event as long as the window is not closed.

m.mainloop()

```
import tkinter
m = tkinter.Tk()
'''
widgets are added here
'''
m.mainloop()
```

PANDAS LIBRARY

1.Pandas is an open-source python package built on top of Numpy developed by Wes McKinney. It is used as one of the most important data cleaning and analysis tool. It provides fast, flexible, and expressive data structures.

*Pandas is derived from the term "**Pan**el-**da**ta-**s**" an econometrics term for data sets include observations over multiple time periods for the same individuals. -source Wikipedia*

2. How to import Pandas?

```
import pandas as pd
```

By using the above command you can easily import pandas library.

3.Pandas Data Structures

Pandas deals with three types of data structures :

- Series
- DataFrame
- Panel

a)Series is a one-dimensional array-like structure with homogeneous data. The size of the series is immutable(cannot be changed) but its values are mutable.

NUMPY LIBRARY

What is NumPy?

NumPy is a Python library used for working with arrays.

It also has functions for working in domain of linear algebra, fourier transform, and matrices.

NumPy was created in 2005 by Travis Oliphant. It is an open source project and you can use it freely.

NumPy stands for Numerical Python.

Why Use NumPy?

In Python we have lists that serve the purpose of arrays, but they are slow to process.

NumPy aims to provide an array object that is up to 50x faster than traditional Python lists.

The array object in NumPy is called `ndarray`, it provides a lot of supporting functions that make working with `ndarray` very easy.

Arrays are very frequently used in data science, where speed and resources are very important.

Which Language is NumPy written in?

NumPy is a Python library and is written partially in Python, but most of the parts that require fast computation are written in C or C++.

Import NumPy

Once NumPy is installed, import it in your applications by adding the `import` keyword:

```
import numpy
```

Now NumPy is imported and ready to use.

Example Get your own Python Server

```
import numpy

arr = numpy.array([1, 2, 3, 4, 5])

print(arr)
```

Try it Yourself »

NumPy as np

NumPy is usually imported under the `np` alias.

alias: In Python alias are an alternate name for referring to the same thing.

Create an alias with the `as` keyword while importing:

```
import numpy as np
```

Now the NumPy package can be referred to as `np` instead of `numpy`.

Example

```
import numpy as np

arr = np.array([1, 2, 3, 4, 5])

print(arr)
```

Checking NumPy Version

The version string is stored under `__version__` attribute.

Example

```
import numpy as np

print(np.__version__)
```

Working of the project

->BLOCK DIAGRAM :

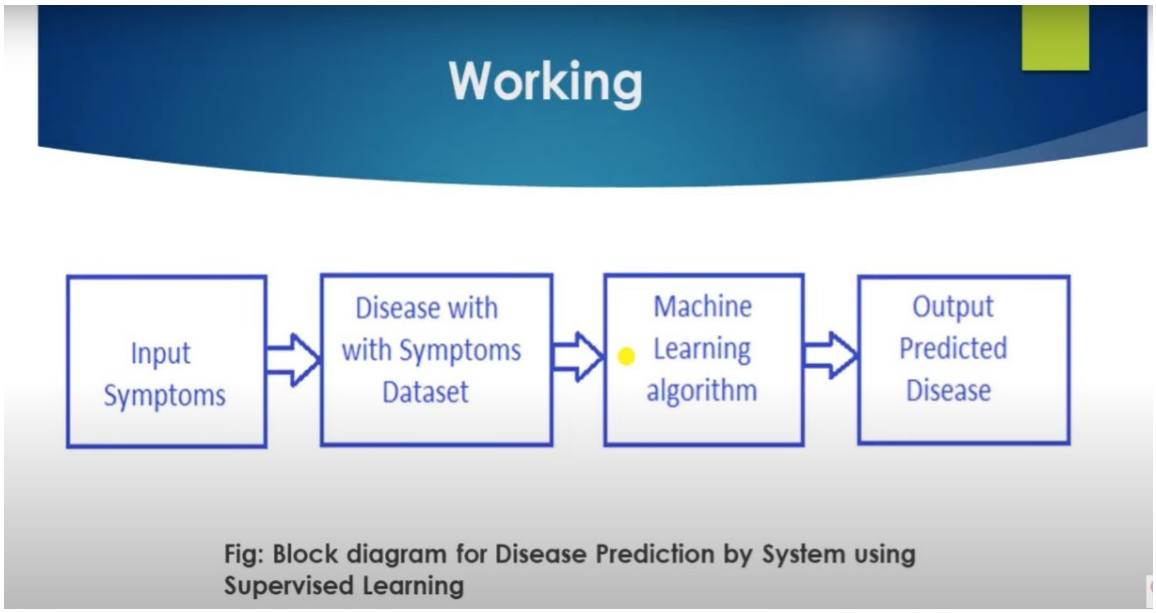
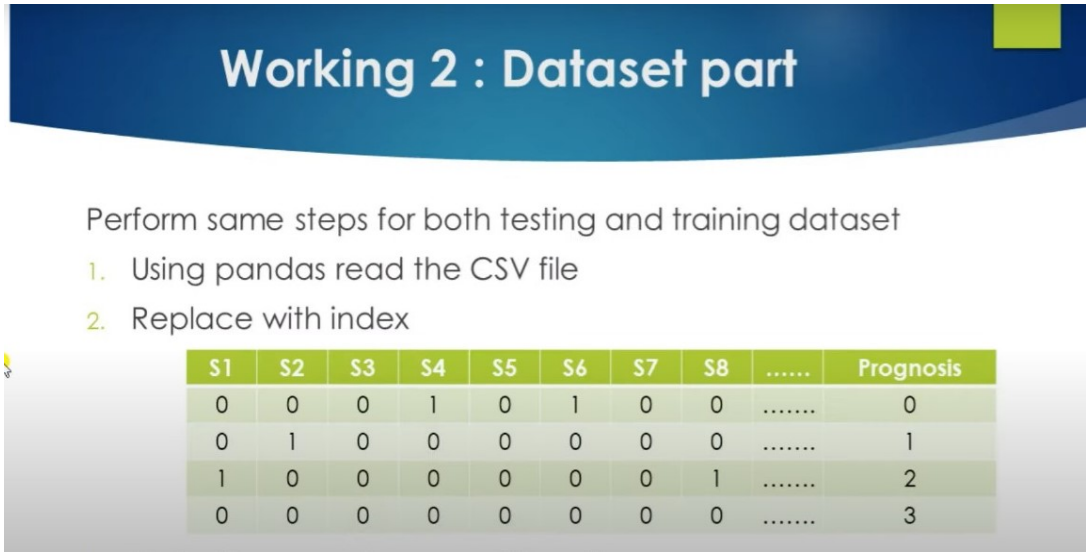


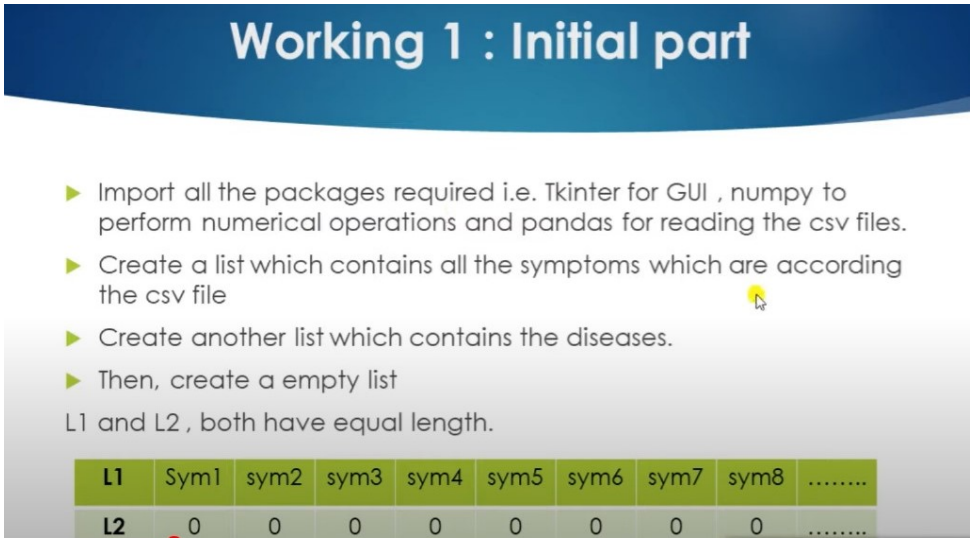
Fig: Block diagram for Disease Prediction by System using Supervised Learning

->WORKING 2 DATASET PART :



S1	S2	S3	S4	S5	S6	S7	S8	.....	Prognosis
0	0	0	1	0	1	0	0	.....	0
0	1	0	0	0	0	0	0	.....	1
1	0	0	0	0	0	0	1	.....	2
0	0	0	0	0	0	0	0	.....	3

->WORKING 1:INIIAL PART



Problem Definition:

- **Predicts diseases based on symptoms (in order to improve medical attention given to patients)**
- **Classical Diagnosis**
- **Machine Learning algorithm use a computer aided prediction can be made by inputting the symptoms.**

OUTPUT OF THE PROJECT: