WXY - a clinical prediction app for stroke patients

WXY is a web app that incorporates a machine learning predictive model, through which a user can input patient's data and get the predicted destinations with visualized likelihood numbers.

1. System Overview

This web app uses a typical Browser/Server architecture. The back-end is implemented using Python and Flask. The front-end is coded using HTML, CSS, JavaScript and Twitter Bootstrap. This application is hosted here using PythonAnywhere.

2. System Requirements

A user can access the app at wxy.pythonanywhere.com from any web browser, for example, on a desktop computer, a tablet or a mobile phone.

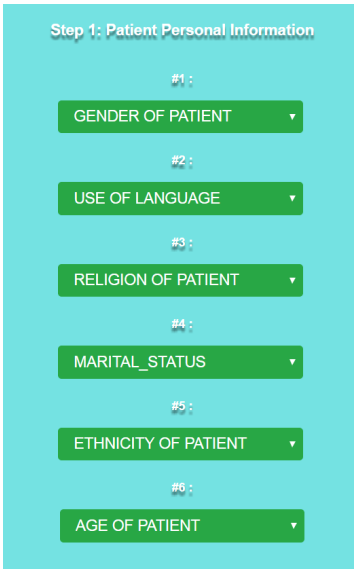
3. How to use it

The logic of the app is quite straightforward, the user inputs patient's data and hit the predict button, and then the app outputs the predicted results for the user.

3.1 Input

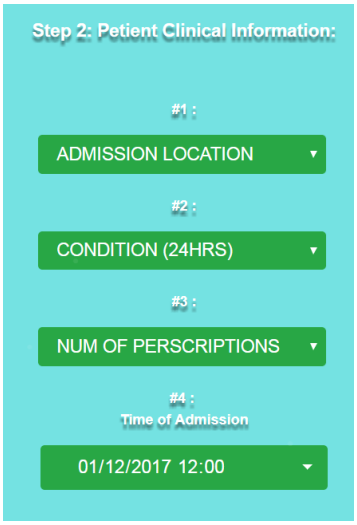
The user can input the patient's data via 3 steps, including patient personal information, patient clinical information and lab test information.

Step 1: Patient Personal Information



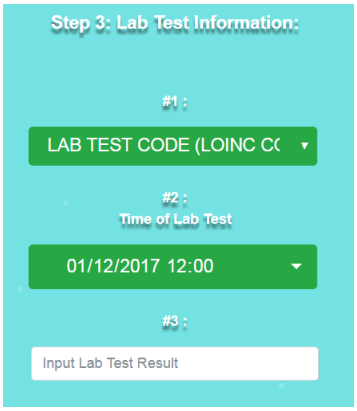
As shown in the above figure, the user can input the patient's personal information using 6 drop-down lists, including the patient's gender, the primary language the patient uses, the patient's religion, marital status, the patient's ethnicity, and age.

Step 2: Patient Personal Information



As shown in the above figure, the user can input the patient's clinical information using 4 drop-down lists, including the patient's admission location, condition within first 24 hours, number of prescriptions, and time of admission.

Step 3: Lab Test Information



As shown in the above figure, the user can input the patient's lab test code and time from the 2 drop-down lists. The simple text box is for use to input the test result numbers (using default units for different tests in clinical practices)

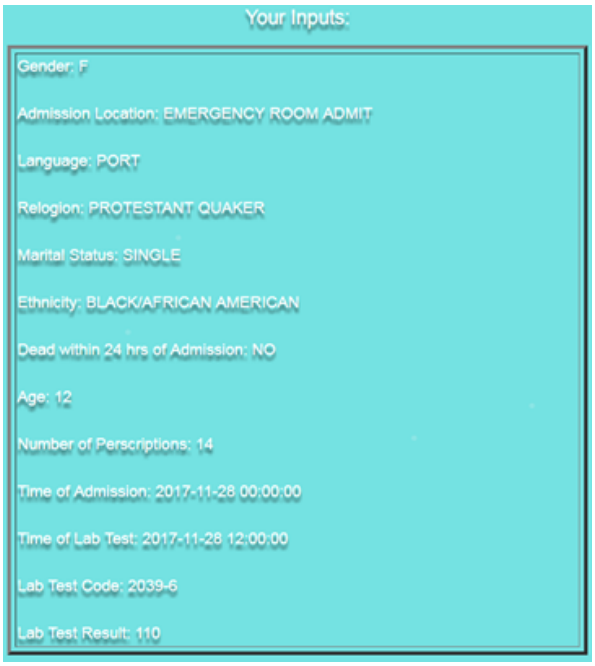
Step 4: Click to predict

As shown in the above figure, the user can either click the Predict button to proceed or hit the Reset button to re-enter the patient's data. All input fields **MUST** be filled before the app can proceed for prediction.

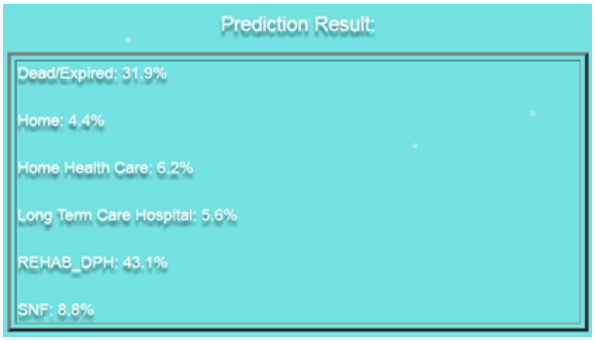
3.2 Output

When the user completes all input fields and clicks the Predict button, the app then calculates the results using the built-in machine learning predictive model. The outputs are shown at the bottom of the page.

The first table reminds the user which patient he/she is looking at, as seen below.



The second table shows the predicted destinations with different possibilities, as seen below.



The third part visualizes the table using a pie chart. Different destinations are labelled with different colors and the chance of any particular destination is shown when the cursor hovers upon that destination, as seen below.

6. Authors and Technical Support

WXY is developed and supported by OMSCS-CS6440Fall17TeamWXY of Georgia Institute of Technology. Main Contributors are:

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