USER'S MANUAL

30th April 2018

Liver Transplantation Prediction System

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Contents

1.0   SYSTEM OVERVIEW

The user-friendly web application is intended to be used by the medical professionals to identify the potential recipient for every donor. The clinical features that influence the prediction of the graft survival probability is also displayed. The input for the application are two CSV files:

1) Donor file - Contains an exhaustive list of donors available along with their clinical attributes. (Sample file attached)

donors.csv

2) Recipient file - Contains the information of the recipients who are on the waiting list. (Sample file attached)

recipients.csv

The 'match' feature available in the UI displays the top 5 recipients for every donor along with their matching scores and the graft survival probability. The recipient with the top matching score is identified as the potential recipient. In case the recipients have the same matching score, the survival prediction score is used to break the ties.
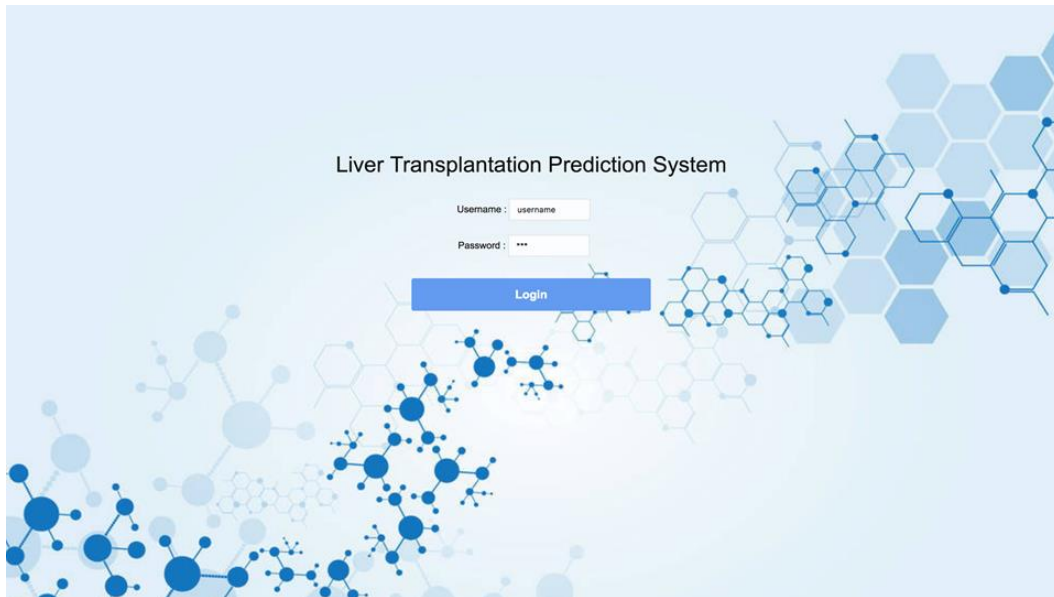
2.0   USING THE SYSTEM

The user can login to the Liver Transplantation prediction system. Upon login, user can perform the following two tasks,

1. View clinical features influencing the liver prediction analysis.
2. Upload the csv files containing donor and recipient clinical information and click on match tab to view top 5 potential recipients for every donor along with their matching and survival prediction score
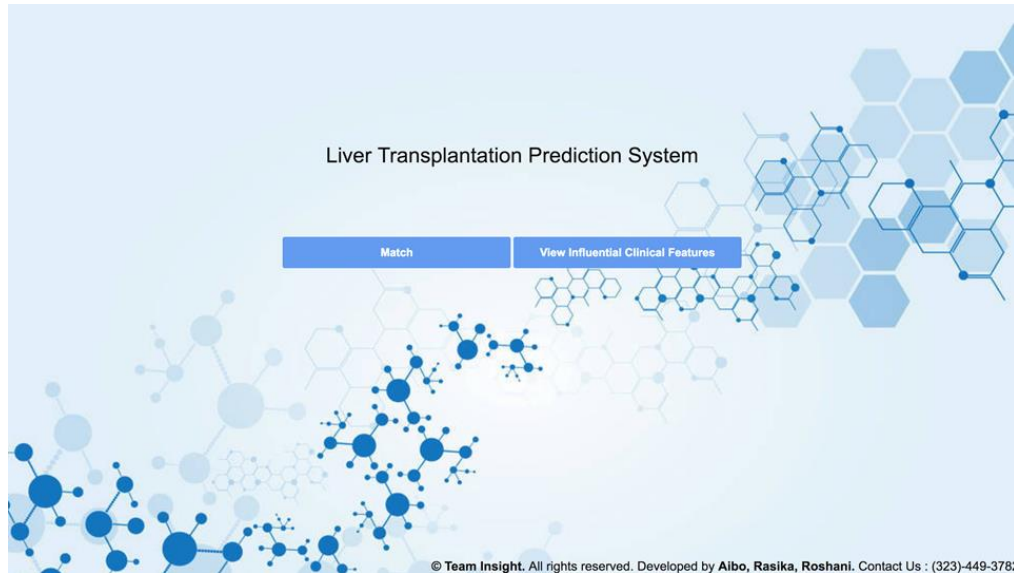
2.1   Logging On:

Currently, the application has default username and password for logging in. Future work involves creating a login system that ensures only authorized registered users have access to the application. The web application allows only users with registered username and correct password.
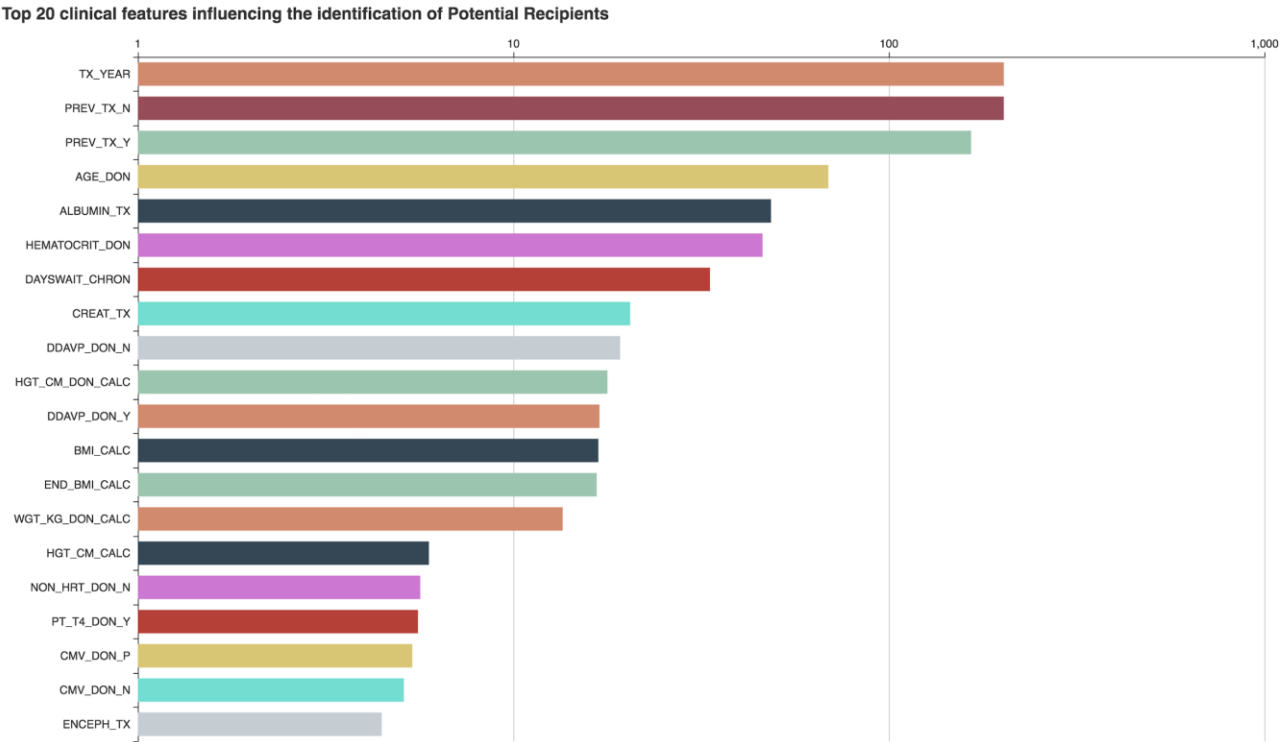
2.2   Home Page:

On this homepage, there is a navigation containing two main buttons, one is directing to matching page and another one is directing to influential clinical features viewing page.

2.3   View clinical features influencing the predictive analysis

Upon clicking the 'View Influential Clinical features' tab in the home page, the top 20 influential features for predicting the graft survival rate is displayed. On hovering, the description of the features are also displayed.

Top 20 clinical features influencing the identification of Potential Recipients

2.4   Match donor with Potential recipient

a. Upload Recipient Information (MELD score range can also be selected)

b. Upload donor information

c. View top 5 recipients for each donor:

When the user clicks on 'check' for each donor, the page displays top 5 recipients for the donor. Upon hovering every recipient node, it displays the Recipient Identification number, Matching score and prediction score. Upon hovering the donor node, it displays the donor ID.

The result page also displays the table which has top 5 recipients with the Matching score, Prediction score and the MELD score

Final Results

RECIPIENTID of DONOR: 100	MATCHINGSCORE	PREDICTIONSCORE	MELDSCORE
3	13.505	0.639	7
2	13.358	0.719	33
7	12.69	0.788	23
5	11.841	0.824	11
4	10.773	0.663	17