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Personal Blood Pressure Management System

Aim: To design and implement a personal blood pressure management system which will effectively track and indicate trends in one's personal health and medication routines.

Description: This application functions by collecting data from the users which they can on a regular basis(or update as needed). Personal information is to be entered for the sake of medical records and security of the information, so that the data can be traced to a particular individual and is uniformly updated with whatever is submitted with the doctor's office (i.e details like family history, weight, height etc. This way, the current record will be readily available during the next visit to the doctors office, saving a considerable amount of time.
Data can be simultaneously read for a single patient, and multiple account access on the same software is also supported.

There is a login page for the user to protect the security of medical information.

The main condition on which the application's service is based on is the tracking of blood pressure, in particular systolic and diastolic blood pressure. The application uses database to maintain a calendar of each day a patient logs his/her information. Then, using swing, the overall trend for the systolic and diastolic blood pressure is displayed through the means of a line graph. This can indicate how a patient has been reacting to a particular change in diet, medication, new environment or any other factors which can be useful for doctors to analyze.

This is a useful tool for both doctors and patients alike, in the sense that it can concisely and intuitively summarize symptoms which a patient is facing in time for his/her doctor visit. As an effect, it can help doctors more precisely diagnose their patients since routine logs are available in a presentable and analytical way.

Java Features Used in Mini Project:

1) Java Swing
2) Inheritance
3) Exception handling
4) Polymorphism

Database is also used in the project for the purpose of the user login feature to be effective and also for the calendar to allow the user to enter his/her blood pressure readings on a daily basis in order for it to be summed up in the linear graph.

Modules:

-Login form
-Blood pressure form
    -Personal details
    -View Data
        -Enter data
        -View Chart
            -Fetch blood pressure by date
            -Chart
    -Information about blood pressure
-App usage Help page

Class Diagrams:

Login
+Query:String +sta:Statement +res:ResultSet
+Login():Login +run():void +initComponents():Login

Page2
+bp:BloodPressure +hl:Help -jButton4:javax.swing.jButton -jButton5:javax.swing.jButton
-jButton4ActionPerformed(java.awt.event.ActionEvent evt):void -jButton5ActionPerformed(java.awt.event.ActionEvent evt):void +Page2():Page2

BloodPressure
+ib:InformationBp +rbp:ReadingBp +pi:PersonalInfo +p:Page2
-jButton1ActionPerformed(java.awt.event.ActionEvent evt):void -jButton4ActionPerformed(java.awt.event.ActionEvent evt):void -jButton2ActionPerformed(java.awt.event.ActionEvent evt):void -jButton5ActionPerformed(java.awt.event.ActionEvent evt):void

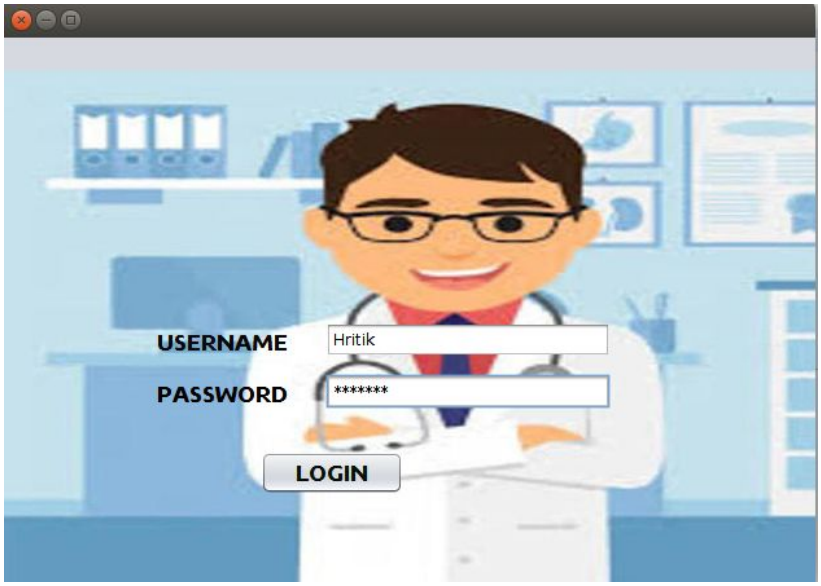
ReadingBp
+dbp:DataBP +vbp:ViewDataBP +bp:BloodPressure
-jButton2ActionPerformed(java.awt.event.ActionEvent evt):void -jButton3ActionPerformed(java.awt.event.ActionEvent evt):void

DataBP
+conn:Connection +psmt:PreparedStatement +query:String +b:ReadingBp
-jButton2ActionPerformed(java.awt.event.ActionEvent evt):void -jButton1ActionPerformed(java.awt.event.ActionEvent evt):void -convertUtilDatetoSqlDate(java.util.Date date)

DataDateBP
+b:ReadingBp +date:Date +sqlDate:java.sql.Date +s:int +dsb:DataSetBP
-jButton2ActionPerformed(java.awt.event.ActionEvent evt):void -jButton1ActionPerformed(java.awt.event.ActionEvent evt):void

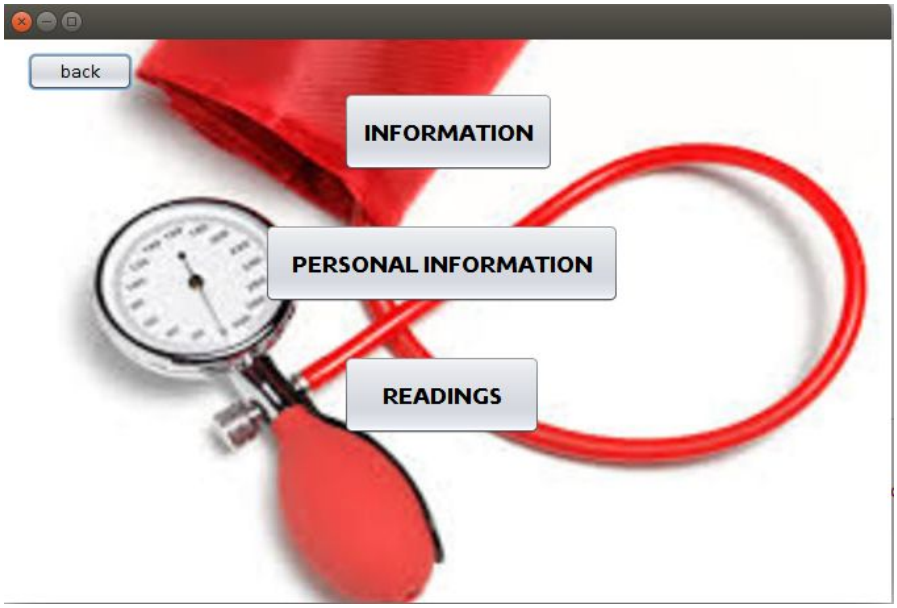
ViewDataBp
+query:String +dataset: JBDCCategoryDataset +renderer:BarRenderer +frame:ChartFrame +plot:CategoryPlot +frame:ChartFrame +r:ReadingBp
-jButton3ActionPerformed(java.awt.event.ActionEvent evt):void -jButton2ActionPerformed(java.awt.event.ActionEvent evt):void -jButton4ActionPerformed(java.awt.event.ActionEvent evt):void

Outputs:



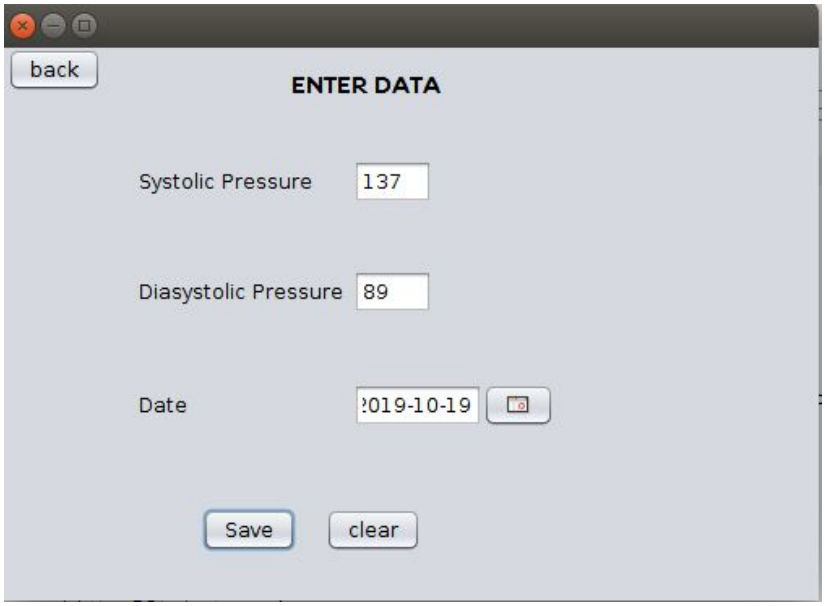
This is a login screen which allows the user to enter his or her credentials (username and password) and login to their account which holds their information.

Once the user has logged in, they will be redirected to a page which allows them the option of managing their blood pressure(the main function of the application), as well as a help page which holds information on the usage of the app and how it is designed.

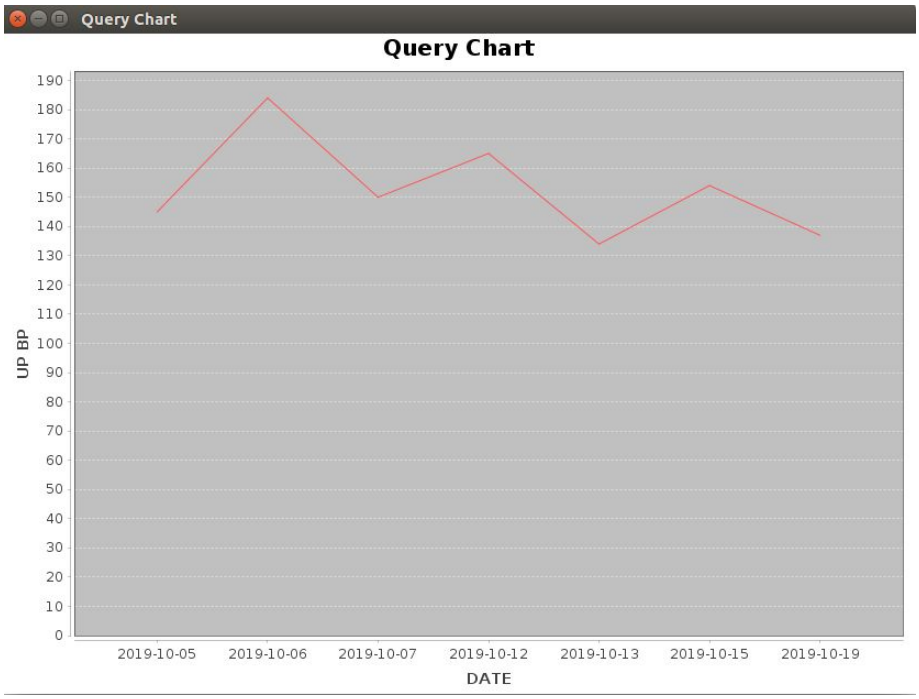


Under blood pressure, there are three fields.The information button directs to a page which serves as a fact sheet on hypertension and provides general information on the condition. The personal information field logs in information of the user for them to update as needed. The readings field is where the data values are logged in by the user and to display the chart for systolic and diastolic blood pressure readings.

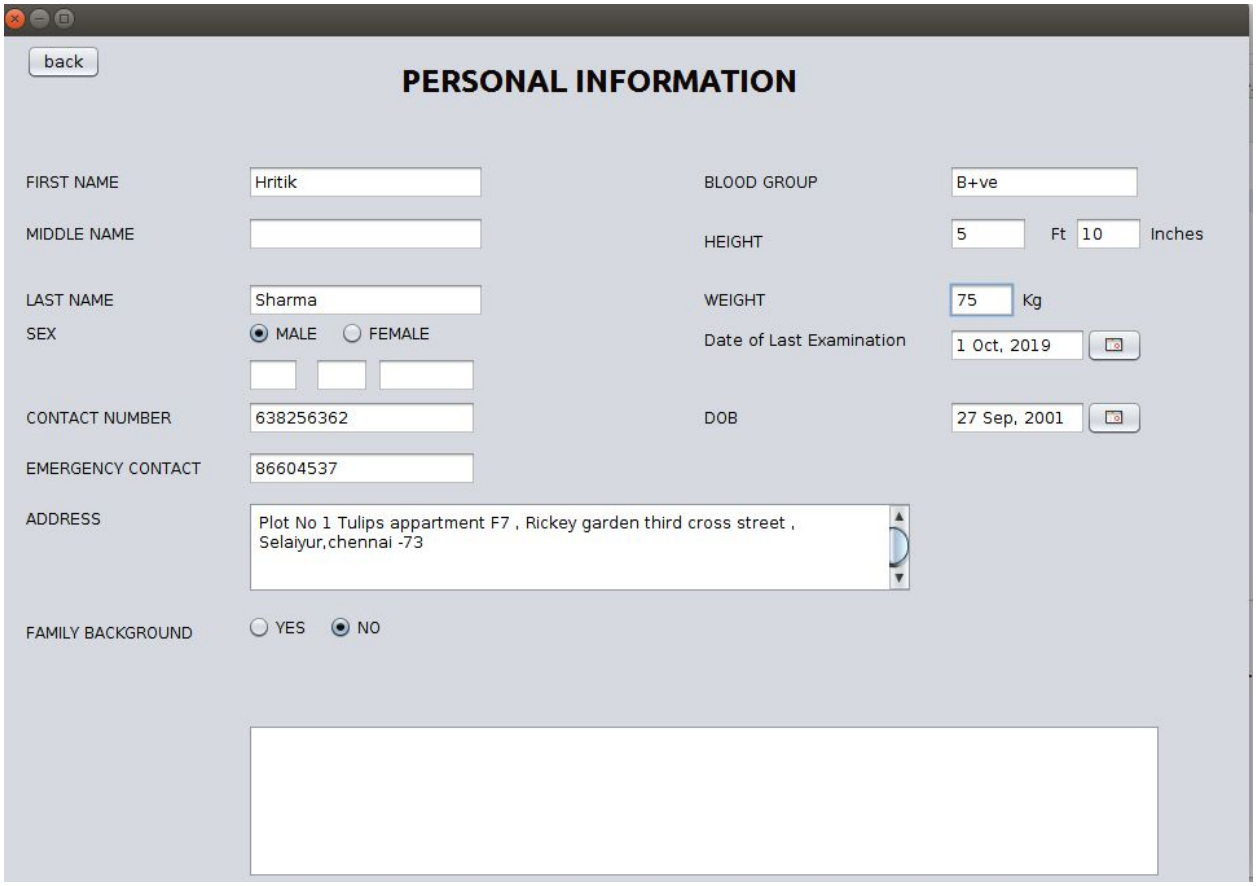
Under the readings field, there are options to enter data and view data.



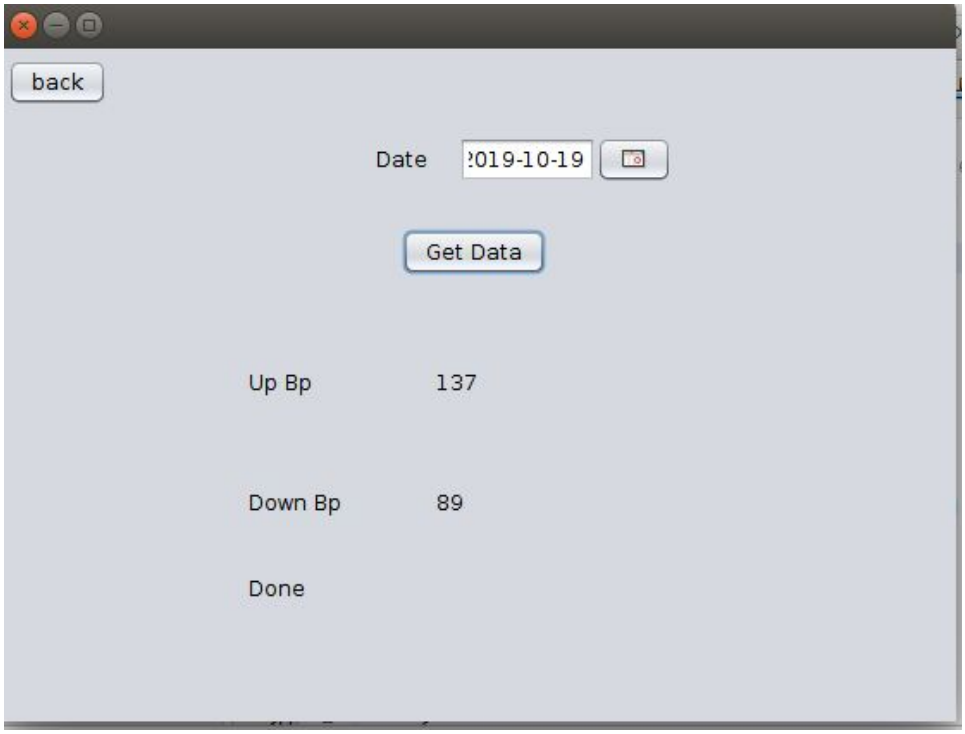
The enter data field allows the user to enter his systolic and diastolic blood pressure on a given date, which is managed using database.



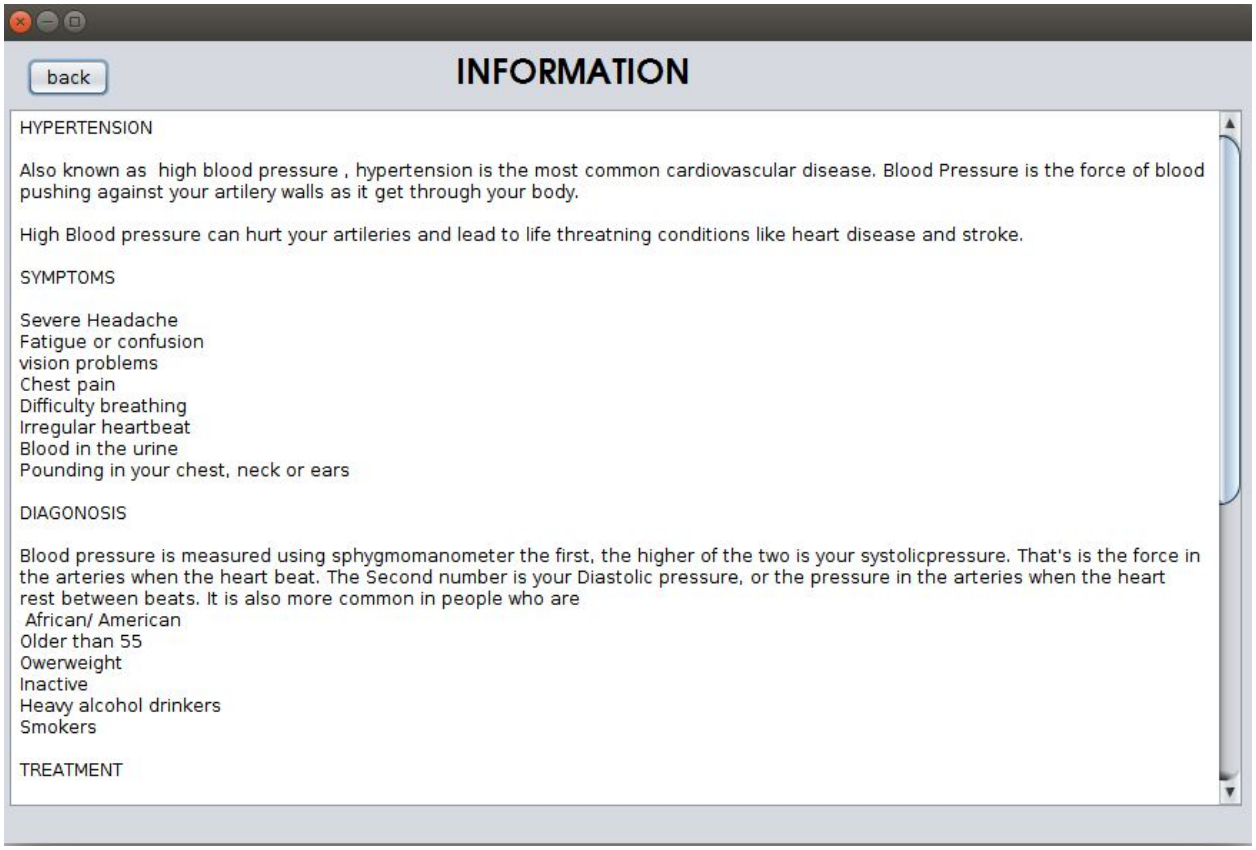
This chart for systolic blood pressure enter over several dates displays the trend of the given readings and helps the doctors to analyse the trajectory of the patient's condition.



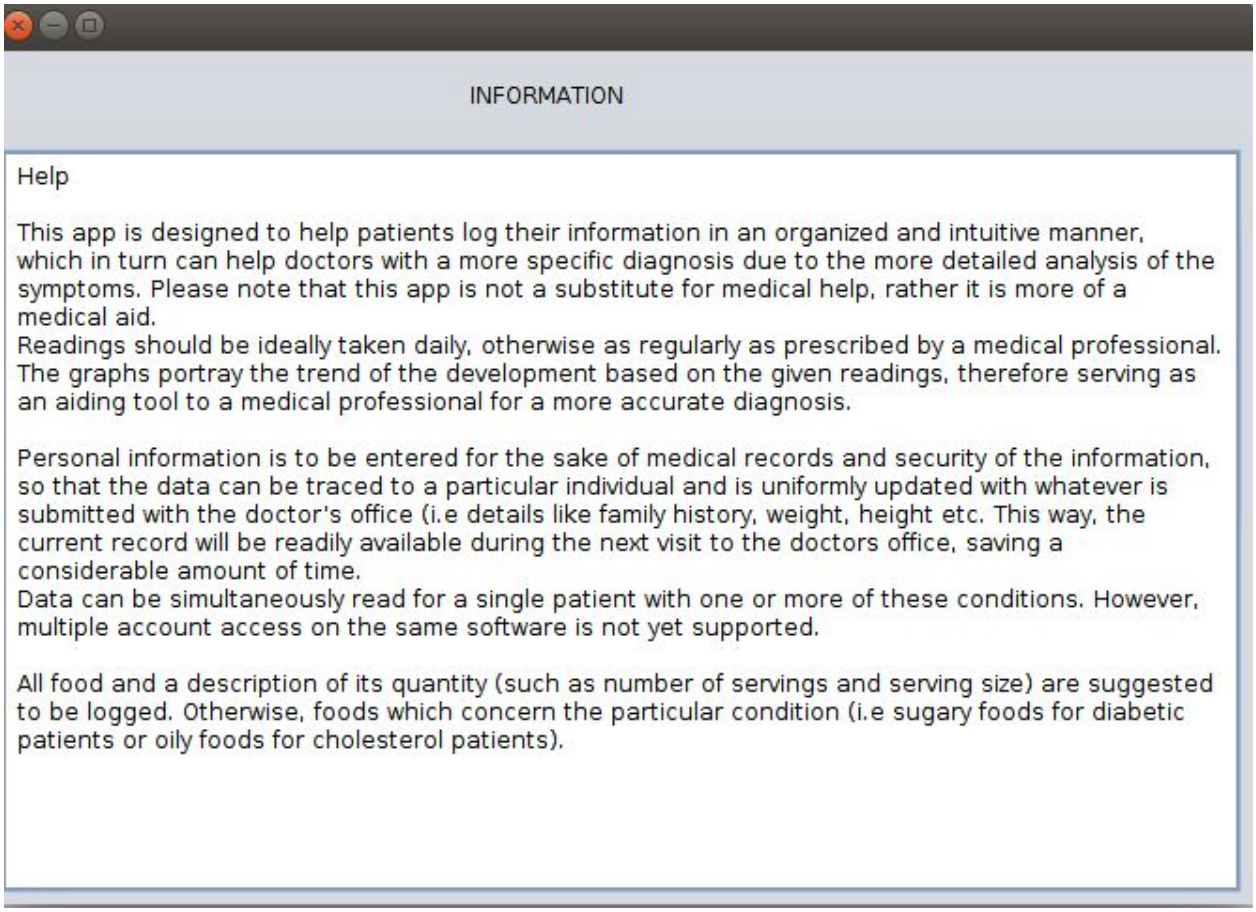
The personal information page allows the user to enter his/her personal information which is typically asked at doctors visits.This way, the patient can readily maintain his/her records and accurately fill up the forms without having to scramble for or recollect less accurate information.



Above is the field for retrieving data entered by the user on a particular date. This displays the up (systolic) and down(diastolic)blood pressure entered on that date.



General information page on hypertension including its symptoms,diagnosis, and treatment.



Above is the help page which is displayed for information on the recommended usage of this app.