

Software Lab
**Assignment3 :Design Weather
Forecasting App In Tcl/tk**

Harshit Kumar Gupta
2013EET2369



Computer Technology
Department Of Electrical Engineering
IIT DELHI

April 3, 2014

Contents

1	<u>PROBLEM STATEMENT</u>	2
2	<u>ABSTRACT</u>	3
3	<u>INTRODUCTION</u>	4
4	<u>SPECIFICATIONS AND ASSUMPTIONS</u>	5
5	<u>LOGIC USED/METHODOLOGY</u>	6
6	<u>FLOWCHART</u>	7
7	<u>EXECUTION INSTRUCTIONS</u>	8
8	<u>RESULTS AND CONCLUSIONS</u>	9

Chapter 1

PROBLEM STATEMENT

Develop an ubuntu app which can accomplish following two tasks:

1. forecasting next few days weather conditions
2. keep record of past few days' weather conditions (max 30 days) in to your database and show it as a strip chart which has a rewind / fast fwd button.

Use tcl/tk for the GUI to interact with the user and scripting languages like python,perl,shell,awk etc for other operations. The user will be asked to enter name of a place for which weather conditions have to be forecasted, the number of days (n) for which to show information, and to press a button to decide whether to forecast or tell about the past n days' weather conditions.

For keeping the record of past few days' weather information, you can use MySQL database. Max 5 days' information need to be recorded. You can make use of yahoo api for weather forecasting info. It easily tells about the next five days' weather conditions. Develop html webpage using Doxygen to publicize your app.

Chapter 2

ABSTRACT

The intention is to teach how to design the User Interface in your programming assignment. Though it is the most important part of the user interaction, and the most likely to draw adverse comment, it is also the most neglected part of coding. May be because engineers do not understand a good interface intuitively. A good interface design can be taught, developing a great interface is an art to be developed by systematic application of processes and is difficult to master.

There are many tools which allow a basic UI to be cobbled together. For example, tcl/tk (and the wish shell) was developed by John Ousterhout to allow quick interfaces and shells to be thrown together. 4GL (4th Generation Languages) such as RAD tools (Delphi), IDEs such as Athena make this process easy and a lot less scary. In Ubuntu, try Anjuta or Glade or Fox/GLUT. In Windows, VisualStudio does an effective job of UI design.

Chapter 3

INTRODUCTION

Tcl is a string-based command language. The language has only a few fundamental constructs and relatively little syntax, which makes it easy to learn. The Tcl syntax is meant to be simple. Tcl is designed to be a glue that assembles software building blocks into applications. A simpler glue makes the job easier. In addition, Tcl is interpreted when the application runs. The interpreter makes it easy to build and refine your application in an interactive manner.

MySQL also called "My Sequel" is the world's second most widely used open-source relational database management system (RDBMS). The SQL phrase stands for Structured Query Language. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now owned by Oracle Corporation.

MySQL is a popular choice of database for use in web applications, and is a central component of the widely used LAMP open source web application software stack (and other 'AMP' stacks). LAMP is an acronym for "Linux, Apache, MySQL, Perl/PHP/Python." Free-software-open source projects that require a full-featured database management system often use MySQL.

Chapter 4

SPECIFICATIONS AND ASSUMPTIONS

Specifications

1. Tcl/tk script is used to create the GUI for the User.
2. 'wget' Command is used to generate the xml file which contains the weather information of the city.
3. Doxygen has been used for proper Documentation.
4. For various uses Bash has also been used accordingly.
5. Yahoo API has been used for Weather Predictions.
6. The Temperature calculated comes out to be in Celsius.

Assumptions

1. The User is required to Input a valid city name.
2. Weather Forecasting Includes date, day , low and high Temperature.
3. The SQL Server table values may not have a primary key attribute as specifically not required.
4. Data may be only used for Information and not Commercial Purpose.

Chapter 5

LOGIC USED/METHODOLOGY

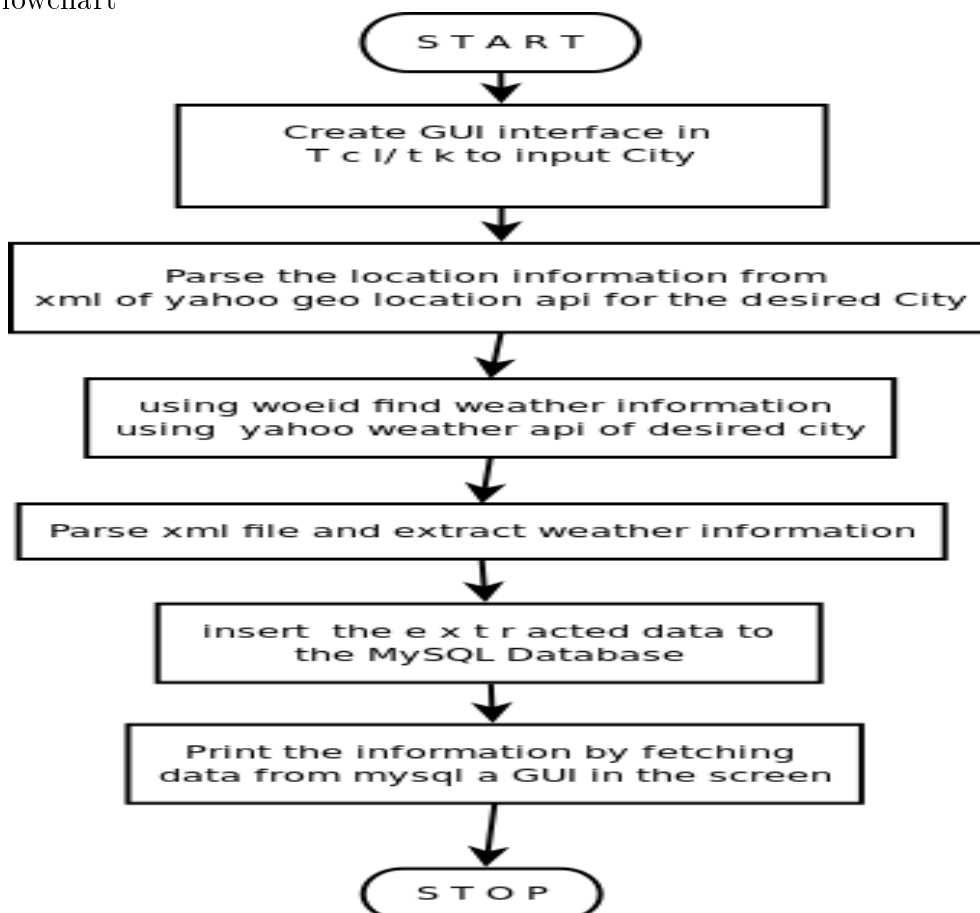
The methodology that is used for developing the program is defined below:

1. Basically , We initiate our code in tcl script to create a User Interface.
2. Now as the User is required to input the value into the text box which is a city name.
3. We make the use of Yahoo ApI to get the value of the woeid(where on earth id)
4. This woeid value generated is passed to the Yahoo Developer Url which geographically calculates the weather Conditions
5. This Weather Conditions are detailed in a XML file which are further Parsed into the tcl Script.
6. Now the values parsed are Stored into the SQL database Table using mysql.
7. Finally the entry values of this table are taken bby the tcl script.
8. The present Weather Conditions and for the next 5 days are displayed using the GUI.
9. Past few values for the weather Predictions are stored in the DB and can be fetched as required.

Chapter 6

FLOWCHART

Flowchart



Chapter 7

EXECUTION INSTRUCTIONS

1. For program following instructions are used.

- (a) `chmod 777 wea.tcl`
- (b) `wish wea.tcl`

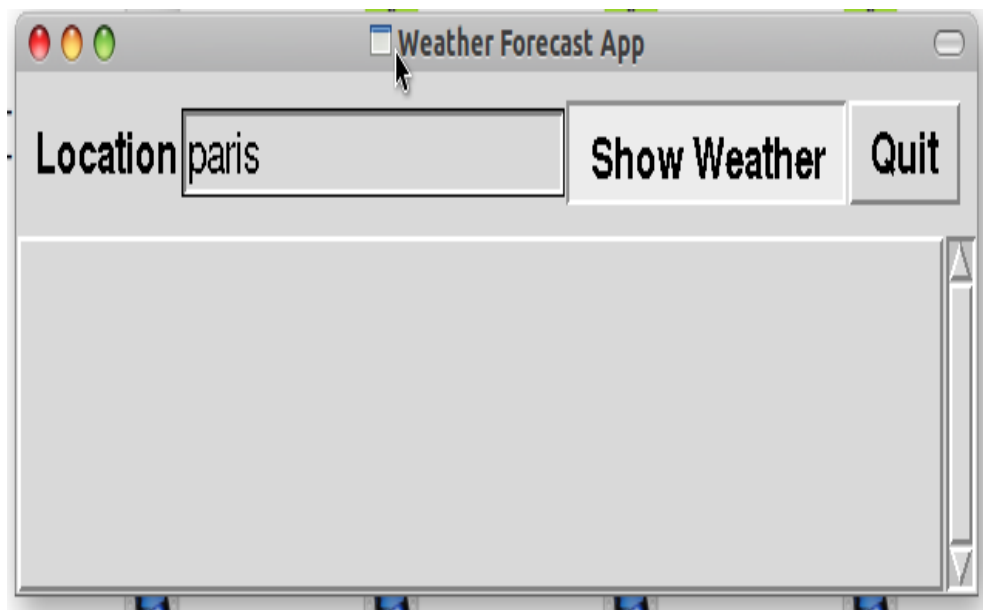
Input the name of the City.

Repeat the above instructions for different input City name.

Chapter 8

RESULTS AND CONCLUSIONS

For the given set of city the program exactly displays the weather information of the City.



Applications Places System

1.20GHz

Sun Feb 23, 4:22 PM

Weather App

File

WIND

Parameters

Atmosphere

Parameters

Astronomy

Parameters

Chill : 8

Direction : 200

Speed : 16.09 mb

Humidity : 76

Visibility : 9.99

Pressure : 1015.92 mb

Rising : 0

Sunrise : 7:43 am

Sunset : 6:23 pm

Weather Conditions

Date : Sun, 23 Feb 2014 11:29 am CET

Temperature : 10 C

Conditions : Fair

City Region Country

Paris {} France

Date	Day	LowTemp	HighTemp	Condition
4 Feb 2014	Tue	6	9	Mostly Cloudy
5 Feb 2014	Wed	6	10	AM Showers/Wind
6 Feb 2014	Thu	8	11	Light Rain
7 Feb 2014	Fri	6	9	Showers/Wind
8 Feb 2014	Sat	5	9	Light Rain/Wind
9 Feb 2014	Sun	3	9	Drizzle Early
10 Feb 2014	Mon	3	6	Light Rain
11 Feb 2014	Tue	2	7	PM Light Rain
12 Feb 2014	Wed	6	8	Showers
13 Feb 2014	Thu	6	10	Showers/Wind
22 Feb 2014	Sat	4	9	Partly Cloudy
23 Feb 2014	Sun	3	12	Partly Cloudy
24 Feb 2014	Mon	7	15	AM Clouds/PM Su
25 Feb 2014	Tue	4	11	Light Rain
26 Feb 2014	Wed	3	11	Partly Cloudy
27 Feb 2014	Thu	6	10	Showers