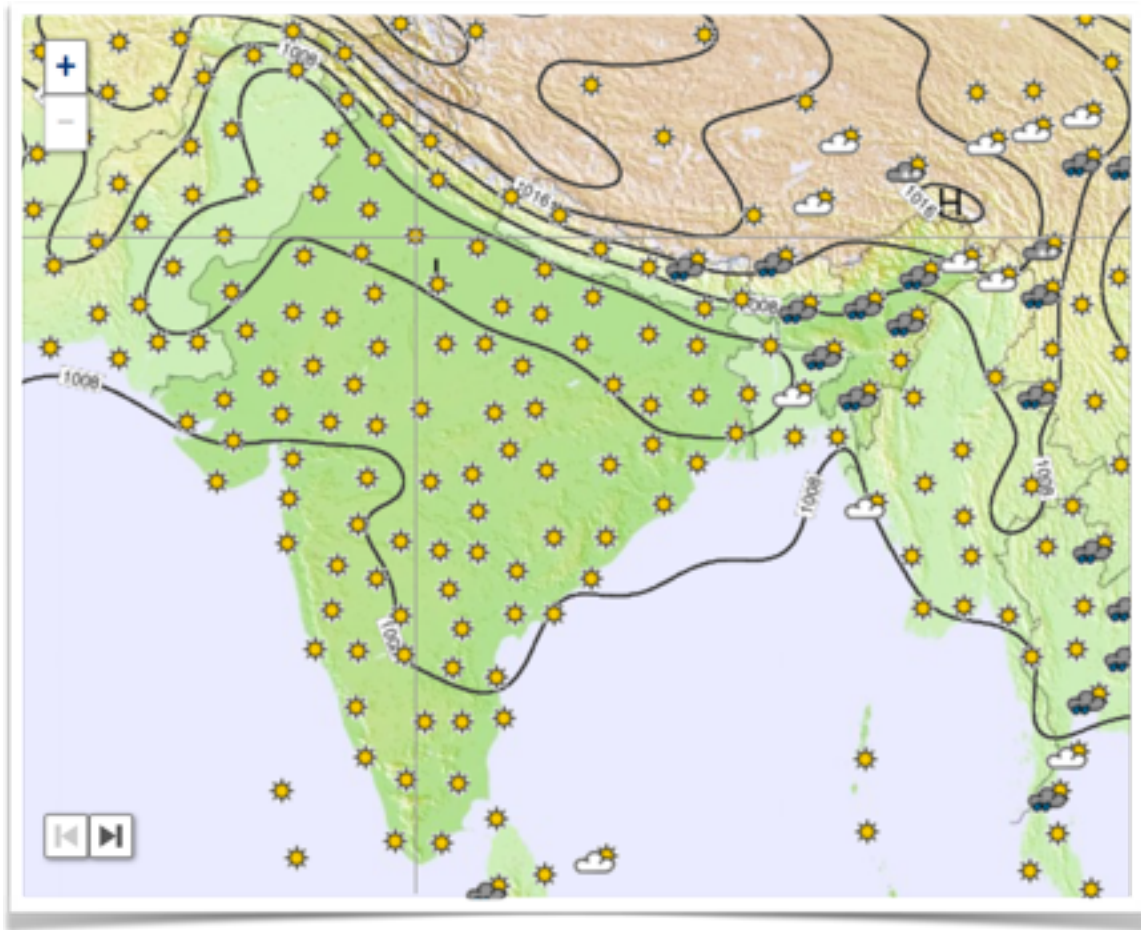


# Java Project Report

*COE Winter Training*



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# Introduction

The application our team has worked on is called ‘What’s the Weather?’. It is a web based application which provides useful information about the weather of any city in the world that has been documented in an atlas.

Basically, the application works on the following principle: Download data stored on a HTTP url, parse it to obtain relevant information and then display this information to the user.

The user can select from four languages which include English, French, Chinese and Spanish. Thus, it has utility for multilingual users. The following information is provided to the user:

- Humidity conditions
- Temperature
- Wind speed and direction

# Features

The language selected by default is English but the user can conveniently select another language from a drop-down list. The user can click on the submit button to load the weather for a city which has already been loaded in a different language, or click on the submit button next to the 'Enter the city' Label.

Note that the application works when the user is connected to the internet and if a valid city name is entered. Failing any of the above triggers a dialog box asking the user to connect to the internet or enter a valid city name.

The submit button remains depressed while data is being loaded, to avoid it from being downloaded multiple times. Under the submit buttons, three labels exist, indicating the number of days for which data is being displayed.

# Technology Used

The application uses the following frameworks:

- javax.swing
- java.awt.event.ActionListener
- java.awt.event.ActionEvent
- java.net
- java.io

Swing is being used to add graphical user elements like windows, JButtons, JLabels. The .net framework is required to establish an internet connection and access HTML data from 'weather-forecast.com'.

Weather-forecast.com is a website which provides accurate weather forecasts for upto the next 10 days. Data for a particular city is stored at "weather-forecast.com/locations/cityName/forecasts/latest" where cityName is the name of the city entered by the user. Some formatting of the above string is required before the connection is made which includes capitalising the first letter of multi-worded cities and replacing white spaces with hyphens '-'. Choosing a language other than English ("en") also requires adding the following prefixes to the URL string :

- "fr" for French
- "es" for Spanish
- "zh" for Chinese

In any case, if the internet connection becomes invalid or if the URL does not exist, the `URLConnection` object throws a malformed URL exception which is displayed in a dialog box.

The next step is to download the HTML string and for this purpose, we have used a `BufferedReader` class object. A `BufferedReader` reads character input from a character-input stream, buffering characters so as to provide efficient reading of characters, arrays and lines. The buffer size may be specified, but we have chosen to go with the default size. The `BufferedReader` object appends the incoming stream of characters into a string.

The next step involves parsing the downloaded HTML string. For this purpose, we have used the concept of delimiters. A delimiter is a character or a substring which can be used to divide a larger string into different portions. Upon investigating the HTML string, it was found that the 3 Day, 7 Day and 10 Day weather can be accessed by using appropriate delimiters. To achieve this, we perform a `“webcontent.split(“delimiter”)”` operation on the downloaded string and get an array of two strings and call each item in the array, a token. The tokens are further splitter until the required string is found and is stored in a variable.

Now, the GUI includes 2 `JTextFields`, 2 `JButtons`, 3 `JLabels` and 3 `JSmartTextAreas`. The default language is English which can be changed from the drop down list provided. Upon pressing the submit button, weather information is downloaded.

# Screenshots



Weather Applet

Select Your Language: English

Submit

Enter a City (E.g. London, San Francisco etc...)

delhi Submit

3 Days  
Light rain (total 2mm), mostly falling on Tue night. Warm (max 44&deg;C on Mon afternoon, min 29&deg;C on Tue night). Mainly fresh winds.

7 Days  
Mostly dry. Warm (max 42&deg;C on Thu afternoon, min 30&deg;C on Wed night). Winds increasing (light winds from the W on Wed night, fresh winds from the W by Sat morning).

10 Days  
Moderate rain (total 12mm), heaviest on Sun night. Warm (max 42&deg;C on Sat morning, min 30&deg;C on Mon night). Mainly strong winds.



Weather Applet

Choisissez votre langue: Français

Soumettre

Entrez une ville (E.g. London, San Francisco etc...)

delhi Soumettre

3 jours  
Pluie légère (total 2mm), généralement tombant le Mar soir. Warm (max 44&deg;C le Lun après-midi, min 29&deg;C le Mar soir). Mainly vents frais.

7 jours...  
Généralement sec. Warm (max 42&deg;C le Jeu après-midi, min 30&deg;C le Mer soir). Winds increasing (vents légers venant de O le Mer soir, vents frais venant de O le Sam matin).

10 jours...  
Pluie modérée (total 12mm), plus lourde le Dim soir. Warm (max 42&deg;C le Sam matin, min 30&deg;C le Lun soir). Mainly vents forts.



Weather Applet

あなたの言語を選択: 日本語

提出します


都市 (例えば、ロンドン、サンフランシスコなど...) を入力します

delhi 提出します

3日々  
少量の雨 (合計 2mm), 大抵降る 火曜日の夜に. Warm (最大 44&deg;C 月曜日の午後に, 最小 29&deg;C 火曜日の夜に). Mainly 新風.

7日々  
大部分は乾燥. Warm (最大 42&deg;C 木曜日の午後に, 最小 30&deg;C 水曜日の夜に). Winds increasing (そよ風 西から 水曜日の夜に, 新風 西から 土曜日の午前中までに).

10日々  
並雨 (合計 12mm), 最大 日曜日の夜に. Warm (最大 42&deg;C 土曜日の朝に, 最小 30&deg;C 月曜日の夜に). Mainly 強風.



Weather Applet

Elige tu idioma: Español

Enviar

Introduce la ciudad (Por ejemplo Londres, San Francisco etc ...)

delhi Enviar

3Días  
Lluvia ligera (total 2mm), cayendo mayormente el martes por la noche. Warm (max 44&deg;C el lunes por la tarde, min 29&deg;C el martes por la noche). Mainly vientos frescos.

7Días  
Mayormente seco. Warm (max 42&deg;C el jueves por la tarde, min 30&deg;C el miércoles por la noche). Winds increasing (Vientos ligeros desde el O el miércoles por la noche, vientos frescos desde el O por la mañana de sábado).

10Días  
Lluvia moderada (total 12mm), más pesada el domingo por la noche. Warm (max 42&deg;C el sábado por la mañana, min 30&deg;C el lunes por la noche). Mainly vientos fuertes.