Weather Display
Low Level Design Document

Version 1.0

29 Apr 2016

Revision History

Version No	Date	Prepared by / Modified by	Significant Changes
1.0	29 Apr 2016	Prasant Lingamaneni	Initial

Glossary

Abbreviation		Description

Table Of Contents

1 Introduction

1.1 Identification

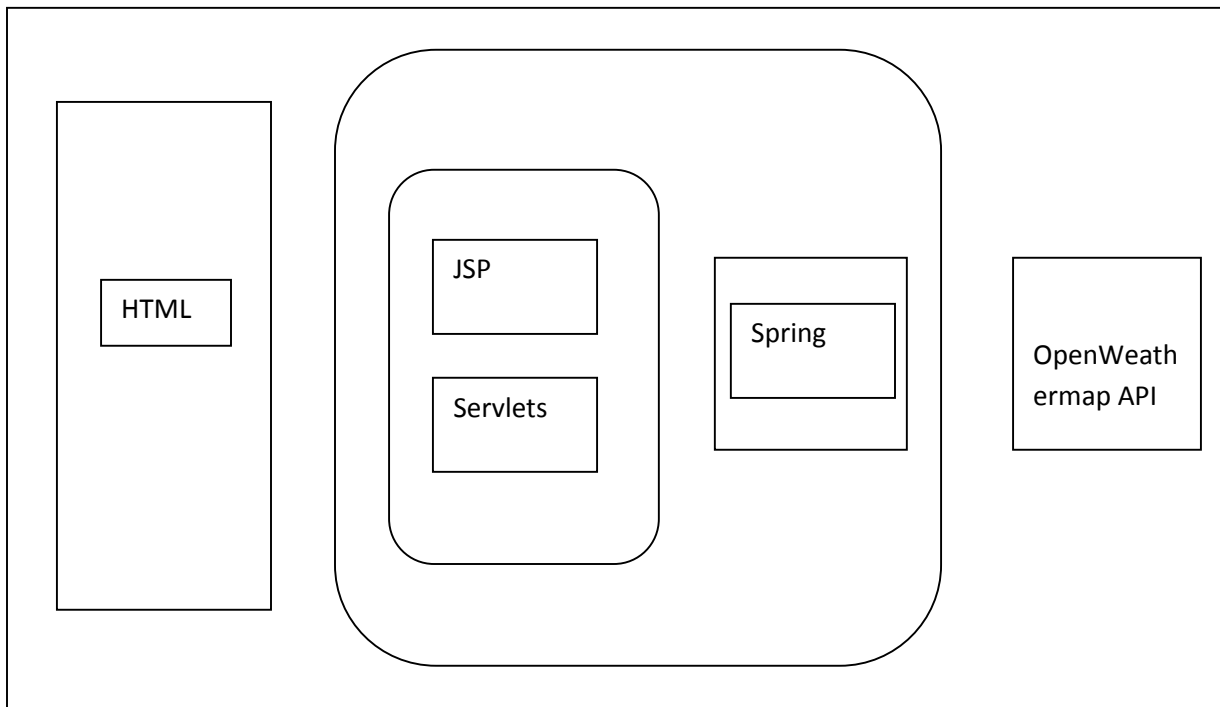| Project Name	Weather Display
Document Name	Low Level Design
Document Version	1.0

1.2 Glossary of Terms

1.3 Referenced Documents

2 Design Overview

The Business Process workflow used in our system can be broken down into three tiers:-

1) The Client Tier with the HTML and the messages that are interchanged
2) The middle tier which comprises of Servlets and Spring sends request to external system, which fetches the weather data

Client Tier   Middle Tier

```
┌─────────────────────────────────────────────────────────────────────┐
│                                                                       │
│   ┌──────────┐      ╭──────────────────────────────╮                  │
│   │          │      │                              │                  │
│   │          │      │   ╭──────────────╮           │     ┌──────────┐ │
│   │          │      │   │  JSP         │   ┌────────┐     │          │ │
│   │  ┌─────┐ │      │   │ ┌──────────┐ │   │ Spring │     │ OpenWeath│ │
│   │  │HTML │ │      │   │ └──────────┘ │   └────────┘     │ ermap API│ │
│   │  └─────┘ │      │   │ ┌──────────┐ │                  │          │ │
│   │          │      │   │ │ Servlets │ │                  └──────────┘ │
│   │          │      │   │ └──────────┘ │                               │
│   │          │      │   ╰──────────────╯                               │
│   │          │      │                              │                  │
│   └──────────┘      ╰──────────────────────────────╯                  │
│                                                                       │
└─────────────────────────────────────────────────────────────────────┘
```

3 Design Description

3.1 Business Process workflow

The client is provided with an interface where the list of cities is displayed. When a particular city is selected, weather data of the selected city is displayed to the user. Openweathermap framework is used to provide the weather information based on the city. It is an open source API. If any error occurs during the process of fetching weather data, an error message is displayed to the user.

HTML is used as the front end where user key in the city, In the middle layer servlets and spring are used to take the client request and send it to Openweathermap API to fetch data. A JSON object with weather information is returned from it to servlet and it is then rendered to client in a tabular format.

Blow is the Format to display the weather Information

City	Melbourne
Updated time	Thursday 11:00 AM
Weather	Mostly Cloudy
Temperature	9°C
Wind	32km/h

3.2 Business Process Modeling and Management (as applicable)

Not Applicable

3.3 Interface Design

3.3.1 Business Logic

Not Applicable

3.3.2 Variables

Not Applicable

3.3.3 Transformation Rules

Not Applicable

3.3.4 Transformer Classes (as applicable)

Not Applicable

3.4 External Message Structure (as applicable)

To interact, with other types of server-side components such as servlets or back-end applications, the workflow shares data via JSON. Below is the sample JOSN object with weather data.

```
{
"coord":{"lon":151.21,"lat":-33.87},
"weather":[{"id":804,"main":"Clouds","description":"overcast clouds","icon":"04n"}],
"base":"cmc stations",
"main":{"temp":20.17,"pressure":1025.55,"humidity":88,"temp_min":20.17,"temp_max":20.17,"sea_
level":1031.67,"grnd_level":1025.55},
"wind":{"speed":3.01,"deg":7.0004},
"clouds":{"all":88},
"dt":1461941272,
"sys":{"message":0.0033,"country":"AU","sunrise":1461875325,"sunset":1461914142},
"id":2147714,
"name":"Sydney",
"cod":200
}
```

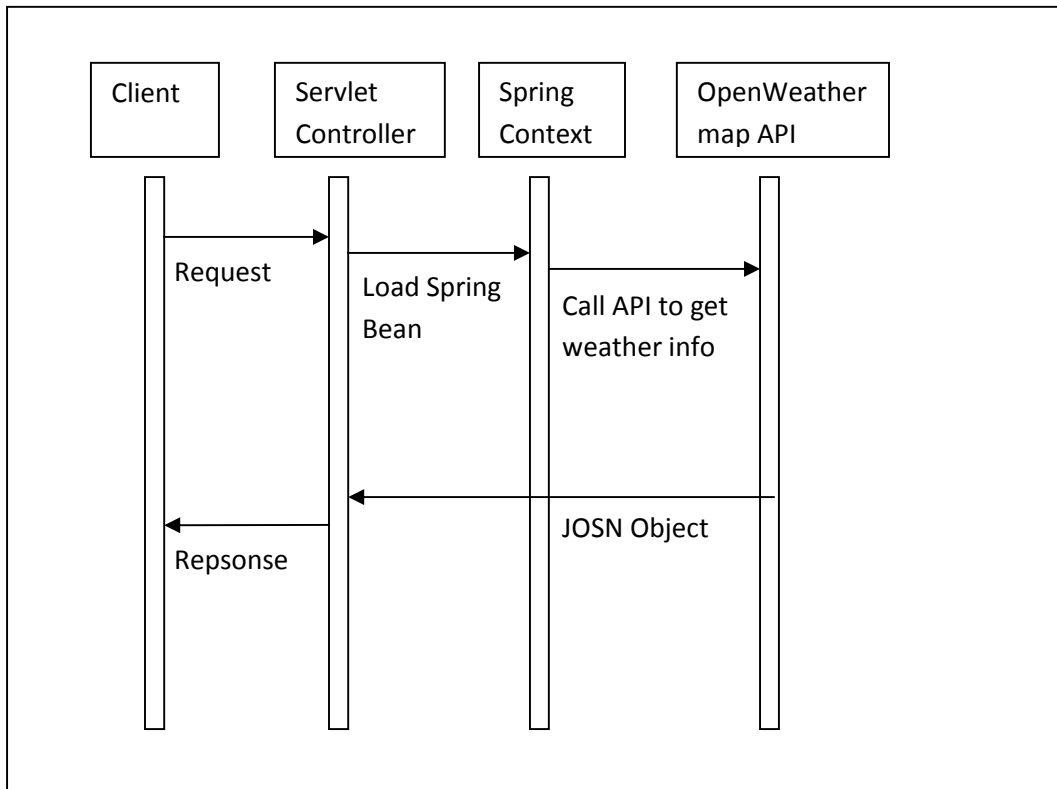Below is the Workflow with External system
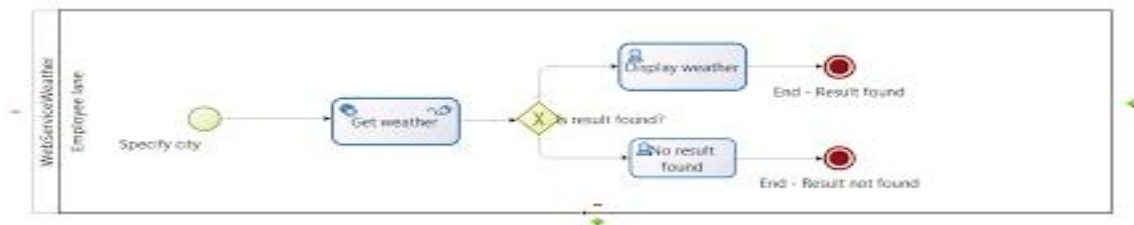
3.5 Error / Exceptional Handling

If any error occurs during the process of fetching weather data, an error message is displayed to the user as Unable to fetch data. Please try after some time.

3.6 Activity / Class Diagrams (as applicable)

Not Applicable

3.7 Sequence Diagrams (as applicable)

```
┌──────────────────────────────────────────────────────────────────┐
│                                                                    │
│   ┌─────────┐   ┌───────────┐   ┌─────────┐   ┌──────────────┐     │
│   │ Client  │   │ Servlet   │   │ Spring  │   │ OpenWeather  │     │
│   │         │   │ Controller│   │ Context │   │ map API      │     │
│   └────┬────┘   └─────┬─────┘   └────┬────┘   └──────┬───────┘     │
│        │  Request     │              │               │             │
│        │─────────────▶│  Load Spring │               │             │
│        │              │  Bean        │ Call API to   │             │
│        │              │─────────────▶│ get weather   │             │
│        │              │              │ info          │             │
│        │              │              │──────────────▶│             │
│        │              │◀─────────────────────────────│             │
│        │              │  JOSN Object │               │             │
│        │◀─────────────│              │               │             │
│        │  Repsonse    │              │               │             │
│                                                                    │
└──────────────────────────────────────────────────────────────────┘
```

3.8 Data Mapping Information

Not Applicable

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4 Assumptions

Not Applicable

5 Dependencies

Openweathermap API is up and running