

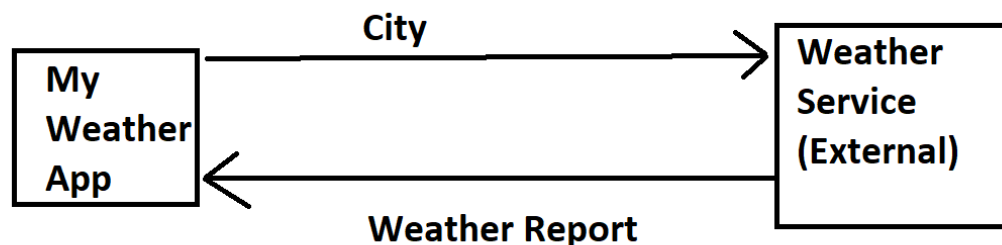
What are REST services?

- Create REST APIs/web service with spring
- REST concepts
- Install Postman
- Create Rest Controller
- Build a CRUD interface

BUSINESS PROBLEM:

- Build a client app that can provide the weather report for a city.
- Need to get that data from an external service

Application Architecture:



Must have Questions:

1. How will we connect to weather service?

ANS: - We can make REST API calls over HTTP

- Representational State Transfer
- Lightweight approach for communicating between applications

2. Which programming language we are going to use?

- REST is language independent
- The client application can use ANY programming language
- The server application can use ANY programming language

3. What is the data format?

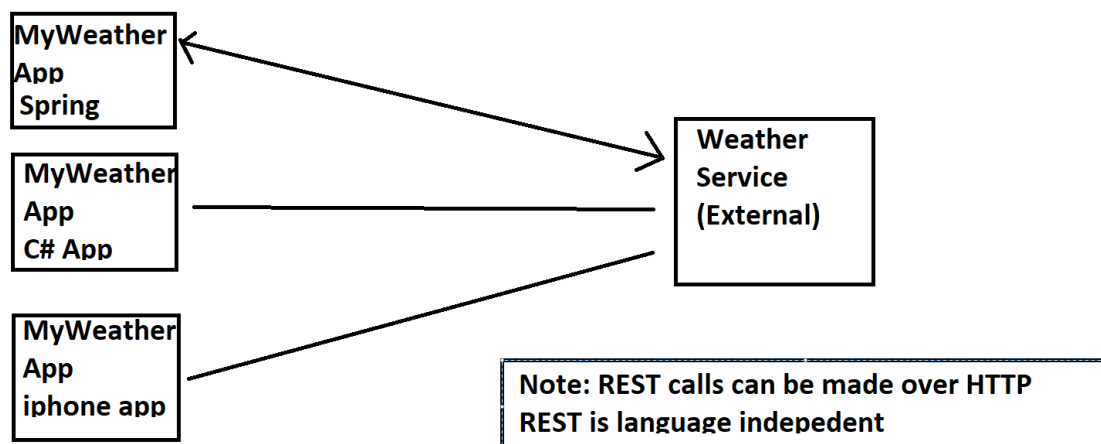
- REST can use any data format
- commonly XML or JSON
- JSON is most popular and modern
JavaScript Object Notation

Possible Solutions:

1. Use online weather service API: openweathermap.org
2. It provides weather data via API
3. Data is available in multiple formats: JSON, XML, etc

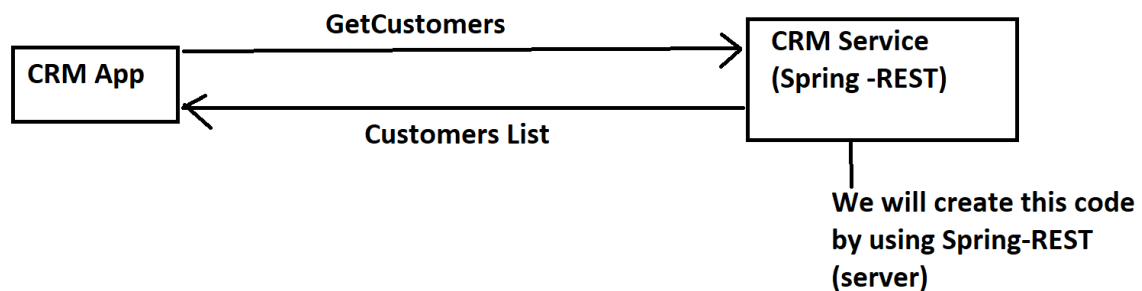
Response - Weather report

The weather service responds with JSON.



MULTIPLE CLIENT APPLICATIONS

Customer Relationship Manager (CRM) App



What do we call it exactly?

REST API, RestFul API

REST web services, RestFul web services

REST services, RESTful services

Generally this all mean the same

What is JSON?

- Lightweight data format for storing and exchanging data
 - Language independent..... not just for javascript
 - JSON is just a plain text data

EXAMPLE:

```
{
  "id" : 1,
  "firstName" : "Prasad",
  "lastName" : "Jain",
  "active" : true
}
```

Curly braces define objects in JSON

Object members are name/value pairs

- REST HTTP Basics:
HTTP methods:

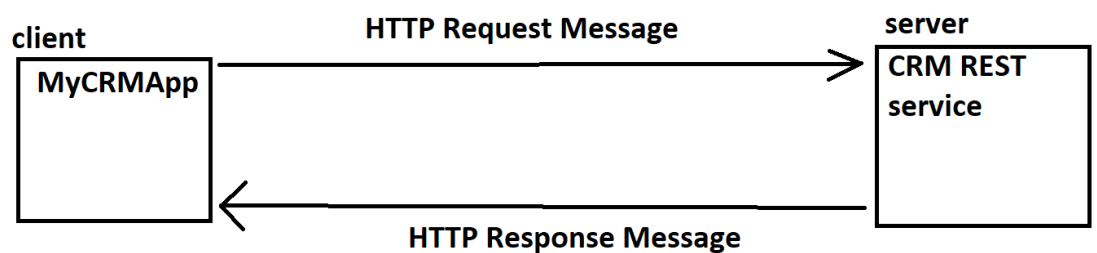
POST -> create a new entity

GET -> Read a list of entities or a single entity

PUT -> update an existing entity

DELETE -> delete an existing entity

- HTTP Messages



Lets break it down:

HTTP Request Message:

It has 3 parts

1. Request Line : the HTTP command
2. Header variables : request metadata
3. Message Body: (actual payload) contents of message

HTTP Response Message:

It has 3 parts:

1. Response line : server protocol, status code
2. Header variables: response metadata
3. Message body: contents of message

HTTP Response - Status codes

Code Range	Desc
100-199	Informational
200-299	Successful
300-399	Redirection
400-499	Client Error
500-599	Server Error

Client Tool

We need a client tool to send HTTP requests to the REST web service/API

Curl, Postman

www.getpostman.com

Web Browser Vs Postman

- For simple REST testing for GET requests
 - Web browser and postman are similar
- For advanced REST testing: POST, PUT, etc

Java JSON data binding:*(It automatically takes place)

Spring REST service for students.

It will return list of students

GET /api/studentsReturns a list of students

- Student POJO (CLASS)
firstName & lastName