Software Requirement Specification

Ranking of Spatial Data by Quality Preferences.

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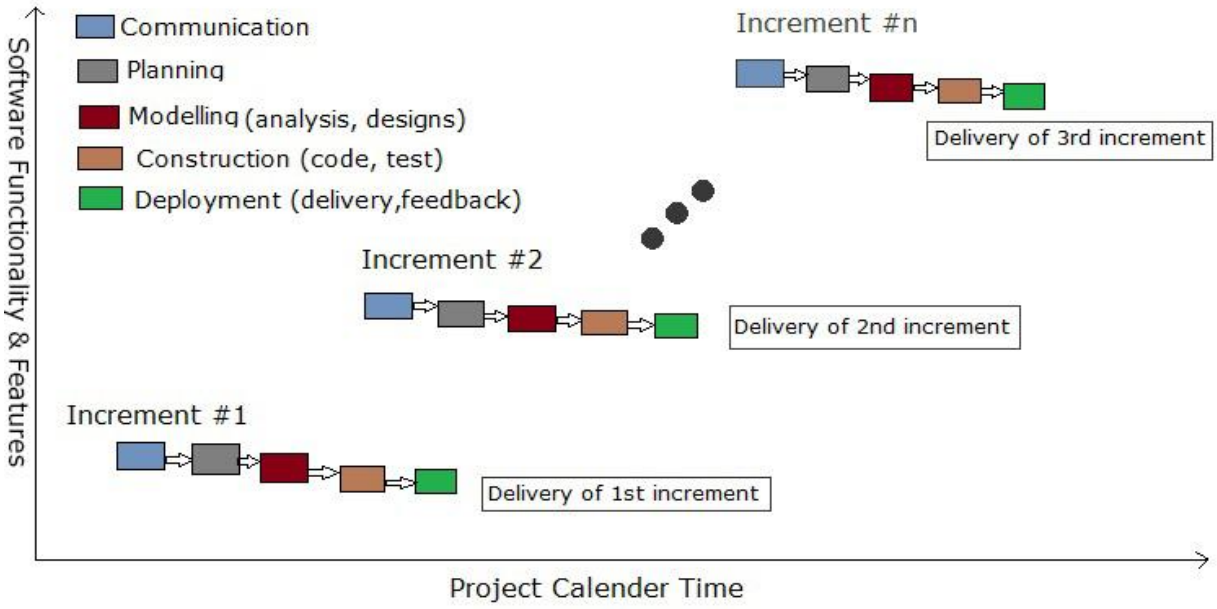
1. Introduction

1.1 Methodology

The incremental Model is an evolution of the waterfall model, where the waterfall model is incrementally applied. The series of releases is referred to as “increments”, with each increment providing more functionality to the customers. After the first increment, a core product is delivered, which can already be used by the customer. Based on customer feedback, a plan is developed for the next increments, and modifications are made accordingly. This process continues, with increments being delivered until the complete product is delivered. The incremental philosophy is also used in the agile process model.



Communication:

Communication works to understand the business problem and the information characteristics that the software must accommodate. The software engineer and customer meet and define the overall objectives for the software, identify whatever requirements are known, and outline areas where further definition is mandatory.

Planning:

Planning is essential because multiple software teams work in parallel on different system functions. Planning includes estimating, scheduling and tracking.

Modeling:

Modeling encompasses three major phases-Business modeling, Data modeling and process modeling and establishes design representations that serve as the basis for construction activity. The design focuses on a representation of those aspects of the software that will be visible to customer/end user.

Construction:

Construction emphasizes the use of pre-existing software components and the application of automatic code generation. A code is generated and it is tested with different test cases.

Deployment:

Deployment establishes a basis for subsequent iterations, if required. Deployment includes delivery, support and feedback. The model is deployed and then evaluated by the customer/end user .Feedback is used to refine requirements for the software.

1.2 Purpose

Ranking of Spatial Data by Quality Preferences is a system which helps specifically first-time visitors to find Places of Interest with certain quality preferences.

The Application collects the user preferences analyses by giving priorities and weights. It displays results ordering by distance from user's current location. The data will be ranked by the user community. This special feature will allow the user's to take a proper decision before visiting the place. The user can rate the data, give comments and lodge a complaint against a property. The system will have index called complaint index which will help user to analyze the property owner's attitude towards complaints. Vendors can list properties on the system so that a user can obtain very relevant results.

1.3 Scope

1. 6 Actors will be using this system they are User, Admin, Vendor, Commercial Executive 1, Commercial Executive 2, and Product Quality Analyst.
2. User will able to search for Places of Interest, file complaints, and give feedback in the form of ratings as well as comments.
3. Vendor will be able to list his property and information about the user's who have viewed his property helping him to target potential customers.
4. Product Quality Analyst will be helping the Admin in maintaining the quality of the software by preventing from abuses.
5. Commercial Executive 1 will maintain information about popular places of interest if such property owner's are reluctant to list their property on the system only if the property owner gives official approval to maintain account.
6. Commercial Executive 2 will verify the request for listing a Place of Interest in the system physically and will be submitting a report to admin. This report helps admin to take a decision whether to approve property listing or not. This verification is to ensure quality of the results.
7. Admin will be responsible in approving properties for listing, tracking users and monitoring the system.

1.4 Definitions and Acronyms

Vector Spatial Data: Latitudes and longitudes used to identify unique position of an object at a specific point.

CE1: Commercial Executive 1.

CE2: Commercial Executive 2.

Admin: Administrator.

UML: Unified Modeling Language.

HTTP: Hypertext Transfer Protocol. It is a service protocol.

DB: Database. It is the software which is user to store, manage and manipulate data efficiently.

JSP: It is used to display dynamic web content.

Server: It is a hardware device which will open connections for users and help them to access and execute programs stored on the device.

AJAX: Asynchronous JavaScript and XML. It is a group of interrelated web Development techniques used on the client-side to create asynchronous web applications.

POI: Place of Interest. The place the user is looking for.

1.5 Technologies used

Apache Tomcat Server:

Apache Tomcat is an open source software implementation of the Java Servlet and Java Server Pages technologies. Different versions of Apache Tomcat are available for different versions of the Servlet and JSP specifications.

Oracle Database 10g Express Edition:

With Oracle Database XE, you can now develop and deploy applications with a powerful, proven, industry-leading infrastructure, and then upgrade when necessary without costly and complex migrations**.**

IBM Rational Rose:

IBM Rational® Rose® **Enterprise** is one of the most comprehensive products in the **Rational Rose** family. All **Rational Rose** products include Unified Modeling Language™ (UML™) support, however they vary in terms of the implementation technologies they support.

NetBeans IDE 7.0:

NetBeans IDE 7.0 introduces language support for development to the Java SE 7 specification with JDK 7 language features. It also provides enhanced integration with the Oracle Web Logic server, as well as support for Oracle Database. NetBeans IDE 7.0 is available in English, Brazilian Portuguese, Japanese, Russian, and Simplified Chinese.

1.6 Overview

Existing System:

1. Display Results.

Drawbacks:

1. Results are manipulated as per the money paid by the vendor.
2. Not suited for first-time place visitors as they don't know the city well.
3. Unable to file complaints against property if not satisfied.
4. Will not calculate current location of the user and display results ordering by distance.

Proposed System:

1. Results are displayed by analyzing detailed user preferences.
2. Data is ranked by the user's no third party will be involved.
3. Users will be able to complain against a property.
4. User will be ranking the data.
5. Vendors will be able to target more potential users.

1.7 References

1. Man Lung Yiu, Hua Lu, member IEEE, "Ranking Spatial Data by Quality Preferences", IEEE TRANSACTIONS ON KNOWLEDGE AND DATA ENGINEERING, VOL. 23 March 2011.
2. Krzysztof koperski, Junas Adilary, Jiawei Han "Spatial Data Mining: Progress and Challenges" Survey Paper, School of Computing Science,Simon Fraser University, Canada v5A 1S6.
3. Jiawei Han, Micheline Kamber,"Data Mining Concepts and Techniques".

2. Overall Description

2.1 Software Interface

Client on Internet:

Web-browser on any Operating System.

Web-Server:

Apache Tomcat

Database Management System:

Oracle 10g Express Edition.

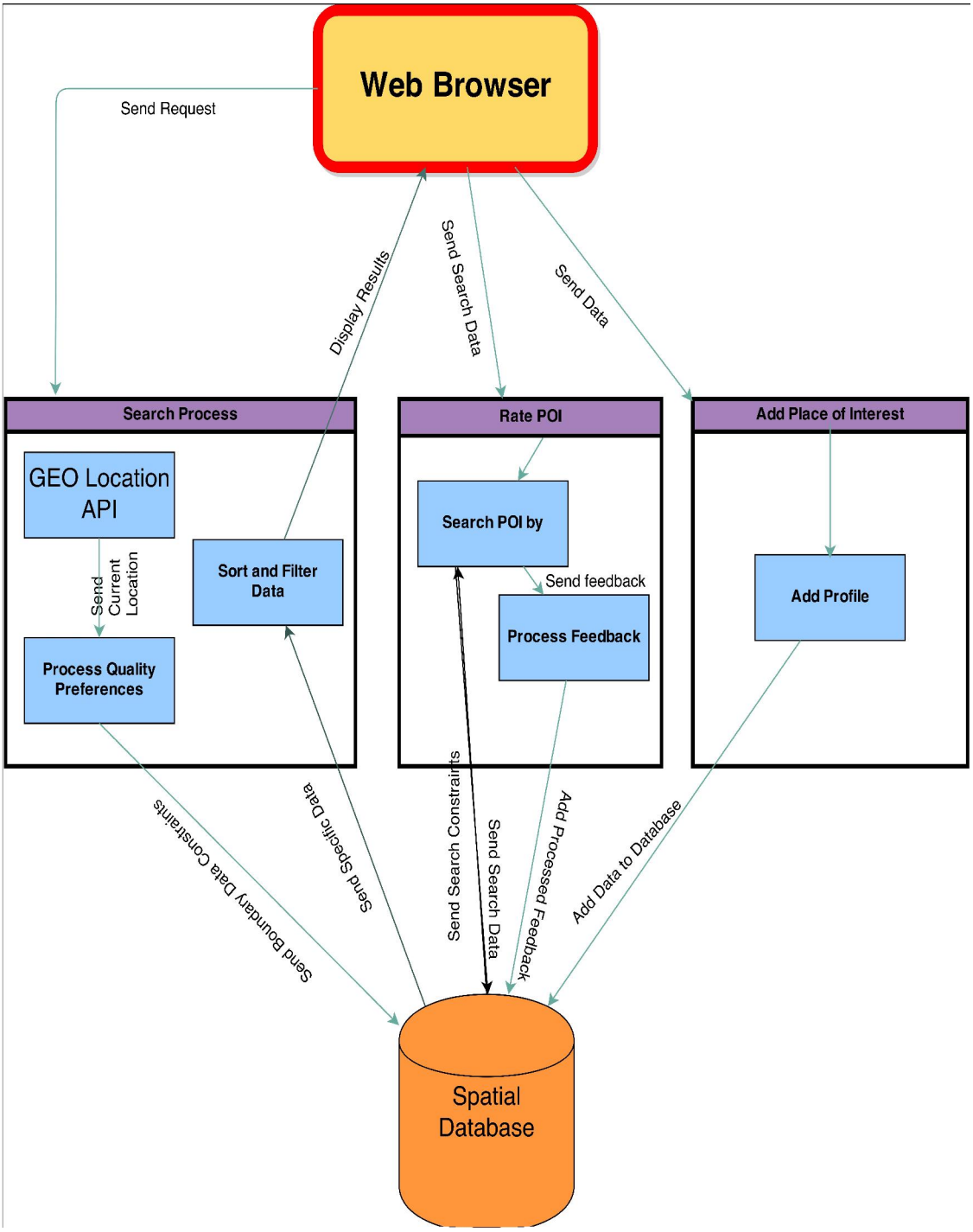
2.2 Hardware Requirements

Client side Operating system:	Windows 7/8,XP,Linux.
Server side Operating system:	Linux(Preferable).
RAM:	1024 MB.
Preprocessor:	2.0 ghz dual core.

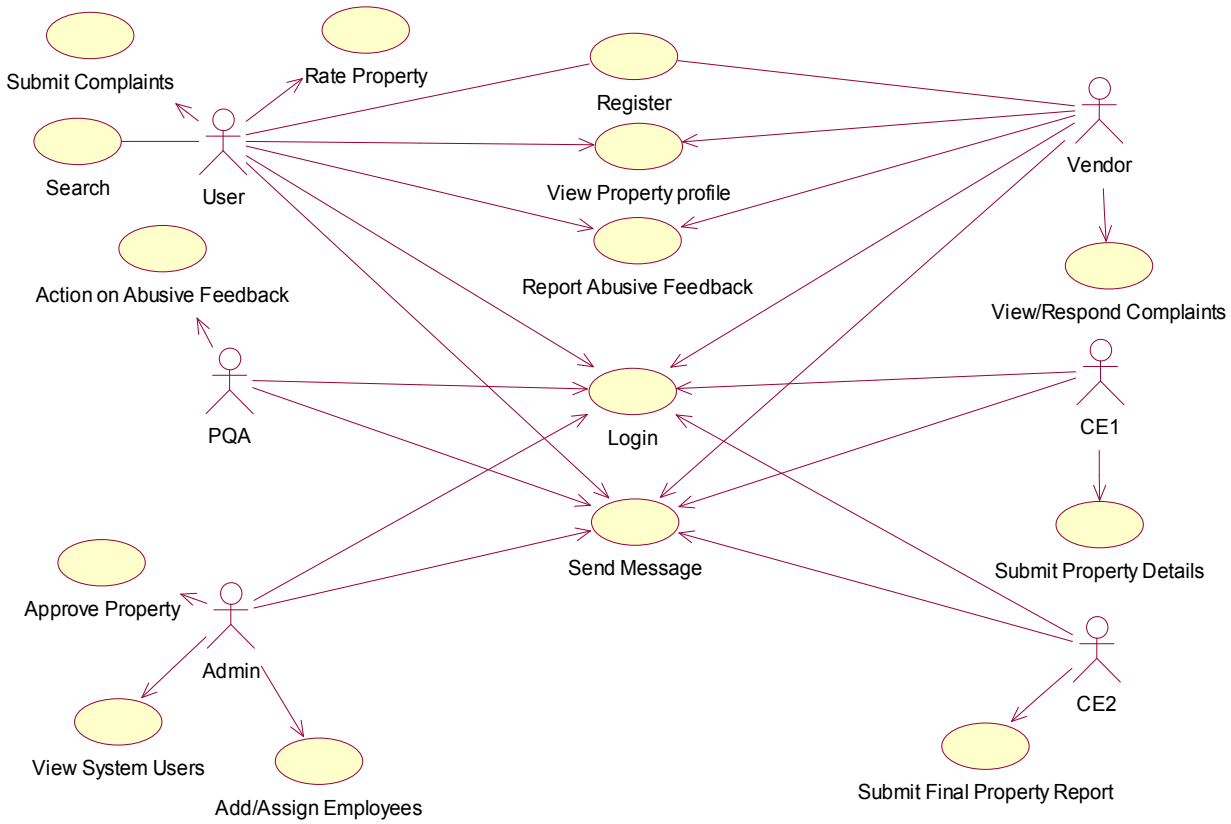
2.3 Constraints

No SSL Implementation.

2.4 Architecture:



2.5 Use Case Model Survey



User:

A user will be able to search for nearby places of Interest with certain quality preferences. A user will be able to rate places of interest to help other users to identify proper places. A user will be able to comment on a property. He/She can also lodge a complaint against a property.

Vendor:

A vendor will be able to list his/her property. He can target potential customers by viewing the list of users who have visited his property profile. He can view ratings by

different users and their comments. He has to respond to complaints filed against his property.

Product Quality Analyst:

The main job of Product Quality Analyst is preventing abuse of the product. He can block span users, block spam comments.

Commercial Executive 1:

CE1 is responsible for maintaining information of popular Places of Interest if the property owner is reluctant to maintain information. Apart from maintaining information he is also responsible to identify popular places of interest and list them as soon as possible in the system.

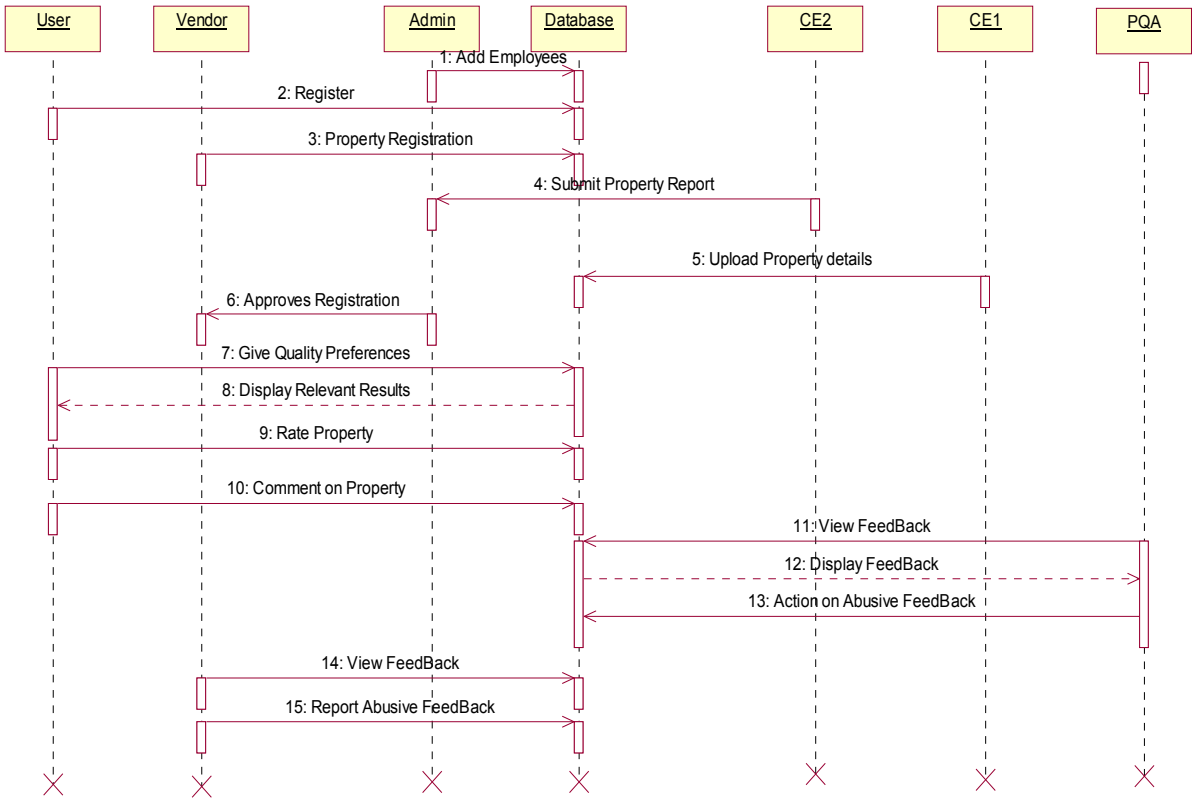
Commercial Executive 2:

The properties which have to be listed have to be verified for quality of results. The physical verification part is done by CE2. He goes to the property site, physically verifies it and submits a report to admin. This report helps admin to take a proper decision in approving property for listing purpose.

Administrator:

He/She will be the super user with all the privileges. He/She is the only person to approve property for listing purposes. He can add employees and assign job roles such as CE1, CE2 and PQA.

2.6 Overall Sequence Diagram:



First the administrator has to add employees. After adding the employees he has to assign job roles to each one of them. Users register on the system. Their mail addresses will be verified by sending confirmation mails. After user logins into the system he will have two options. One is to search for places of interest by giving a detailed description of quality preferences. The other one is to rate, give comments and to lodge complaints.

Vendor has to register his property (except popular properties). After registration commercial executive 2 will physically verify the property and will submit his report on the property. Based on this report the administrator will take a decision whether to

approve the property for listing or not. Vendors can view details of users who have viewed their properties so that they could target potential customers. Vendors can view user ratings, complaints and comments. Product quality analyst prevents the application from being abused. He verifies every comment and rating. Any traces of spam from a user the PQA have complete authority to block a user.