Applied software engineering

Hamza Bhatti (21223241)

Contents

[Introduction 2](#_Toc468283802)

[Requirements From Case Study 2](#_Toc468283803)

[UML Modelling 2](#_Toc468283804)

[Use Case Description 2](#_Toc468283805)

[Class Diagram 2](#_Toc468283806)

[Sequence Diagram 2](#_Toc468283807)

[Architecture Diagram 3](#_Toc468283808)

[Implementation 4](#_Toc468283809)

[Software Testing 5](#_Toc468283810)

[Evaluation 6](#_Toc468283811)

[UML 6](#_Toc468283812)

[Implementation 6](#_Toc468283813)

[Software Testing 6](#_Toc468283814)

[Appendix 7](#_Toc468283815)

# Introduction

For this assignment a case study was provided. Appropriate UML, implementation in Java, along with testing was produced based on one chosen use case. The report will also cover critical analysis of all the previously mentioned elements of the assignment.

# Requirements From Case Study

What is the chosen use case and what is required from the case study?

The use case that was chosen to be implemented was “Update site popularity” which also included “Prioritise site for marketing”. A set of requirements were found within the case study which had to be followed to ensure that the implementation would be successful.

The requirements understood where:

1. The check will occur on the 30th December every year.
2. 6 regions are currently present, all of which have sites.
3. Site have ratings which are Bronze, Silver and Gold.
4. Site visitors will determine the new rating. If visitors are below 10,000 a Bronze is given, if between 10,000 and 30,000 a Silver is given and when above 30,000 a Gold is given.
5. While the rating is given, the site will be checked if it needs a marketing campaign.

For use case to be successful, these requirements had to be adhered to in the UML, Java implementation and had to be tested.

# UML Modelling

To aid in implementing the requirements of the use case, a series of UML diagrams where created. The diagrams provide a description of what should occur, the components that should be present, their interactions and sequence of events that take place to meet the requirements.

## Use Case Description

Talk about the functionality of the use case diagram – What’s going to happen in the software

The use case diagram produced described how the system that would implemented will function. It covered the goal, pre-conditions, post-condition and how the use cases would be triggered.

## Class Diagram

What are the elements in the class diagram – classes (attributes, operations), associations, pattern and abstraction.

How would you convert the diagram into code.

## Sequence Diagram

What functions where used? – Just list them I guess.

Behaviour of the system – Talk about what happens at each step.

## Architecture Diagram

Talk about the sections of the architecture and how it fits with the other UML.

# Implementation

Talk about how the system meets the use case requirements

Features of the code – interfaces, abstraction how classes interact, the design pattern (why is it there?)

Quick instruction on how to run the program – what is included with the package

# Software Testing

What is the purpose of testing?

Talk about the tests you did - How did they help meet the requirements?

Explain what happens during the tests to get the result.

Give instructions on how to run

# Evaluation

## UML

Why was the UML abstract in certain places – in the use case diagram and class diagrams?

How can the UML change to be better?

## Implementation

How did the code follow the uml – is the code abstract too?

How is the code reusable etc? – Software principles along with maintainability etc

How could the code change to be better?

## Software Testing

How did the tests help?

Why were the tests written the way they were?

How could the tests change to be better?

# Appendix

PUT DIAGRAM AND CODE HERE