UNIVERSIDAD DE GUADALAJARA

CENTRO UNIVERSITARIO DE LOS VALLES

MAESTRÍA EN INGENIERÍA DE SOFTWARE

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**Administración de la Configuración del Software**

**PRESENTA**:

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Ameca, Jalisco a 02 de diciembre de 2022

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DOCUMENT REVIEW CONTROL

CHANGE CONTROL

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Contents

[1 Software Configuration Identification 9](#_Toc120871011)

[1.1 Context 9](#_Toc120871012)

[1.2 Problem 9](#_Toc120871013)

[1.3 Objectives of the System 10](#_Toc120871014)

[1.4 Requirements 10](#_Toc120871015)

[1.4.1 Functional requirements 10](#_Toc120871016)

[1.4.2 Non-functional requirements 11](#_Toc120871017)

[1.4.3 Design constraints 12](#_Toc120871018)

[1.5 Design of the system 13](#_Toc120871019)

[1.5.1 Architecture 13](#_Toc120871020)

[1.5.2 Use case diagrams 14](#_Toc120871021)

[1.5.3 Class diagram 14](#_Toc120871022)

[1.5.4 Sequence diagrams 15](#_Toc120871023)

[1.5.5 Flowchart 18](#_Toc120871024)

[1.6 Construction 19](#_Toc120871025)

[1.6.1 App views 19](#_Toc120871026)

[1.7 Test 22](#_Toc120871027)

[1.7.1 Elements to use 22](#_Toc120871028)

[1.7.2 Test cases 23](#_Toc120871029)

[2 Software Configuration control 26](#_Toc120871030)

[2.1 Policies for accept a change request 26](#_Toc120871031)

[2.2 Project Details 27](#_Toc120871032)

[2.2.1 Change request 01 27](#_Toc120871033)

[2.2.2 Change request 02 27](#_Toc120871034)

[2.2.3 Change request 03 27](#_Toc120871035)

[2.2.4 Change request 04 28](#_Toc120871036)

[2.3 Change request analysis 29](#_Toc120871037)

[2.3.1 Change request 01 analysis 29](#_Toc120871038)

[2.3.2 Change request 02 analysis 30](#_Toc120871039)

[2.3.3 Change request 03 analysis 31](#_Toc120871040)

[2.3.4 Change request 04 analysis 32](#_Toc120871041)

[2.3.5 Lower risk of change requests in descending order 33](#_Toc120871042)

[2.3.6 Importance of change requests in ascending order 33](#_Toc120871043)

[2.4 Change request resolution 34](#_Toc120871044)

[3 Software Configuration Auditing 36](#_Toc120871045)

[3.1 Polices for assuring the quality on the software 36](#_Toc120871046)

[3.2 Polices for assuring the quality on the process 36](#_Toc120871047)

[4 Software Configuration Status accounting 38](#_Toc120871048)

[4.1 Rules 38](#_Toc120871049)

[4.2 Process for status accounting 39](#_Toc120871050)

[4.2.1 Faster implementation 39](#_Toc120871051)

[4.2.2 Planned implementation 39](#_Toc120871052)

[4.2.3 Slower implementation 39](#_Toc120871053)

[4.3 Status accounting report 40](#_Toc120871054)

[5 References 42](#_Toc120871057)

TablE OF figurEs

[Figure 1: Quarterly Tourism GDP Physical Volume 9](#_Toc120852140)

[Figure 2: Architecture diagram 13](#_Toc120852141)

[Figure 3: Use case - General Diagram 14](#_Toc120852142)

[Figure 4: General class diagram 14](#_Toc120852143)

[Figure 5: Logic component diagram 15](#_Toc120852144)

[Figure 6: Sequence diagram of the user registration process 16](#_Toc120852145)

[Figure 7: Sequence diagram of the system access process 17](#_Toc120852146)

[Figure 8: Sequence diagram of the display map process 17](#_Toc120852147)

[Figure 9: Flowchart - General diagram 18](#_Toc120852148)

[Figure 10: Starting screen 19](#_Toc120852149)

[Figure 11: Login screen 20](#_Toc120852150)

[Figure 12: Register screen 20](#_Toc120852151)

[Figure 13: Main menu screen 21](#_Toc120852152)

[Figure 14: Tour screen 21](#_Toc120852153)

[Figure 15: SWOT Matrix CR-01 29](#_Toc120852154)

[Figure 16: SWOT Matrix CR-02 30](#_Toc120852155)

[Figure 17: SWOT Matrix CR-03 31](#_Toc120852156)

[Figure 18: SWOT Matrix CR-04 32](#_Toc120852157)

TablEs In THE document

[Table 1: Hardware elements to use 22](#_Toc120852178)

[Table 2: Software elements to use 22](#_Toc120852179)

[Table 3: Test functional requirement cases 23](#_Toc120852180)

[Table 4: Change Request 01 27](#_Toc120852181)

[Table 5: Change Request 02 27](#_Toc120852182)

[Table 6: Change Request 03 28](#_Toc120852183)

[Table 7: Change Request 04 28](#_Toc120852184)

[Table 8: Issues matrix CR-01 29](#_Toc120852185)

[Table 9: Issues matrix CR-02 30](#_Toc120852186)

[Table 10: Risk impact CR-02 30](#_Toc120852187)

[Table 11: Issues matrix CR-03 31](#_Toc120852188)

[Table 12: Risk impact CR-03 31](#_Toc120852189)

[Table 13: Issues matrix CR-04 32](#_Toc120852190)

[Table 14: Risk impact CR-04 32](#_Toc120852191)

[Table 15: Status accounting report 40](#_Toc120852192)

[Table 16: Issues Report 41](#_Toc120852193)

Introduction

Software configuration management (SCM) is one of the disciplines of the 1980's which grew in response to the many failures of the software industry throughout the 1970's. Over the last ten years, computers have been applied to the solution of so many complex problems that our ability to manage these applications has all too frequently failed. This has resulted in the development of a series of ''new'' disciplines intended to help control the software process [1].

This document is the final project for the Software Configuration Management (SCM) class. The structure of the document is divided in four parts, each one corresponding to the stages that learned in the present course. First section is Software Configuration Identification this part defines the changes in the baseline components since these changes specify the evolution of the system, also the baseline is the main document produce in class and contains the context to apply the different SCM stages. Second section is the Software Configuration Control that provide the administrative mechanism for precipitating, preparing, evaluating, and approving or disapproving all change proposals throughout the system life cycle. Third section is the Software configuration auditing that provides the mechanism for determining the degree to which the current state of the software system mirrors the software system pictured in baseline and requirements documentation. Finally, the Software Configuration Status Accounting is A mechanism is therefore needed for maintaining a record of how the system has evolved and where the system is at any time relative to what appears in published baseline documentation and written agreements. Likewise contains all the records the activity associated with the other three SCM functions and therefore provides how the history of the software system life cycle can be traced.

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PASEO ALCALDE

SOFTWARE CONFIGURATION IDENTIFICATION

VERSION 2.0

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| 26/08/2022 | 1.1 | María de los Angeles Martínez Vargas | Translated document |
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REVIEWERS

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| --- | --- | --- | --- |
| Name | Product or service reviewed | Position | Date |
| Omar Ali Zatarain Durán | Baseline | Client | 16/11/2022 |

ROLES AND RESPONSIBILITIES

|  |  |  |
| --- | --- | --- |
| Name | Designation | Responsibilities |
| María de los Angeles Martínez Vargas | Developer | Design, Document and develop the project |
| Rodolfo Omar Domínguez García | Manager | Advice and monitoring of the project |
| Leonardo Uriel Ulloa Mora | Developer | Develop the project |

# Software Configuration Identification

## Context

Tourism is a social, cultural, and economic phenomenon that involves the movement of people to countries or places outside their usual environment for personal, professional, recreational, or business reasons. However, because of the COVID-19 health crisis, this and other sectors have plunged into a deep economic recession worldwide due to travel restrictions imposed in many parts of the world. Therefore, this problem of tourism can help to be overcome through technology, as a means of the influx of tourism and economic reactivation via applications. It is also important to note that currently, the tourism sector is the fourth source of income in Mexico, this decreases to third place in the world in the reception of tourists in 2020, however, due to the drop in world tourism caused by the pandemic, in the first quarter of 2021, in original figures, a decrease in tourism Gross Domestic Product (GDP) was shown in the order of 23.3% compared to the same quarter of the previous year. While domestic tourism consumption increased a decrease of 23.1% compared to the same quarter of 2020, as can be seen in Figure 1.

Gráfico, Gráfico de barras, Histograma

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Figure 1: Quarterly Tourism GDP Physical Volume

## Problem

Tourism is one of the most important economic activities in the country, therefore, it seeks to increase and update the improvement of tourism products. This work deals with the opportunity to develop an application oriented to tourism in the format of a virtual guide that allows to visit, know, and interact with the most relevant places in the center of Guadalajara, focused mainly on the Fray Antonio Alcalde walk-in the center of Guadalajara, providing auditory and visual information to enrich the experiences of travelers.

## Objectives of the System

Develop and implement an application as a virtual tourist guide with geolocation in Guadalajara on the Fray Antonio Alcalde y Barriga promenade, aimed at visitors to the promenade.

* Design and create the graphic interfaces to use.
* Design and implement the user module
* Design and implement the points of interest module.
* Design and implement the multimedia content module of the application.
* Design functionality tests for the developed modules.
* Test the application in a real data environment.

## Requirements

This section, a list of the functional and non-functional requirements of the system.

### Functional requirements

1. Register user by email and password
2. Register user by Google account
3. Register user by Facebook account
4. Access to the system by email and password
5. Access to the system by Google account
6. Access to the system by Facebook account
7. Access to the system without registration in the database
8. Reset User Password
9. Remember user identified in the application
10. Log out
11. View user profile information
12. Update username
13. Update user email
14. Update user password
15. Start route of the route
16. Activate device location
17. Show map of Paseo Alcalde
18. Show map of Paseo Alcalde in full view mode
19. Show map of Paseo Alcalde in satellite view mode
20. Add map zoom in/out functionality
21. Show icons of points of interest
22. Show the category of the routes in the icons
23. Receive notifications of places of interest near the user when the device's location is active
24. Show image when point of interest is selected
25. Show the time to get to a place
26. Show distance to point of interest
27. Show place of interest audio play icon
28. Play POI Audio
29. Filter the places shown on the map
30. Show list of places on the map as a whole
31. Show a text referring to the project
32. Show routes by reference routes, as murals or gastronomy
33. Show list of those involved in the project
34. A history list of visited monuments for each person that uses the application for resolve tourist safety issues.
35. Web version of the system that includes interactive routes with estimated time of the route based on the chosen daytime.

### Non-functional requirements

1. The system must work on Android and iOS devices
2. Users must have a password of at least 8 characters
3. The application must work on Windows, Linux, MacOS platforms
4. Compatible browsers on Android must be Chrome, Edge, Firefox, and Opera
5. Compatible browsers on MacOS and iOS must be Safari and Opera

### Design constraints

1. The recommended image formats are JPG, JPEG and PNG
2. The recommended image size is 560x315 megapixels
3. The recommended size to display in the application texts is between 50 and a maximum of 100 words
4. The recommended number of words in the audios is between 250 and a maximum of 380 words
5. The recommended audio format is MP3 (MPEG-1 Audio Layer III)

## Design of the system

This stage establishes the behavior of the project through the abstraction of the common language. This implies making different types of diagrams that model the operation of the software using a universal standard tool: the Unified Modeling Language (UML). Below is the use case diagram, interaction diagrams, flowcharts, block diagram, and architecture diagram.

### Architecture

Figure 2 shows the mobile application, which is composed from the React-JS tools for coding, Firebase for data storage and map visualization is done with the Leaflet library together with device geolocation. These technologies produce a progressive web application that is compatible with the Android and iOS operating systems. It is important to mention that to access the application on the mobile device, you must have Internet access: Wi-Fi or telephone data.

Diagrama

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Figure 2: Architecture diagram

### Use case diagrams

The use case diagram shown in Figure 3 makes it possible to identify the main actors involved in the system, as well as the functions performed by each one.

Diagrama

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Figure 3: Use case - General Diagram

### Class diagram

The class diagram allows to identify the classes of the system, as well as the attributes and their methods that this system manages 5 classes, as shown in Figure 4.

Texto

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Figure 4: General class diagram

**4.4 Implementation diagrams**

Component diagrams represent the relationships between individual system components using a static layout view. They can illustrate aspects of logical and physical modeling. These components are mutually independent modular parts of a system that can be replaced with equivalent components. They are self-contained and encapsulate structures of any degree of complexity. For the development of this application, 5 logical components were identified, of which 3 act as main components and 2 subcomponents, as shown in Figure 5.

Interfaz de usuario gráfica, Aplicación

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Figure 5: Logic component diagram

### Sequence diagrams

Sequence diagrams allow each process and objects that coexist simultaneously to be represented step by step, and the messages that are exchanged between them to execute a function before the lifeline ends, including the processes that are considered most relevant. One of the main processes of the application is the user registration, as its name indicates, this process is used for new users to make use of the application, this process is shown in Figure 6.

Diagrama

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Figure 6: Sequence diagram of the user registration process

The Access process is the process in charge of restricting the use of the application, limiting access to those who have a user account, its process is shown in more detail in Figure 7.

Diagrama

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Figure 7: Sequence diagram of the system access process

The process of starting the route oversees displaying the information of the route on the map, for which it requests the data from the server and later shows the information on the map. Its process is shown in more detail in Figure 8.

Diagrama

Descripción generada automáticamente

Figure 8: Sequence diagram of the display map process

### Flowchart

Figure 9 shows the general flowchart of the use of the application for the route of Paseo Alcalde.

Diagrama

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Figure 9: Flowchart - General diagram

## Construction

The construction stage oversees describing the translation process of the previous diagrams to the software code and created the app views.

### App views

This section is shown a collection of classes representing the elements in the user interface (all the things the user can see and respond to on the screen, such as buttons, display boxes, and so forth)

Figure 10 is the first screen of the application, where two buttons are shown; one to log in and one to register in the system.

Interfaz de usuario gráfica, Texto

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Figure 10: Starting screen

If we already have an account, the option to log in is selected, where the user is directed to the login screen, which requests both the email address and the password with which he registered in the application, as shown in Figure 11**¡Error! No se encuentra el origen de la referencia.**.

**Interfaz de usuario gráfica, Texto, Aplicación, Chat o mensaje de texto

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Figure 11: Login screen

If you do not have an account, the registration option is selected, this screen requests the name, an email address, as well as a password, as shown in Figure 12.

**Interfaz de usuario gráfica, Texto, Aplicación, Correo electrónico

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Figure 12: Register screen

Once authenticated to the app, the next screen shown is the main menu screen; In this you can directly start the tour, request information from the application or modify the data of the user profile, as shown in Figure 13.

Interfaz de usuario gráfica, Aplicación, Sitio web

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Figure 13: Main menu screen

When starting the tour, the screen shows the map of the tour. In this case, it shows the selected places of interest from the paseo Fray Antonio Alcalde in downtown Guadalajara, as shown in Figure 14.

Diagrama

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Figure 14: Tour screen

## Test

This section will present the tests that must be performed on the software to ensure the quality of the product.

### Elements to use

**¡Error! No se encuentra el origen de la referencia.** and **¡Error! No se encuentra el origen de la referencia.** describes the specifications of the equipment where the tests will be carried out.

#### Hardware

Table 1: Hardware elements to use

|  |  |  |  |
| --- | --- | --- | --- |
| Element | OS | Computer | Description |
| Hardware (MacBook Air 2017) | MacOS Monterey | Processor | i5 5350U |
| RAM | 8 GB |
| Hardware (Desktop Gigabyte) | Windows 11 | Processor | Ryzen 5600X |
| RAM | 32 GB |
| Hardware (Dell G7) | Windows 11 | Processor | i7 8750H |
| RAM | 16 GB |
| Hardware (Smartphone Honor 20) | Android 10 | Processor | Huawei Kirin 980 |
| RAM | 6 GB |

#### Software

Table 2: Software elements to use

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Element | OS | Program | Version | Web navigator |
| Software | Windows 11 | Pytest | 7.1.2 | Google Chrome |
| Python | 3.10.5 | Edge |
| MacOS Monterey | Pytest | 7.1.2 | Google Chrome |
| Python | 3.10.5 | Edge |

#### Version Control Software

Version control will be using GitHub, this allows us to share the code over the internet and is easy to implement in the PyCharm software, where the code will be developed. And we can also have the reports and baselines of the project saved to have version control of all the documents during the development of the project.

### Test cases

The **¡Error! No se encuentra el origen de la referencia.** intention is to present the module and the test cases that need to be tested for each module.

Table 3: Test functional requirement cases

|  |  |  |
| --- | --- | --- |
| Module | Requirement ID | Test |
| Register | RF-01 | Register user by email and password |
| RF-02 | Register user by Google account |
| RF-03 | Register user by Facebook account |
| Login | RF-04 | Access to the system by email and password |
| RF-05 | Access to the system by Google account |
| RF-06 | Access to the system by Facebook account |
| RF-07 | Access to the system without registration in the database |
| RF-08 | Reset User Password |
| RF-09 | Remember user identified in the application |
| RF-10 | Log out |
| Account settings | RF-11 | View user profile information |
| RF-12 | Update username |
| RF-13 | Update user email |
| RF-14 | Update user password |
| Map | RF-15 | Start route of the route |
| RF-16 | Activate device location |
| RF-17 | Show map of Paseo Alcalde |
| RF-18 | Show map of Paseo Alcalde in full view mode |
| RF-19 | Show map of Paseo Alcalde in satellite view mode |
| RF-20 | Add map zoom in/out functionality |
| RF-21 | Show icons of points of interest |
| RF-22 | Show the category of the routes in the icons |
| RF-23 | Receive notifications of places of interest near the user when the device's location is active |
| RF-24 | Show image when point of interest is selected |
| RF-25 | Show the time to get to a place |
| RF-26 | Show distance to point of interest |
| RF-27 | Show place of interest audio play icon |
| RF-28 | Play Audio on Android device |
| RF-29 | Play Audio on iOS device |
| RF-30 | Filter the places shown on the map |
| RF-31 | Show list of places on the map as a whole |
| RF-32 | Show a text referring to the project |
| RF-33 | Show routes by reference routes, as murals or gastronomy |
| RF-34 | Show list of those involved in the project |
| RF-35 | Check a history list of visited monuments for each person that uses the application for resolve tourist safety issues. |
| RF-36 | Check the web version of the system. |

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PASEO ALCALDE

SOFTWARE CONFIGURATION CONTROL

VERSION 1.0

# Software Configuration control

This section presents all requests for changes and additions of new requirements to the documentation for this software.

## Policies for accept a change request

1. Time is fixed.
2. If the CR requires a new equipment the client must pay.
3. CR should be analyzed before the configuration committee board meeting.
4. Every member should learn about CR before meeting.
5. Project owner should provide the configuration analysis to all the member of the committee.
6. Project owner should briefly present the CR before the members.
7. The members should present his/her own analysis SWOT matrix based on his/her expertise, provide recommendations.
8. If the time is more than two weeks should be not approved.
9. If the CR is regarding vulnerabilities the CR should be implemented or the module affected should be put in quarantine and be postponed for a next version.
10. If the accomplishment of the project is 60% only one person may be incorporated to the project if budget allows if the accomplishment is 30% up to 3 persons may be incorporated to the project if budget allows.
11. If there is an expert about the CR, he/she can be consulted instead of hiring new people.
12. Only the CEO and the project owner can take final decision.
13. The project owner must provide the rationale for the approval or disapproval and CEO is informed about the progress.
14. The project owner should implement only the approved CR’s.
15. If the CR exceeds the 5% of the current budget, the CR should be disapproved.
16. If the CR contradicts the government laws, it should not be implemented, if the CR is following a new law, then the CR should be implemented.

## Project Details

Virtual tourist guide with geolocation for the Fray Antonio Alcalde and Barriga walk in the center of Guadalajara.

### Change request 01

The Table 4 presents the first change request that the client request to the software.

Table 4: Change Request 01

|  |  |  |  |
| --- | --- | --- | --- |
| **Change Request 01** | | | |
| **Change Title:** | Dynamic route | | |
| **Date of Request:** | 09/09/2022 | **Request ID:** | CR-01 |
| **Requested by:** | Dr. Omar Ali Zatarain Durán | | |
| **Change Description & Details** | | | |
| Provide a dynamic route to the document that implicate explore more interest places user is already registered. | | | |

### Change request 02

The Table 5 presents the second change request that the client request to the software.

Table 5: Change Request 02

|  |  |  |  |
| --- | --- | --- | --- |
| **Change Request 02** | | | |
| **Change Title:** | Manage system places by an administrator | | |
| **Date of Request:** | 07/10/2022 | **Request ID:** | CR-02 |
| **Requested by:** | Dr. Omar Ali Zatarain Durán | | |
| **Change Description & Details** | | | |
| The client requests that the system can be managed regarding the places by the administrator and users may add new places to visit if the new is near to the area of current places within the system. | | | |
| **Configuration Items** | | | |
| Users’ module would be affected directly | | | |

### Change request 03

The Table 6 presents the third change request that the client request to the software.

Table 6: Change Request 03

|  |  |  |  |
| --- | --- | --- | --- |
| **Change Request 03** | | | |
| **Change Title:** | Tourist safety issues | | |
| **Date of Request:** | 07/10/2022 | **Request ID:** | CR-03 |
| **Requested by:** | Dr. Omar Ali Zatarain Durán | | |
| **Change Description & Details** | | | |
| Due to tourist safety issues (robbery and kidnaping), the Mexican tourism service requests that all the users of the platform are monitored while using the app for the user’s safety and the use recordings should be submitted to the Mexican tourism service. | | | |
| **Configuration Items** | | | |
| Users’ module would be affected directly | | | |

### Change request 04

The Table 7 presents the fourth change request that the client request to the software.

Table 7: Change Request 04

|  |  |  |  |
| --- | --- | --- | --- |
| **Change Request 04** | | | |
| **Change Title:** | International marketing purposes | | |
| **Date of Request:** | 07/10/2022 | **Request ID:** | CR-04 |
| **Requested by:** | Dr. Omar Ali Zatarain Durán | | |
| **Change Description & Details** | | | |
| Due to international marketing purposes, the client requests that a web version of the system is implemented with the extra features   1. Interactive routes, with estimated time of the route based on the chosen daytime 2. An extended gallery of photos and video | | | |

## Change request analysis

Following the rules established for the meeting of the council of the committee. Below is the response to the request for change in requirements.

### Change request 01 analysis

Figure 15 presents the SWOT Matrix analysis made for change request 01.

|  |  |
| --- | --- |
| **STRENGTHS** | **WEAKNESSES** |
| The database doesn’t change, only include a new data |  |
| **OPPORTUNITIES** | **THREATS** |
|  |  |

Figure 15: SWOT Matrix CR-01

Table 8 presents the analysis of risk that could be impacted in software product result by implementing change request 01.

Table 8: Issues matrix CR-01

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ISSUES** | **Minimal** | **Regular** | **Urgent** | **Critical** |
| TIME |  |  |  |  |
| BUDGET |  |  |  |  |
| HUMAN RESOURCES |  |  |  |  |
| QUALITY ADMINISTRATION |  |  |  |  |
| MANDATORY LAW |  |  |  |  |

* *Time* is **regular** because the time to deliver the project is limited.
* *Budget* is considered **minimal** because it is already considered in the budget
* *Human resources are* considered **minimal** because the development team can fulfill the change request.
* *Quality administration is* **regular** risk because, must take the time to test the software.
* *Mandatory* *law is* **minimal** because it is not a government law.

### Change request 02 analysis

Figure 16 presents the SWOT Matrix analysis made for change request 02.

|  |  |
| --- | --- |
| **STRENGTHS** | **WEAKNESSES** |
| Users with multiple roles  Keep track of users | The database changes  New module doesn’t exist |
| **OPPORTUNITIES** | **THREATS** |
| Mining data of the user experiences  Increase in the points of interest of the application | The project doesn’t complete on the estimated time |

Figure 16: SWOT Matrix CR-02

Table 9 and Table 10 presents the analysis of issues and risk that could be impacted in software product result by implementing change request 02.

Table 9: Issues matrix CR-02

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ISSUES** | **Minimal** | **Regular** | **Urgent** | **Critical** |
| TIME |  |  |  |  |
| BUDGET |  |  |  |  |
| HUMAN RESOURCES |  |  |  |  |
| QUALITY ADMINISTRATION |  |  |  |  |
| MANDATORY LAW |  |  |  |  |

Table 10: Risk impact CR-02

|  |  |  |  |
| --- | --- | --- | --- |
| **RISK** | **Low** | **Medium** | **High** |
| TIME |  |  |  |
| BUDGET |  |  |  |
| HUMAN RESOURCES |  |  |  |
| QUALITY ADMINISTRATION |  |  |  |
| MANDATORY LAW |  |  |  |

* *Time* is **urgent** because the time to deliver the project is limited.
* *Budget* is considered **regular** because it is necessary to pay the development time to the work team.
* *Human resources*are considered **regular** because the development team can fulfill the change request.
* *Quality administration* is a **critical** risk because the remaining time is less than a year and not enough to develop all the initial requirements and make the current change request.
* *Mandatory* *law is* **minimal** because it is not a government law.

### Change request 03 analysis

Figure 17 presents the SWOT Matrix analysis made for change request 03.

|  |  |
| --- | --- |
| **STRENGTHS** | **WEAKNESSES** |
|  | The database changes  New module doesn’t exist |
| **OPPORTUNITIES** | **THREATS** |
| Mining data of the user experiences  Keep track of users | Canceling the project |

Figure 17: SWOT Matrix CR-03

Table 11 and Table 12 presents the analysis of issues and risk that could be impacted in software product result by implementing change request 03.

Table 11: Issues matrix CR-03

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ISSUES** | **Minimal** | **Regular** | **Urgent** | **Critical** |
| TIME |  |  |  |  |
| BUDGET |  |  |  |  |
| HUMAN RESOURCES |  |  |  |  |
| QUALITY ADMINISTRATION |  |  |  |  |
| MANDATORY LAW |  |  |  |  |

Table 12: Risk impact CR-03

|  |  |  |  |
| --- | --- | --- | --- |
| **RISK** | **Low** | **Medium** | **High** |
| TIME |  |  |  |
| BUDGET |  |  |  |
| HUMAN RESOURCES |  |  |  |
| QUALITY ADMINISTRATION |  |  |  |
| MANDATORY LAW |  |  |  |

* *Time* is **urgent** because the time to deliver the project is limited and the team needs to research, develop, and test the new module.
* *Budget* is considered **regular** because it is necessary to pay the development time to the work team.
* *Human resources are* considered **regular** because the development team can fulfill the change request.
* *Quality administration is* **urgent** risk because the remaining time is less than a year and not enough to develop all the initial requirements and make the current change request.
* *Mandatory law is* **critical** because the project could have legal consequences for not complying with the law.

### Change request 04 analysis

Figure 18 presents the SWOT Matrix analysis made for change request 04.

|  |  |
| --- | --- |
| **STRENGTHS** | **WEAKNESSES** |
|  | The database changes  New module doesn’t exist |
| **OPPORTUNITIES** | **THREATS** |
| Mining data of the user experiences  Keep track of users | Canceling the project |

Figure 18: SWOT Matrix CR-04

Table 13 and Table 14 presents the analysis of issues and risk that could be impacted in software product result by implementing change request 04.

Table 13: Issues matrix CR-04

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ISSUES** | **Minimal** | **Regular** | **Urgent** | **Critical** |
| TIME |  |  |  |  |
| BUDGET |  |  |  |  |
| HUMAN RESOURCES |  |  |  |  |
| QUALITY ADMINISTRATION |  |  |  |  |
| MANDATORY LAW |  |  |  |  |

Table 14: Risk impact CR-04

|  |  |  |  |
| --- | --- | --- | --- |
| **RISK** | **Low** | **Medium** | **High** |
| TIME |  |  |  |
| BUDGET |  |  |  |
| HUMAN RESOURCES |  |  |  |
| QUALITY ADMINISTRATION |  |  |  |
| MANDATORY LAW |  |  |  |

* *Time* is **urgent** because the time to deliver the project is limited and the team needs to research, develop, and test the new module.
* *Budget* is considered **regular** because it is necessary to pay the development time to the work team.
* *Human resources are* considered **regular** because the development team can fulfill the change request.
* *Quality administration is* **urgent** risk because the remaining time is less than a year and not enough to develop all the initial requirements and make the current change request.
* *Mandatory law is* **critical** because the project could have legal consequences for not complying with the law.

### Lower risk of change requests in descending order

CR-01: Provide a dynamic route to the document that implicate explore more interest places user is already registered.

CR-02: Due to international marketing purposes, the client requests that a web version of the system is implemented with the extra features

1. Interactive routes, with estimated time of the route based on the chosen daytime
2. An extended gallery of photos and video

CR-03: The client requests that the system can be managed regarding the places by the administrator and users may add new places to visit if the new is near to the area of current places within the system.

CR-04: Due to tourist safety issues (robbery and kidnaping), the Mexican tourism service requests that all the users of the platform are monitored while using the app for the user’s safety and the use recordings should be submitted to the Mexican tourism service.

### Importance of change requests in ascending order

CR-04: Due to tourist safety issues (robbery and kidnaping), the Mexican tourism service requests that all the users of the platform are monitored while using the app for the user’s safety and the use recordings should be submitted to the Mexican tourism service.

CR-02: Due to international marketing purposes, the client requests that a web version of the system is implemented with the extra features

1. Interactive routes, with estimated time of the route based on the chosen daytime
2. An extended gallery of photos and video

CR-03: The client requests that the system can be managed regarding the places by the administrator and users may add new places to visit if the new is near to the area of current places within the system.

CR-01: Provide a dynamic route to the document that implicate explore more interest places user is already registered.

## Change request resolution

The following change requests were accepted:

CR-04: Due to tourist safety issues (robbery and kidnaping), the Mexican tourism service requests that all the users of the platform are monitored while using the app for the user’s safety and the use recordings should be submitted to the Mexican tourism service.

CR-02: Due to international marketing purposes, the client requests that a web version of the system is implemented with the extra features

1. Interactive routes, with estimated time of the route based on the chosen daytime
2. An extended gallery of photos and video

The following change requests are denied:

CR-04: Due to tourist safety issues (robbery and kidnaping), the Mexican tourism service requests that all the users of the platform are monitored while using the app for the user’s safety and the use recordings should be submitted to the Mexican tourism service.

CR-02: Due to international marketing purposes, the client requests that a web version of the system is implemented with the extra features

1. Interactive routes, with estimated time of the route based on the chosen daytime
2. An extended gallery of photos and video

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UNIVERSIDAD DE GUADALAJARA

MAESTRIA EN INGENIERIA DE SOFTWARE

PASEO ALCALDE

SOFTWARE CONFIGURATION AUDITING

VERSION 1.0

# Software Configuration Auditing

This section presents the process of monitoring the implementation, incidents, documentation on the changes produced in the baseline triggered by the change requests.

## Polices for assuring the quality on the software

1. Check if the CR and test cases were properly addressed
2. Check the results of test cases
3. If the test results are as expected and fulfill the CR then the auditing result is passed
4. If the test is failed, do:
   1. Look back to the status accounting report
   2. Look back to the configuration control
   3. Look back to the configuration identification report
5. Identify the main biases or mistake in each task
6. Enumerate the recommendations for improving the process
   1. Address the recommendations by each responsible at the task
   2. Enact new polices for improvement
   3. Provide a report of failures or missing features

## Polices for assuring the quality on the process

1. Make sure that baselines and standards match the actual components of the product.
2. Verify that the product is built and documented as the standards.
3. Check if the CR and test cases were properly addressed.
4. Check that the new test results added by the CRs and the other CRs give an acceptable result.
5. If tests failed, do:
   1. Look back to the status accounting report.
   2. Look back to the configuration control document.
   3. Look back to the configuration identification part in the configuration control document for that CR.
6. Verify that the correct and authorized versions of any CI exist and is correctly identified.
7. Verify that every CR on the Change Request Control document has a resolved status.
8. Identify the main biases or mistakes produced in each task.
   1. Configuration identification
   2. Configuration control
   3. Status accounting
9. Check data quality for accuracy and completeness.
10. Initiate an incident for discovered unauthorized changes.

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SOFTWARE CONFIGURATION STATUS ACCOUNTING

VERSION 1.0

# Software Configuration Status accounting

This section presents the scope of software configuration status accounting encompasses the recording and reporting.

## Rules

1.- If the time is over and the implementation is not finished, a report of the main issues found, the context and the current outcomes should be provided.

2.- If the budget is lower than estimated, the unfinished features should be reported, also the percentage of features completed.

3.- If there are features non-implemented after the estimated time and budget, an analysis about what required skills are missing at the developers’ team.

4.- Weekly meetings about the implementation of features on CRs. To retrieve:

* Status of the implementation
* Issues found on CRs
* Record the agreements, tasks assignments.

5.- At the end of the implementation a final report must be written including the following information

* Changes implemented to the baseline
* A chart of time of implementation regarding the expected time and the performed time
* A chart of budget regarding the scheduled budget and the budget used on the implementation
* An analysis of issues found across the life of implementation of the CR

## Process for status accounting

The points presented below are the recommendations to act according to each different type of implementation.

### Faster implementation

* Identify and prioritize functionalities, modules and results are expected
* Make a dashboard of the task for to do
* Distribute and assign all task to the team
* Every day do a meeting of the 15 minutes to check the progress of the implementation of the CRs.
* Status of the implementation
* Issues found on CRs
* Record the agreements, tasks assignments.
* Make a report for all CR
* Testing the system
* Apply quality assurance to the implemented modules

### Planned implementation

* Written a document with all functionalities, modules would be constructed
* Make a dashboard of the task for to do
* Distribute and assign all task to the team
* Every day do a meeting of the 15 minutes to check the progress of the implementation of the CRs.
  + - Status of the implementation
    - Issues found on CRs
    - Record the agreements, tasks assignments.
* Make a report for all CR
* Testing the system
* If the time allows the team would testing the system

### Slower implementation

* Identify and prioritize functionalities, modules and results are expected
* Make a dashboard of the task for to do
* Distribute and assign all task to the team
* Every day do a meeting of the 15 minutes to check the progress of the implementation of the CRs.
  + Status of the implementation
  + Issues found on CRs
  + Record the agreements, tasks assignments.
* Make a report for all CR
* Identify and reduce functionalities for the project
* If the project is less than 40% of the progress and the time is 50% spent already, then add a new programmer
* If the budget is limited, finished like a beta version of the project
* If the project is more ambitious than planning, ask for more budget and time
* If the CR cannot be implemented, go back to a previous version, and continue with the previous baseline.

## Status accounting report

Finally, all the work carried out throughout the different stages of the software configuration culminates in generating a project status report as shown in Table 15.

Table 15: Status accounting report

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Status Accounting Report | | | | |
| Author |  | Id. of employee |  | |
| Department |  | Date of CR approval |  | |
| Email |  | CR-ID |  | |
|  | **Details** | | | | |
| **Description** |  | | | | |
| **Configuration items** |  | | | | |
| **Involved people** | Project Owner: | | | | |
|  | Project Manager: | | | | |
|  | Programmer: | | | | |
| **Estimated** | Time: | | | | |
|  | Budge: | | | | |
|  | HR: | | | | |
| **Performed** | Time: | | | | |
|  | Budge: | | | | |
|  | HR: | | | | |
| **Total issues** |  | | | | |
| **Outcome** |  | | | | |
| Signature | | | | Date | |
|  | | | |  | |

Additionally, Table 16 presents an optional troubleshooting table.

Table 16: Issues Report

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Issues Report | | | | | | |
| Author |  | | Id. of employee |  | | |
| Department |  | | Date of CR approval |  | | |
| Email |  | | CR-ID |  | | |
|  | **Details** | | | | | | |
| **Description** |  | | | | | | |
| **Configuration items** |  | | | | | | |
| **Involved people** | Project Owner: | | | | | | |
| Project Management: | | | | | | |
| Programmer: | | | | | | |
| **Risk** | Low | Medium | | | | High | |
| **Possible solutions** |  | | | | | | |
| **Outcome** |  | | | | | | |
| Signature | | | | | Date | | |
|  | | | | |  | | |

# References

|  |  |
| --- | --- |
| [1] | H. Bersoff and Edward, "IEEE.com," *IEEE Transactions on Software Engineering,* Vols. SE-10, no. 1, pp. 79-89, January 1984. |