

Software Requirements Specification



Intelli Planner

# Revision History

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| --- | --- | --- | --- |
| **Date** | **Description** | **Author** | **Comments** |
| 14/1/2016 | 1.0 | Prashant | Initial version |
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# Document Approval

The following Software Requirements Specification has been accepted and approved by the following:

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| --- | --- | --- | --- |
| **Signature** | **Printed Name** | **Title** | **Date** |
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# Introduction

## Engagement Context

Carrefour has contacted Verbat to develop an Inventory management system to replenish supplies in their hypermarket stores located in UAE. Carrefour has 28 stores in UAE. The system shall help managers to place orders based on historical sales volumes by taking into account holiday seasons, promotions and weekend sales. It does this by receiving various files on a daily basis from their GIMA and GICA warehouse management solutions. The full scope of the application includes management of the following divisions within each store

* Fruits and Vegetables (FNV)
* Butchery
* Bakery

The proposed application shall be developed using the .NET ecosystem. The application shall be developed as a Responsive user friendly Web Application that plays well with tablets and desktop browsers.

This document pertains to documenting the requirements for the said application.

## Purpose

The document provides a detailed overview of the Application software product, its parameters and goals. It also describes the project's target audience and its user interface, hardware and software requirements. It defines how our client, team and audience will see the product and its functionality; this step is to assist designers and developers in the software delivery lifecycle (SDLC - Agile) processes.

The document is organized into sections to detail the workflow of different stakeholders or users of the application.

## Scope

Primarily, the scope of the document pertains to the application features for the development of the initial phase of the Intelligent Planning System. The application shall be developed in three phases starting off with FNV, followed by the butcher and bakery applications.

The application will have the following core components:

* **F&V Modules:**

Closely interacts with the Distribution Center and Warehousing Applications to generate leads and help place orders.

* **Butchery Product Estimating Module**

Helps in estimating the produce required and selects the best cut of meat to support production

* **Bakery** **Product Estimation Module**

Helps determine the raw material needed to produce bakery products based on the active ingredients of their constitution

## This document and its structure

The remaining sections of this document provide a general description, including characteristics of the users of this project, the product's hardware, and the functional and data requirements of the product.  General description of the project is discussed in section 2 of this document.  Section 3 gives the functional requirements, data requirements and constraints and assumptions made while designing the application.  It also gives the user viewpoint of product.  Section 3 also gives the specific requirements of the product.  Section 3 also discusses the external interface requirements and gives detailed description of functional requirements. Section 4 is for supporting information.

# General Description

Conference management application is a portal designed to facilitate the creation and management of conferences as well as the conference attendees. The primary purpose of the application is to encourage as many users as possible to register in the website. Registration allows registrants to get timely updates and notifications on upcoming conferences. Information on upcoming conferences will be send to users based on their preferences (i.e. weekly, daily, monthly etc.)

## User Characteristics

The primary stakeholders for the system for Phase 1 are:

* *Admin User*: The purpose of the administrator would be to manage the users and approve conference’s. Admin user shall add countries and categories and other data to maintain the site.
* *Users*: These users can create conferences, view users assigned to conferences. Users who register for and attend conferences.

## General Constraints

* System shall be efficient enough for multiple users to search and view conference information simultaneously
* Conferences shall be archived and saved after 3 months

## Assumptions and Dependencies

* There is no real distinction between a conference registrant and a conference creator
* Conferences will be available for review after it has been completed
* Conferences can only be reviewed by conference participants
* Client will provide secure connection, banner images, logo design etc.

# Requirements in Detail

## Software Interface Requirements

### User Interface – Web

The web application shall be compatible with the latest versions of the leading web browsers such as Internet Explorer, Mozilla Firefox and Chrome by which user can access to the system. Technical implementation of the user interface shall be implemented using industry accepted tools, packages or languages like PHP, HTML5, CSS3, CodeIgnitor etc. The user Interface will be composed of a “Home Page” and associated pages with appropriate forms for registering users and conferences etc.

### Communications Interfaces

The Conference Management System shall use the HTTP (post 80) & HTTPS (port 443) protocol for communication over the internet and for the intranet communication will be through TCP/IP protocol suite.

## Functional Requirements

### System Requirement

System requirements refers to the requirements met by the core application.

#### Authentication and Authorization

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| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\v10030\AppData\Local\Microsoft\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958) | [**EFFORT REQUIRED**](file:///C:\Users\v10030\AppData\Local\Microsoft\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958) |
| **(P1, P2, P3, P4)** | **(H,M,L)** |
| CMS 3.2.1.1.1 | User will be authenticated using an email and password | P1 | L |
| CMS 3.2.1.1.2 | Email validation will direct the user to the following dashboards based on his role   * Home Page | P1 | L |
| CMS 3.2.1.1.3 | User will be allowed to login 3 times. After the third unsuccessful attempt the user will be forwarded to a remember password and email page | P1 | L |

#### Auditing and logging

##### Logging

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| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958) | [**EFFORT REQUIRED**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958) |
| **(P1..P4)** | **(H,M,L)** |
| CMS 3.2.1.2.1 | Logging will be used to capture all exceptions generated by the system. The following information will be captured:   * Exception Name * Exception Description * Exception Module * Severity (Critical, Medium, Low) * Time Stamp   The exceptions generated should be viewable on the admin dashboard | P1 | M |

##### Auditing

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| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958) | [**EFFORT REQUIRED**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958) |
| **(P1..P4)** | **(H,M,L)** |
| CMS 3.2.1.2.2 | Audit logs will be generated for all actions that are determined to be worth of investigating for security purposes. Information captured includes   * Logged in User * Time stamp * Application component accessed | P1 | H |

### User Requirements

The image below depicts the topics being covered in this section

#### User Registration Basic

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| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958) | [**EFFORT REQUIRED**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958) |
| **(P1, P2, P3, P4)** | **(H,M,L)** |
| CMS 3.2.2.1 | Customers register on the website or mobile app using a valid email address, password and phone number using web app   * Email Address\* will be of the format [abcd@abc.com](mailto:abcd@abc.com) * Password\*: minimum 8 characters composed of alphanumeric characters (requested 2 times and should be the same) * Phone Number: Country Code + State Code + Phone Number   **Validation (mandatory)**  Customer Identity will be verified by Using email validation link send to the customer’s email address | P1 | L |

#### USER REGISTRATION Advanced

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|  |  | **(P1, P2, P3, P4)** | **(H,M,L)** |
| CMS 3.2.2.2.1 | User can register in the application to   * Register for conference * Create Conference | **P1** | **M** |
| CMS 3.2.2.2.2 | **Registration**   * Title\* ( Drop down list of Prof., Dr., Mr, Miss, Mrs) * First Name\* (prepopulate if registered) * Last Name\* (prepopulate if registered) * Photo (photo or avatar) * Organization\* (Drop down list of Academy, Industry, Government, Others-Specify) * Job Title\* * Field of Interest (drop down list of category and subcategory. Select a max of 5) * Email\* (prepopulate if registered) * City\* * Country\* (drop down list) * Password\* (min 8 characters with numbers) * Confirm Password\* * Accept terms & conditions\* (tick) mandatory * Receive Notification emails(Upcoming conference, surveys & promotions): Check box\* (mandatory) * Not a Robot\* : Type something (mandatory)   \*Mandatory   * Notify user via email after registration |  |  |

#### Search Window

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| --- | --- | --- | --- |
| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(P1..P4)** | [**EFFORT REQUIRED**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(H,M,L)** |
| CMS 3.2.2.3.1 | **Basic (quick) Search**  Basic search can be done using the following fields   * Conference * Category * Venue   The search field will be an autocomplete field that will be a drop down in a format similar to the picture below. | P1 | H |
| CMS 3.2.2.3.2 | **Advanced Search**  Advance search will be placed on the left side of the screen as a side panel. Advanced search consist of searching on filter criteria. Filter can be one of   * Keyword * Country * State * City * Venue name * Organization name * Technical Sponsors (IEEE/ACM etc.) * Conference Start and End Date * Registration start & end date * Abstract submission start & end date * Paper submission start & end date * Type of event ( drop down values : Conference, Exhibit, trade fair, Workshop, Congress, webinar, other) | P1 | H |
| CMS 3.2.2.3.3 | **List Conference ( in the same page as search page)**  List the conferences with the following information   * Searched on Keyword   Rows with following columns   * Conference name * Logo * Category (breadcrumb style) * Start Date – End Date * Location : City, Country * Venue * Short description * Advanced Search options will be listed on the left pane of the List conference page.   Sample : <http://www.allconferences.com/search>   * The conference list can be ordered by Name and begin date | P1 | H |
| CMS 3.2.2.3.4 | **Conference Details**   * Example page : <http://www.allconferences.com/c/smartsec-europe-2016-amsterdam-2016-november-29> * Name of the conference , Conference Logo/banner (single line) * Organization * Venue (hotel address, city, state country) * Category ( breadcrumb style) * Event Start and End dates * Date of registration : Start and End Date * Early registration date and time * Email Organizer, Conference Web Site, Download info, Report spam ( all in a single line) * Conference Description * Venue location address, link to location and map * Organization location address , Link and map (optional) * Keynote speakers * Keynote Speaker Photo * Keynote speaker Bio * Sponsors * Paper Submission date * Additional Info * Intend to attend button\* ( Register for conference) * Rate this conference * Conference Rating (1-10) based on attendee review (similar to bookings.com) * Register for conference (External link???) | P1 | H |
| CMS 3.2.2.3.5 | **Search By category**  Conferences will be listed based on categories and sub categories. In the search page, the main categories will be listed as links. The categories can be navigated to sub categories and conference events within sub categories. |  |  |

#### Register the Conference

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| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(P1..P4)** | [**EFFORT REQUIRED**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(H,M,L)** |
| CMS 3.2.2.4 | Conference registration can be done by any registered user. The details for conference registration are   * Conference Title\* (120 Characters no space) * Conference Short Title\*(40 char no space) * Type\*: Drop down list (Conference, Exhibit, trade fair, Workshop, Congress, webinar, other) * Category\* – up to 5 listings ( main and sub as in allconferences.com) * Conference Logo / Banner * Conference Description\* * Conference main topics\* ( 2000 char, Rich text, no space) * Location (city, country)\* : Drop down for country, text for city * Venue : Text 120 char * Key note speakers (Can add multiple speakers)   + Name of speaker   + Speaker Bio (1000 char no space)   + Photo * Conference Start date\* - End Date * Registration Date\* (start-end date) * Drop down\* (Abstract, Paper, Tutorial, Special Session, Poster Submission) * Calendar Date\* for one of the above. * Author Notification Dates\* (From – To) * Submission Instruction\* (Rich text 3000 char, no space) * Registration Fee and Instructions\* (Rich text 2000 char, no space) * Hosting Organization * Hosting Org Logo * Sponsor Name * Sponsor Logo * Program : PDF upload * Accommodations ( rich text, 2000 char, no space) * Visa & Travel info (rich text, 2000 char, no space) * Social Events : (rich text field 1000 char no space) * Exhibit Information : (rich text 1000 char no space) * Conference Website : URL * Images : Max 5 images * Previous meetings : URL link * Contact Information   + Fax   + Email   + Phone * Additional Information (rich text 3000 char, no space) * Not a Robot\* * Email to conference creator after conference has been created | P1 | L |

#### Edit Conference

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| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(P1..P4)** | [**EFFORT REQUIRED**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(H,M,L)** |
| CMS 3.2.2.5 | * The conference creator can edit all fields of the conference except the conference name. * The conference creator may delete (no hard deletes- only soft deletes)the conference, if the conference   + Has not been approved   + Conference is not live and soliciting participants | P1 | H |

#### Edit User

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| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(P1..P4)** | [**EFFORT REQUIRED**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(H,M,L)** |
| CMS 3.2.2.6 | * User to modify personal details * Send email after modification | P1 | H |

#### Review conference email

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| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(P1..P4)** | [**EFFORT REQUIRED**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(H,M,L)** |
| CMS 3.2.2.7 | * Email user with conference link to review the conference after they click on the “Intend to attend” button | P1 | H |

#### Email all conference attendees after conference ends

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| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(P1..P4)** | [**EFFORT REQUIRED**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(H,M,L)** |
| CMS 3.2.2.8 | * All users who have attended the conference will receive a “review conference” email after the conference gets over | P1 | H |

#### Register for a conference

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| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(P1..P4)** | [**EFFORT REQUIRED**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(H,M,L)** |
| CMS 3.2.2.9 | * Users can register for a conference. * Users register for the conference by clicking the register button. * Registration can happen at an external site not managed by GlobConf (???) | P1 | H |

#### Conference Review

Provide ratings (1-5) for the following

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| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(P1..P4)** | [**EFFORT REQUIRED**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(H,M,L)** |
| CMS 3.2.2.10 | * Location of conference * Organization of the Conference * Quality of the presentations * Meals & Gala Dinner * Quality of the keynote speakers * Instructions provided to Authors and the paper submission process * Would you recommend this conference to fellow researchers? (Yes / No) * Have you received notification of acceptance / rejection of your paper on time? (Yes / No) * Your review of the conference (comments) : text * I agree to terms and conditions by submitting the review (Check Box) | P1 | M |

#### Upcoming Conference Notification Emails

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| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(P1..P4)** | [**EFFORT REQUIRED**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(H,M,L)** |
| CMS 3.2.2.11.1 | Users who are registered on the website will receive notification emails about upcoming conference   * Users must have subscribed to receive notification emails | P1 | H |
| CMS 3.2.2.11.2 | Implied Requirement   * User shall have an option to select topics in which they may receive notification emails * Notification Period : Period of receiving notification emails (Daily, Weekly, bi-weekly, monthly) | P2 | M |

#### batch Job for sending emails

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| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(P1..P4)** | [**EFFORT REQUIRED**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(H,M,L)** |
| CMS 3.2.2.12 | * Registered users who meet the condition to receive emails shall receive emails * The emails are triggered by a batch job or daemon process that runs daily | P1 | H |

#### Conference Archival

Conference information and conference details of conferences older than 3 months shall be archived

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| CMS 3.2.2.13 | * Option 1: Search always returns results for conferences younger than 3 months. ( makes query faster) * Option 2: Archive data older than 3 months. Implies the need for a separate archival job that needs to run daily. | P1 | H |

#### Conference Home Page

Home page will have the following elements.

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| CMS 3.2.2.14 | * Logo (banner) * Sign Up (registration button or link) * Login (existing Users) * Social Media Links * Search for conference with autocomplete field.      * Conferences should be listed by category, location & dates * Distribution of conferences around the globe ( refer <http://apps.cytoscape.org/apps/pemeasure>) No of conferences per location & updated automatically * Other Info (menu) : About Us, Why GlobConf, Terms & conditions, Privacy policy, contact Us * All “contact Us” mails shall go to a separate dedicated email address * Submit a conference : registered users can submit a conference, else, they must register * Featured conference bar: List featured conferences based on ranking and dates (upcoming first , right side panel along the length) * Counter for number of registered users, conferences created, visitors ( available only to admin) * Horizontal menu on top: Home, Search Conferences, Services, Submit a conference, Advertise, Help, Sign Up * Expandable conference categories and sub categories   Ex  See <http://www.allconferences.com/> for examples of elements to be displayed. | P1 | H |

#### Admin Features

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| CMS 3.2.2.15 | * Manage registered users (Soft delete, activate, deactivate ) * Approve / Reject conferences * View list of conferences * Edit and manage user registration and conference submission form * Add Country (the initial list of countries will be scripted in) * Add category & sub category (use <http://www.allconferences.com/> to create a list of categories and sub categories) | P1 | H |

#### Conference Creator view of conference applicants / approvals

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| CMS 3.2.2.16 | Conference creator shall be able to see all the conference participants | P1 | H |

#### Email notification to conference organizer

When user signs up for a conference emails goes to self & the organizer

|  |  |  |  |
| --- | --- | --- | --- |
| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(P1..P4)** | [**EFFORT REQUIRED**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(H,M,L)** |
| CMS 3.2.2.17 | * Email will be send to the conference organizer (creator) when a user signs up for the conference. | P1 | H |

#### Change in conference submission date

When user signs up for a conference emails goes to self & the organizer

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| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(P1..P4)** | [**EFFORT REQUIRED**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(H,M,L)** |
| CMS 3.2.2.18 | * If the submission date of any conference changes then user who have register to conference as "Intend to attend" should be notified about it. | P1 | H |

#### Change in conference submission date

When user signs up for a conference emails goes to self & the organizer

|  |  |  |  |
| --- | --- | --- | --- |
| **REQUIREMENT ID (RID)** | **DESCRIPTION** | [**PRIORITY LEVELS**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(P1..P4)** | [**EFFORT REQUIRED**](file:///C:\Users\Verbat\Desktop\pmp\requirements\Requirements_Gathering_Guidelines_and_Checklists_2.xls#'Document Conventions'!_Toc136410958)  **(H,M,L)** |
| CMS 3.2.2.19 | * Periodic email should be send to users based on their areas of interest at registration time | P1 | H |

# Non Functional Requirements

## Hardware Requirements

Since the application must run over the internet, all the hardware used must have the capability connect to the internet.

* **Web Server for Hosting** – Recommend a scalable and load balanced Amazon Cloud Server x 2 (multiple servers to allow maintenance and upgrades without downtime) with the minimum requirement as below (to start with).

When required, the cloud infrastructure offers flexibility to scale up individual servers and will also allow distributed deployment across multiple geographies.

Recommended primary server configuration:

* Memory – 8 GB
* SSL Verisign
* Processors: 4 Cores
* HDD Quota – 500 GB
* Monthly Transfer (Bandwidth) – Based on usage

## Logical Database Requirements

A Relational Database Management System will need to be used to store application data. The strategy adopted is to implement the project using an Open Source RDBMS system (ANSI standards) and further migrate to Oracle / MSSQL when data volumes near the thresholds.

## Technology Stack used for Development

Technology Specifications for the project are specified below

Technology Stack:

* Web Languages – PHP, CodeIgnitor, JQuery, HTM5, CSS
* Protocol and Ports - HTTP (80), HTTPS (443)
* Database – MySQL, with ANSI SQL schema for future Oracle migration
* Server – Apache
* Operating System – Linux

## Performance Requirements

Performance is primarily subjected to internet bandwidth available to the devices used by the customer

Furthermore:

* Search results shall not take more than 10 seconds to return results

Performance requirements shall be achieved by archiving data more than 3 months old

## Scalability

The scalability requirements are concerned with the scalable issues of the system. The system should allow up to 1000 concurrent customer sessions with proposed hardware. Amazon’s scalability options are what is recommended for hardware scalability.

* The application shall support 100,000 users at a time
* The application shall support 100,000 conferences at a time
* The application should support multiple users concurrently

## Documentations

|  |  |
| --- | --- |
| **ITEM** | **RESPONSE/COMMENT** |
| **Project documentation requirements** | * Requirements document * Technical design document |
| **Future Releases** |  |
| **Training Requirements** | Training will be provided for installing (including application migration) and using the application for all classes of users. |

## Maintainability

The maintainability requirements of the system are concerned with the maintenance issues of the system. The repair time of the application must be minimal. The systems downtime for maintenance shall be within 48 hours per year.

## Reliability

Selected cloud/hosting service reliability clause gets applied for this section.

## Availability

Selected cloud/hosting service availably clause gets applied for this section.

## Security

Hardware and network security will be covered by the selected cloud/hosting service availably clause gets applied for this section.

* The system shall use secure sockets in all transactions that include any confidential customer information.
* The system shall automatically log out all customers after a period of inactivity.
* The system shall confirm all transactions with the customer’s web browser or mobile apps.
* The system shall not leave any cookies on the customer’s computer containing the user’s password.
* The system shall not leave any cookies on the customer’s computer containing any of the user’s confidential information.

## Data Storage

* The user interfaces shall never display a customer’s password. It shall always be echoed with special characters representing typed characters.
* The user interfaces shall never display a customer’s credit card number after retrieving from the database. It shall always be shown with just the last 4 digits of the credit card number.
* The system’s back-end servers shall never display a customer’s password. The customer’s password may be reset but never shown.
* The system’s back-end servers shall only be accessible to authenticated administrators.
* It is recommended to encrypt the back-end databases.

|  |  |
| --- | --- |
| **ITEM** | **REQUIREMENT** |
| **Handling Sensitive Data** | Insensitive data such as company name, documents processed, relevant dates, noncompliance data etc. could be stored in the database as plain text for phase 1.  User information such as roles assigned, name, personally identifiable information (such as email, DOB, Phone numbers, business information etc.) will be stored as encrypted text. Passwords will be encrypted. |
| **Security Threats Prevention** | The application will be hosted on a web server that implements SSL (HTTPS). Passwords will be encrypted. Protection against SQL injection will be implemented  Protection against Cross browser hacks and cross site scripting (XSS) will be implemented. |
|
| **Access Control** | Access control for the application will be role based. Individual users will be authenticated with passwords and authorized to access different parts of the site depending upon assigned roles. |
| **HTTPS** | Application will support both HTTP and HTTPS. |
| **Passwords** | Passwords will be case sensitive, 8 characters long, consist of integers and alpha numeric characters. |
| **Changing Passwords** | User will be allowed to change password by providing his original password and typing the new password 2 times. |
| **Forgotten Passwords** | Forgotten passwords can be reset by providing an email address attached to the account. A token based link with expiry will be send to the email for reset of the password. |
| **User Profiles** | User profile could be enabled or disabled by the system admin. |
| **Multiple Logins** | Simultaneous logins of a customer from multiple clients will be discouraged until verified - TBC |
| **First-Time Login** | User will have to reset the password or will have to reset/set preferences. |
| **Session Time Out** | Once a user signs in, the user will remain logged in, unless the user intentionally logs out. - TBC |
| **Failed Logins** | User will be flagged for multiple login failures. Audit trail will be kept for user login/logoff attempts. |
| **Encryption Algorithm** | SHA-1 algorithm will be used for encryption of passwords.  (also for any other pieces of data that needs encryption needs to be identified) |
| Error Exception / Handling | |
| **ITEM** | **REQUIREMENT** |
| **Reporting Business Rule Violations** | For Phase 1 application error messages will be logged as well as any violations |
| **Messages for failed business rules** | The GUI will display appropriate meaningful error messages for application failures or when the application encounters a known error. |
| **Localization** | Since localization is not provided other than for English speaking users, all error messages will be displayed in English |

## User Inputs

|  |  |
| --- | --- |
| **ITEM** | **REQUIREMENT** |
| **Special Characters** | Special characters like (~,!@#$%^&\*()\_+|){`=-\/.,.><;:’”, &#16;} will be restricted to passwords. Note: Malaysian addresses commonly use ‘#’ and ‘/’ |
| **Auto-Generated IDs** | Auto generated ID’s will be used within a database context. Passwords may be auto generated for the user. |
| **Boundary Conditions** | Birth year values should be checked for boundary conditions. |
| **Character Length** | Passwords (min length 8), usernames (length>8 && <15), emails (xx@xxx.xxx) should be checked for character length. A check should be provided for source document length (> xxx characters & < xxxxx characters as an example) |

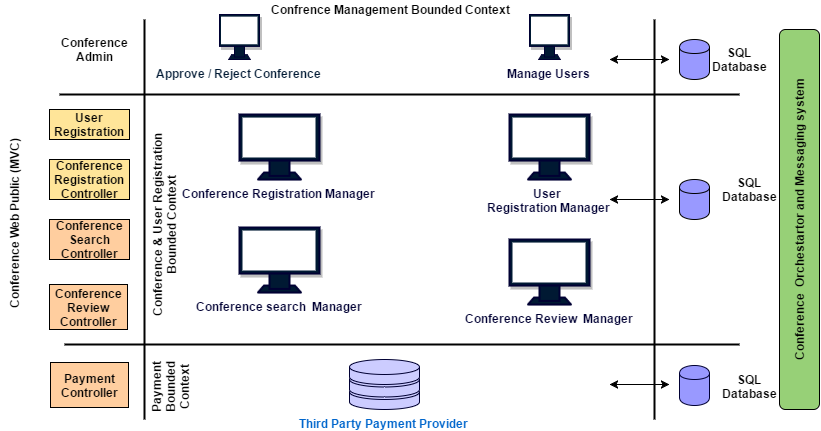
## Usability

|  |  |
| --- | --- |
| **ITEM** | **REQUIREMENT** |
| **Documentation** | User manuals and other relevant documents will be provided. |
| **Time Zones** | The prototype application will have UAE Standard Time as its time zone. Time zones cannot be configured in the current version of the application. Where ever applicable system date and time will be used to represent logical/business/calendar dates. |
| **User Interface** | The application developed will be best viewed in the resolution 1280px by 768px. The application will be responsive and will be available for mobile devices as well as on a desktop web browser |
| **Tab Sequence** | Forward and backward tab sequences will be maintained in the form. |
| **Transactions** | Transactions will be ACID (Atomic, Consistent, Isolated and Durable) where required. |

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# Analysis Models

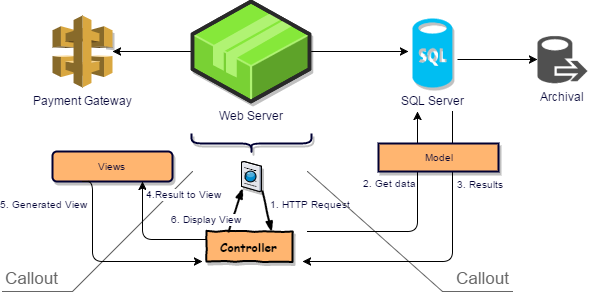
## Solution Concept Diagram



The diagram depicts the application compartmentalized based on the user profiles namely the admin and conference creator and conference attendee (the application does not make a distinction between the two). The different functions of the application are modularized to handle just that.

## High Level Architectural Overview

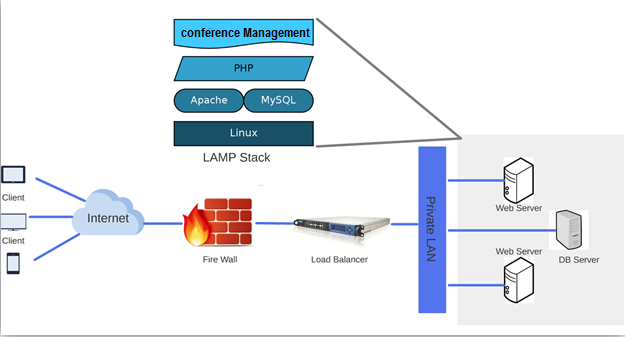
### Application Architecture



The application architecture depicted above contains a web server that PHP over Apache (Linux). The PHP code Ignitor framework will used to contain the Model-View-Controller (MVS) framework.

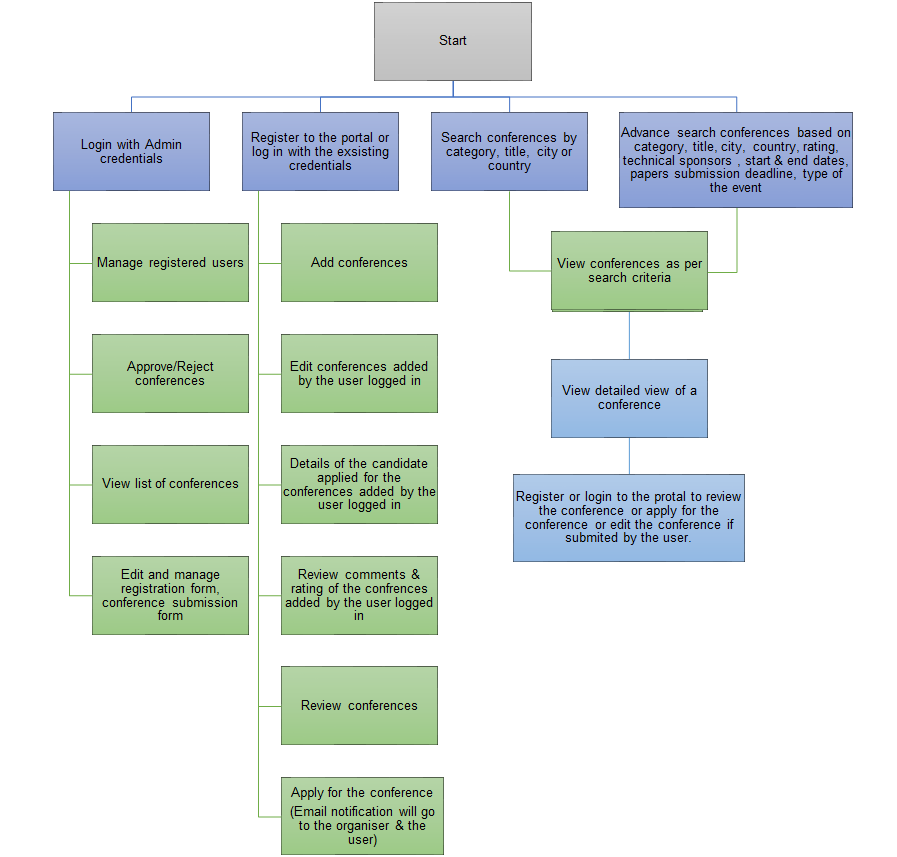
The web server communicates with an SQL (mySql) server. All data related to conferences older than 3 months will be archived to increase the scalability of the application. The web server will also communicate with a payment gateway where users may make financial contributions (donations).

### Technology Architecture



The diagram above depicts the network topology as well as the physical architecture of the application. The physical components of the web server is shown as a blow up (The application developed using PHP and CodeIgnitor sitting over Linux web server and connecting to a mysql server)

### Application workflow



# Project & Change Management Process

Disciplined Agile Delivery (DAD)'s approach will be used for project management. DAD is an extension to the Agile Scrum methodology’s approach to requirements management. Where Scrum treats requirements like a prioritized stack called a product backlog, DAD takes it one step further to recognize that not only do you implement requirements as part of your daily job but you also do non-requirement related work such as take training, go on vacation, review products of other teams, address defects and so on. With this approach the software development team has a stack of prioritized and estimated work items, including requirements, which need to be addressed - Programmers will have a stack of user stories written on index cards whereas DAD might use a defect tracker like JIRA to manage the stack.

Stakeholders are responsible for prioritizing the requirements whereas developers are responsible for estimating. The priorities of non-requirement work items are either negotiated by the team with stakeholders or are addressed as part of slack time within the schedule.

DAD WORKITEM STACK REPRESENTATION



# Appendices

## A.1 - Examples of some of the main screens below.

## A.2 – Reading References

Following documents and URL’s were referenced from which the requirements were derived

* [www.allconferences.com](http://www.allconferences.com)