**SUPPORT TICKETING SYSTEM FOR IT CONSULTING COMPANY**

Business Requirements Document

TICKETING SYSTEM FOR IT CONSULTING COMPANY

TECHNICAL SPECIFICATIONS DOCUMENT

VERSION 1

02-04-2021

Amendment History

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| --- | --- | --- | --- |
| Date | Version | Description | Author |
| 22/02/2021 | Version 1 | First version | Joseph Olamide |
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**1.0 Introduction**

* 1. **Purpose**

This is a project for a support ticketing system where internal and external clients can raise issues via a ticketing tool. The chosen ticketing tool is the Freshdesk open-source software which will help with data collection.

**1.2 Document conventions**

This document uses the following conventions:

|  |  |
| --- | --- |
| DB | Freshdesk |
| DDB | Directory based sharding |
| ER | Entity Relationship |

**1.3 Intended audience and reading suggestions**

The intended audience for this document is project sponsors, project managers. Developers, internal clients, Freshdesk team, business analysts, quality assurance team, accounting and marketing.

For understanding of the project, it is suggested that the project documents be read in the following order: project charter, Project scope document, process as is and to be journey map, and business requirements document.

**1.4 Project scope**

The project will cover the design and building of ticketing system for internal and external clients to lodge complaints in order for them to be resolved by sending each claim to the appropriate channel so that the ticket can be dealt with. A survey can be carried out to discover frequent issues both external and internal clients encounter. If the issues are as a result of the process, then the process may be modified to prevent the issue. If the issue cannot be modified, the ticketing system should be programmed with the frequent claims in mind, this will make the system effective and efficient.

**1.5 References**

* https://krazytech.com/projects/sample-software-requirements-specificationsrs-report-airline-database.
* https://lhc-proj-qawg.web.cern.ch/CD-ROM-v4-0/Quality/QA202.pdf.
* Freshdesk.com.

**2.0 Product requirement**

**2.1 Features**

Freshdesk is built to enhance productivity and speedy response to customers. organisations can easily stay on top of all tickets and work collaboratively with colleagues to efficiently resolve customer issues. The features of the Freshdesk system include:

1. Ticketing

The ticketing system helps the teams prioritise, organize and assign tickets so they can resolve claims faster. It features:

* Team inbox which tracks and manages incoming support tickets from multiple channels with one inbox.
* Agent collision- this ensures multiple agents don’t end up working on the same ticket by accident.
* SLA Management- sets deadlines for ticket response and resolution based on different business hours or categories.

###### Ticket Field Suggester**-** Automatically suggest ticket fields to categorize, prioritise and route incoming tickets.

###### Thank You Detector **-** Prevent reopening of tickets when customers respond with a thank you

###### Custom Ticket Status **-** Create custom statuses that fit company’s workflow to identify what stage a ticket is in.

###### Scenario Automation **-** Perform multiple actions on a ticket with a single click by automating repeated actions.

###### Canned Responses **-** Provide quick, consistent responses to common questions by creating pre-formatted replies.

1. Collaboration tools

###### Team Huddle- discuss specific parts of tickets with experts from across the company to figure out the best solutions.

###### Shared Ownership - share ownership of tickets with other teams without losing visibility into progress being made on the issue.

###### Linked Tickets - link related tickets together to keep track of widespread issues and deliver consistent responses.

1. Support across channels

###### Email - convert support emails into trackable tickets in company’s helpdesk that you can manage and resolve.

###### Phone -set up a fully functional call center and record and track calls by converting them into tickets.

###### Chat- engage, support, and retain customers through live chat.

###### Social media - integrate company’s Facebook page and Twitter handles and manage them from within the helpdesk.

###### Website - let customers raise tickets from company’s website and display related knowledge base articles as they type.

###### WhatsApp - engage customers instantly through WhatsApp and resolve their queries faster.

1. Work-field management

###### Service tasks - create service tasks for tickets that need a field team response and track its status to completion.

###### Service groups- create field technician groups based on location, priority and other factors to reduce waiting time and boost first-time fix rates.

###### Scheduling Dashboard- drag and drop appointments, assign tasks and get a bird's eye view of field team workload.

###### Mobile field service - enable field technicians to pick up service tasks, update information and resolve issues on the go.

###### Customer signature- obtain signatures via the Freshdesk mobile app with a single swipe and attach it to the service task.

###### Time tracking - automatically track time spent working in the field with the mobile app and log company’s billable hours.

1. Security

* Custom SSL certificates - Freshdesk accounts come with custom SSL certificates that let organisations secure their support domain or vanity URL for a safe and personalised experience.

###### IP and Network restrictions – restriction of login outside of work and creation of secure and exclusive login for employees from different locations by linking IP to a VPN (virtual private network)

###### Identity & access management – internal and external clients can login to Freshdesk using their accounts by setting up a single script for authentication.

1. Customisation capabilities

* Portal customization - company can customise portal look using array of themes available.
* Customize agent roles – provides internal clients different kinds of access depending on the roles and responsibilities of employees.
* Custom ticket forms – enables the collection of information by providing the option to modify ticket fields.
* Custom URL – use company vanity to provide portal support and provide seamless customer experience.
  1. **User overview**

**Ticket information:** It includes the originating ticket issue in form of complaint or request and destination of ticket raised by client.

**Ticket description:** It includes customer code, name, address and phone number. This information will be used by the helpdesk agents to resolve issues and to avoid back and forth with client requesting for additional information.

**Back end ticket description:** It includes customer details, ticket number, complaint/request number, date of ticket, and ticket status.

* 1. **Operating environment**

Users of Freshdesk are recommended to check with their system administrators to ensure the following system and browsers are available.

**Operating System Requirements**

Ensure your computers are installed with one of the following operating systems:

* Windows 7.0 or Higher
* OSX Mavericks or Higher

For the operating system to run smoothly, we recommend you refer to Microsoft or Apple websites on their minimum hardware requirements.

**Browser Requirements**

Supported web browsers:

* Chrome/Firefox/Safari/Edge: Latest 2 versions
* Internet Explorer: 11

The Freshdesk Mint works best with Chrome on a dual-core CPU and 6GB RAM.

**Browser Feature Requirements**

* JavaScript must be enabled
* Cookies must be enabled
* LocalStorage must be enabled
* HTTPS - TLS v1.2 or Higher

Mobile Operating System Requirements

Freshdesk apps are available on both the App Store and Google Play. We recommend as a minimum requirement you use the following versions or higher versions of the mobile operating system:

* iOS: 10.0 or higher
* Android: 5.0 (Lollipop) or higher

**Customer functional requirements**

1. Clients provide data pertaining to complaint or issue.
2. Clients follow instructions provided by either L1, L2 or L3 teams.
3. Provide feedback to teams for data and business improvement purposes.

**2.4 Implementation/design constraints**

The following are the project constraints:

• Team members may not have undertaken project of this scope/nature and may underestimate the amount of input required

• Time and cost may pose challenges to team members in delivering results as company intends to outsource to other programmers.

• Out sourcing may require software to be tailored to meet the demands of customers.

• As automated systems can only act within the scope of their programming, necessary adjustments would be required to enhance the ticket resolving system process.

* 1. **Documentation**

A complete manual which includes exhaustive information and instructions on how to use the Freshdesk system will be embedded in infographics to users. It lists the hardware and software requirements, detailed description of the features and full guidelines on how to get the most out of them, example inputs and outputs, possible tips and tricks, etc. Atroubleshooting guide which also gives end-users information on how to find and resolve possible issues that might arise will be made available.

Online end-user documentation may include the following sections:

* FAQs
* Video tutorials
* Embedded assistance
* Support Portals

**2.6 Assumptions/dependencies**

* Access to required resources: man, and material.
* Project scope will remain unchanged.
* Project cost will not increase

**4.0 System features**

**4.1 Description and priority**

The Freshdesk system maintains information on external and internal clients request, complaints, open and closed tickets. This project has a high priority because it will improve business operations by enabling external clients lodge complaints and enable employees monitor the issues raised until they are resolved.

**4.2 Stimulus/response sequences**

**External client**

* External clients visit company website and clicks on contact
* Client is transferred to a Freshdesk self-service portal which is incorporated in the website so the clients aren’t redirected to another website.
* Clients can search for solutions to issues using the search bar or they can contact an agnt.
* Client is required to provide all the info required by help desk team.
* Using suggestions in the side bar, clients can get in touch with helpdesk agent.
* Client issue is resolved.

**4.3 Functional requirements**

Other system features include:

**Directory based sharding**

Directory based sharding suits the Freshdesk requirements much better than hash key based or range based mainly because it’s simpler to implement. And rebalancing the shards was far easier than with other methods. So, Freshdesk started caching the directory lookups for fast access and maintaining multiple copies of directory database. We take regular backups of it to avoid a single point of failure.

Data can be accessed through multiple entry points like web, background jobs, analytics etc. When a request comes in, an API wrapper accesses the directory to get the appropriate shard and status of the tenant. Freshdesk tuned the API wrapper to accept the tenant information in multiple forms like tenant URL, tenant ID etc. The shard information returned by the API wrapper contains the shard\_details and shard\_status of the data. The sharding API even acts as a unique ID generator so that the tenant ID generated is unique across shards.

**Client/server system**

The term client/server refers primarily to an architecture or logical division of responsibilities, the client is the application (also known as the front-end), and the server is the DBMS (also known as the back-end).

A client/server system is a distributed system in which,

* Some sites are client sites and others are server sites.
* All the data resides at the server sites.
* All applications execute at the client sites.

**5.0 External interface requirements**

**5.1 User interfaces**

* Front-end software: Vb.net version
* Back-end software: SQL+

**5.2 Hardware interfaces**

* Windows.
* A browser which supports CGI, HTML & Javascript.

**5.3 Software interfaces**

Following are the software used for the flight management online application

|  |  |
| --- | --- |
| **Software used** | **Description** |
| Operating system | We have chosen Windows operating system for its best support and user-friendliness. |
| Database | To access 250,000 tickets daily, Freshdesk uses directory based sharding. |
| VB.Net | Vb.Net language for its more interactive support. |

**5.4 Communication interfaces**

This project supports all types of web browsers. We are using simple electronic forms for the reservation forms, ticket booking etc.

**6.0 Nonfunctional requirements**

**5.1 Performance requirements**

The steps involved to perform the implementation ticketing system database are as listed below.

**A) E-R DIAGRAM**

The E-R Diagram constitutes a technique for representing the logical structure of a database in a pictorial manner. This analysis is then used to organize data as a relation, normalising relation and finally obtaining a relation database.

* **entities:**Which specify distinct real-world items in an application.
* **properties/attributes:** Which specify properties of an entity and relationships.
* **relationships:** Which connect entities and represent meaningful dependencies between them.

CLIENT

CLIENT

FILL TICKET

*the diagram shows the ER diagram of airline database*

**B) Normalisation:**

The basic objective of normalisation is to reduce redundancy which means that information is to be stored only once. Storing information several times leads to wastage of storage space and increase in the total size of the data stored.

If a database is not properly designed it can give rise to modification anomalies. Modification anomalies arise when data is added to, changed or deleted from a database table. Similarly, in traditional databases as well as improperly designed relational databases, data redundancy can be a problem. These can be eliminated by normalising a database.

Normalisation is the process of breaking down a table into smaller tables. So that each table deals with a single theme. There are three different kinds of modifications of anomalies and formulated the first, second and third normal forms (3NF) is considered sufficient for most practical purposes. It should be considered only after a thorough analysis and complete understanding of its implications.

**6.2 Safety requirements**

If there is extensive damage to a wide portion of the database due to catastrophic failure, such as a disk crash, the recovery method restores a past copy of the database that was backed up to archival storage (typically tape) and reconstructs a more current state by reapplying or redoing the operations of committed transactions from the backed-up log, up to the time of failure.

**6.3 Security requirements**

Security systems need database storage just like many other applications. However, the special requirements of the security market mean that Freshdesk database was carefully chosen to ensure maximum security.

**6.4 Software quality attributes**

* availability**:** The ticketing information should be available always as many customers are lodging complaints and making requests.
* correctness**:** The ticket should provide correct information fields in order for ticket to reach correct destination.
* maintainability**:** The administrators and agents should maintain correct order of ticket response.
* usability: The ticket resolution system should satisfy a maximum number of customer’s needs.

**7.0 Appendices**

**7.1 Glossary of items**

BRD- Business requirement document is a formal document that lays out the goals and expectations an organisation hopes to achieve by partnering with a vendor to complete a specific project. A Business requirements document, or BRD, contains all of the details associated with projects or problems on which a business is centred. It includes expected outcomes and a pathway that outlines what is needed to get there. It provides what is needed to achieve business objectives alongside the costs by providing clarity on business needs.

Customer Journey Map- a customer journey map is a visual representation of the customer’s interaction with the business. It shows the stages the customer goes through as they interact with the business.

Process Flow- it refers to activities that are required to be completed consecutively to achieve a business workflow.

AS IS Process Work Flow- AS IS work flow refers to the analysis of the current process management of work activities.

TO BE Process Workflow- this refers to the desired future state of work process.

Support ticketing system- the support ticketing system is process flow improvement tool intended to enable internal and external clients raise issues and requests.

Internal clients- clients within the company/employees.

External clients- clients outside the company.

Technical specifications document: A technical requirement document, also known as a product requirement document, defines the functionality, features, and purpose of a product that you’re going to build.

**7.2 Analysis documentation**

Below is the link to the repository containing documents pertaining to this project:

<https://github.com/Joseph-Olamide/Josepsh-Ticketing-system-documents>

**7.3 Issues**

* Not Including Functional and Non-Functional Requirements
* Letting the reader make assumptions
* Not focusing on your user
* Thorough and clear
* Not considering the negative scenarios.