DHA Suffa University

Department of Computer Science

Final Year Project



**Maid In**

**(P-1901)**

**Software Requirements Specifications**

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**Document Sign off Sheet**

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**Definition of Terms, Acronyms, and Abbreviations**

*[This section should provide the definitions of all terms, acronyms, and abbreviations required to interpret the terms used in the document properly.]*

|  |  |
| --- | --- |
| **Term** | **Description** |
| **SS** | **Service Seeker** |
| SP | Service Provider |
| Maid In | Name of the Application |
| OS | Operating System |
| React JS | JavaScript Web Framework |
| MongoDB | Open-source cross-platform domestic-oriented database program |
| React Native | Open-source UI software framework |

**Table of Contents**

* **Introduction**
* **Purpose of Document**

The purpose of this document is to provide in-depth specifications and description of the product (i.e. Maid In) to the stakeholders involved along with a statement of it’s purpose and requirements

* **Intended Audience**

The intended audience for this document are all the internal and external stakeholders currently involved in the project which include the team responsible for requirement gathering and analysis, designing, development, testing and deployment.

Additional stakeholders include supervisors, co-supervisors, PMO and jury responsible for evaluation of the project.

The intended audience for the Project Application include two categories of people

* **customers** who seek domestic servicemen for their homes
* **domestic Service Providers** such as maids, gardeners etc.on the lookout for employment prospects and subsistence opportunities.

* Overall System Description
* Project Background

The system for domestic house service, especially in developing areas like Pakistan has had severe disadvantages of disorganization, lack of strong accessibility and improper planning in regards to fixed wages, working hours and tasks etc.

Moreover, it is dependent on weak and unreliable hiring processes which most of the times involve word of mouth through friends, relatives or family

Many of these aforementioned imperfections are disastrous to the domestic household service industry and more so for domestic workers as many men and women in Karachi rely on domestic services for subsistence and survival with no proper structure to aid them.

Through our application, we aim to lessen these imperfections as much as possible and inculcate better practices into the domestic service employment.

* Problem Statement

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| --- | --- |
| **Problem** | Many service industries in Pakistan have seen great shift to digitalization and utilization of online platforms to increase accessibility and productivity for its customers. Domestic service industry has mostly been neglected in such treatment and still adheres to old inadequate practices for providing service opportunities which renders it a very time-intensive and undesirable process. There are no recognizable online platforms for connecting people of the domestic service industry and for promoting awareness in regards to availability of suitable and affordable services |
| **Affects** | Domestic service serves as a source of subsistence and survival to a large chunk of the populace in Pakistan and is virtually required in every household for management and control but due to the aforementioned problems they face difficulty in gaining access to and obtaining services that suite their needs |
| **Impacts** | Due to the lack of technological advances in the industry, hardship is unnecessarily incurred by both domestic workers and people seeking their service as they are very much restricted to primitive and manual methods for getting the know-how of the different prospects available out there for them like personal enquires, 3rd party agencies etc. all of which make the process burdening and inefficient for them. |
| **Solution** | An online mobile platform equipped with many modern tools and facilities replacing the primitive ways of approaching domestic service employment for both customer and domestic worker, allowing online conducting of business transaction, interactive communication, and improving the overall experience for both |

* Project Scope
* Varied collection of domestic services to choose from and autonomy to decide preferred help
* Different channels of communications namely chatting and voice calling.
* Registration and Secure data storage of personal information through registration
* Authentication and verification of user through Login system
* Login System
* CNIC Verification
* Tasdeeq for Criminal Record
* References and its verification
* Auto call service
* source location selection option for customer
* language options between Urdu and English
* Ratings and Feedback system
* Service broadcast options
* Transaction history module
* Settings module
* Contact us module
* Terms and conditions module
* Service termination capability for customer
* Service termination request capability for service provider
* System for management of online monetary transactions
* Aiding and search and filter of potential house help through parameters such as price range, location, work duration
* Editing capability towards content personally inputted into the application
* Profile creation and maintenance
* One-off transactions allowing customers to list specific tasks to be performed pertaining to their chosen service type
* Contract transactions allowing customers to search and hire long-term service providers for a duration optionally set between 1 and 3 months
* Pending service requests module pertaining to contract and one-off transactions
* Cancelling pending service request
* Not In Scope
* Built-in training tutorial or guidance to familiar with the interconnected functioning of the application components
* Facility for conveying personal grievances and issues towards application performance or functions
* Digital Wallet system
* Options for live-in, part time and regular service
* Pop-up advertisements
* Editing Pending requests
* Project Objectives
* To provide domestic workers with a platform that gives them insight and opportunity pertaining to potentially open work requiring their specific expertise.
* To provide domestic service patrons with the ability to reach out to reams of prospective domestic workers quickly and easily
* To provide technological structure to domestic service industry
* To provide as reliable, secure and competent domestic services to customers as possible
* Stakeholders & Affected Groups

|  |  |  |
| --- | --- | --- |
| **Type** | **Description** | **Responsibilities** |
| Supervisor  (Arifa Mustafa) | Overseer of the project | Manage and guide the software development process, it’s documentation, evaluation, feasibility and overall completion |
| Co-Supervisor | Overseer of the project | Manage and guide the software development process, it’s documentation, evaluation, feasibility and overall completion |
| Development team  (Inam Ullah, Faisal Zaman Haider, Poorab Gangwani) | Developers and programmers of the software | Research, design, and develop the software features, user interface and programs to be used by end users |
| End user  (Domestic service customers and seekers) | Users of the software | **Customer**   * Utilize the system for conveying of service requests to potential service providers * Perform monetary transactions with service providers * Manage and terminate service transactions   **Service Provider**   * Utilize the system for receiving, responding to and accepting service requests * Fulfil responsibilities as a recipient in financial transactions with customers * Request termination of service from customers |
| Software Testers  (Inam Ullah, faisal zaman haider, Poorab gangwani) | Testers of the software | Perform standard testing protocols and practices on the developed software and it’s components for discovery of possible bugs or errors and provide reports to development team regarding findings |
| PMO | Evaluator and recipient of Document | Checking, evaluating, and approving SRS |

* Operating Environment

**Maid In** will be operational on windows and Linux operating systems and will be powered by cross platform technology (i.e. react native). It will be functional on both mobile android and IOS devices specifically phones having a minimum of 4GB RAM.

It will operate on the MongoDB document-oriented database for the storage of data in the application.

* System Constraints
* Internet connectivity is necessary for the functioning of the system
* Applications will initially not be supported on browsers.
* Assumptions & Dependencies

**Assumptions:**

* Users have access to sturdy internet connectivity
* Users have access to necessary mobile devices for downloading and setting up application
* Users have sufficient memory storage to support the functionality of the application

**Dependencies:**

* User must provide sensitive personal information and location statistics.
* Users must have email and account credentials
* Google Maps API for facilitating map feature and related services
* Chat API for facilitating chatting service in application
* NADRA API
* Tasdeeq App
* External Interface Requirements
* Hardware Interfaces
* Android Smartphones
* Apple iPhones
* Tablets
* Apple iPad
* Software Interfaces
* MongoDB
* Linux
* Express JS
* Node JS
* React JS
* React Native
* VS Code
* Android Studio

Communications Interfaces

* A client server model will be implemented for the processing of data pertaining to the application and specifically it’s service transactions, providers and seekers. Client request will be sent to server which will retrieve data from the database and send it back to the application to be displayed.
* When map-related information will be needed to be displayed, cloud requests will be sent via Google Maps API to 3rd party servers for a visual display of Maps and it’s features.
* Mobile device cameras for capturing and communicating user snapshots as well as microphone for accommodating audio communication between users.

* System Functions / Functional Requirements
* System Functions

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Ref #*** | ***Functions*** | ***Category*** | ***Attribute*** | ***Details & Boundary Constraints*** |
| R1.1 | Solicit and accept service provider credentials for registration | evident | Response Time | * Registration form display within N seconds * Service provider must enter his professional credentials (service type, experience etc.) and personal credentials (email, contact etc.) into the form along with snapshot. |
| R1.2 | Solicit and accept references from registering service providers | evident | Response Time | * Reference form display within N seconds * Service provider must enter at least 2 references to help in their clearance process |
| R2 | Authenticating SP through login | Hidden | Response Time / Data fetch time | * Authentication status will be conveyed in N seconds * Credentials will be matched against the database in a maximum of N seconds |
| R3.1 | Allow customers to set service locations for transactions | evident | Response Time | * SS can input service location or have current location set as service location * Location will be set on the map in N seconds |
| R3.2 | Allow SS to select a service type for a service request and display service providers of such service types on map | evident | Response time / data fetch time / transmission load | * Different servicemen and their relative location to the customer service location will be displayed on the Map view * SPs matching the requested service type and their location will be retrieved from the database in N seconds * Maximum of N servicemen data can be retrieved. |
| R3.3 | generate task list for SS service request | Hidden | Response time / data fetch time / calculation time | * SS will be presented with task options according to the service type he has selected and must select at least two tasks. * SS can select duration for each task he has selected and minimum of 60 minutes must be allocated to each selected task * Amount generation for task list will be performed within N seconds * Task information and pricings in the task list will be fetched from the database within N seconds |
| R3.4 | Broadcast service request from SS | hidden | Transit time / response time | * Request broadcast will be performed within N seconds * Request broadcast is applicable to one-off and contract based service requests |
| R3.5 | Generate list of servicemen for service request | evident | Transmission load / response time / data fetch time | * Applicable to contract based and one-off service requests * Servicemen list will be fetched from database within N seconds * Maximum N servicemen data will be fetched from database |
| R4.1 | Notify service opportunity to SPs | hidden | Transit time | * SP can be notified of contract based and one-off service requests * Service notification will be made within N seconds of initiation |
| R4.2 | Notify offer of service to SS | hidden | Transit time | * Offer notification will be made within N seconds of initiation. |

System Attributes/ Nonfunctional Requirements

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| --- | --- | --- |
| **Attribute** | **Details and Boundary Constraints** | **Category** |
| Response time | Time taken for server response to any request sent will not exceed to more than N seconds | Optional |
| Transit time | Time taken for any one-way transmission to or form the server  One way data transmission to or from the server will be completed within N seconds | Optional |
| Calculation time | Time taken for the system to perform mathematical calculations  Mathematical computations involved in any system function shall take no longer than 60 minutes | Optional |
| Data fetch time | Time taken to search and fetch data from the database.  target data will be retrieved from storage in no longer than N seconds | Optional |
| Transmission load | Amount of data that can be transmitted  A maximum of N users or transactions worth of data can be retrieved at a time. | Mandatory |

* Use Cases
* List of Actors

**Service Seeker (SS)** = customer seeking domestic servicemen for home

services.

**Service Provider (SP)** = domestic servicemen like maid, gardener etc.

**Admin** = The person who oversees and manages the users, data and the overall system.

* List of Use Cases

1) Register service provider

A service provider will submit his credentials and on acceptance will be

allowed entry into the system

2) Authenticate service provider

service provider will enter his email address and password into the login form

and will be authenticated.

3) Send one-off service request

customer specifies the type of servicemen and lists the tasks to be performed

and sends a service request containing the aforementioned information to SP

4) Send contract based service request

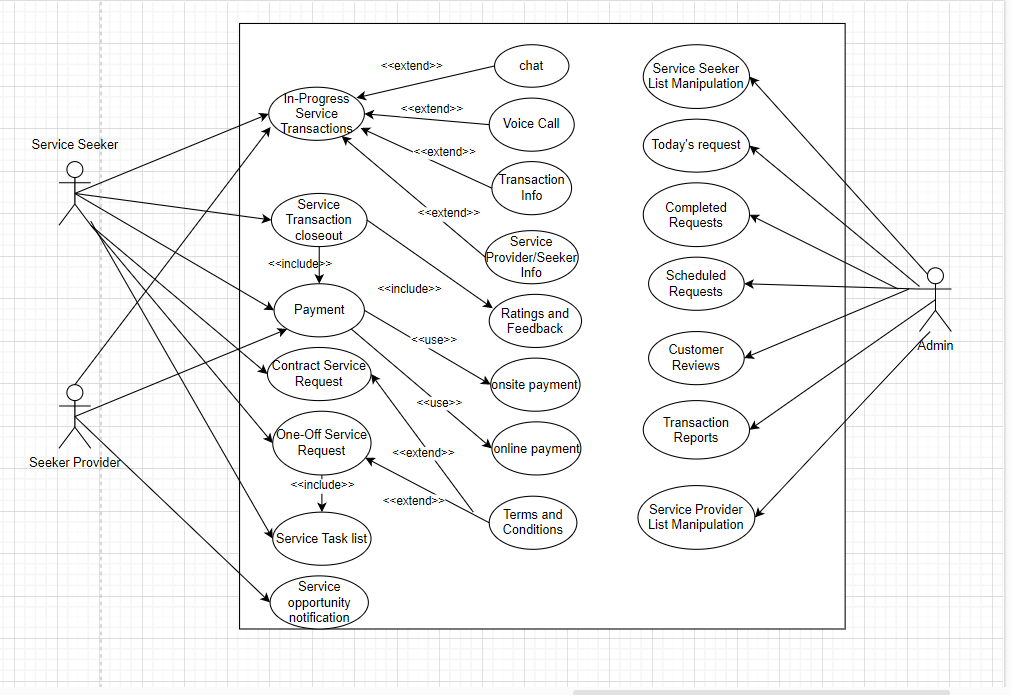
An SS can send a service request for long-term temporary employment to

Service providers

5) Establish service transaction

SS and SP enter into a service transaction through mutual consent

* Use Case Diagram



* Description of Use Cases

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Section: Main** | |  | | | |
| *Name:* | | service provider registration | | | |
| *Actors:* | | Service provider | | | |
| *Purpose:* | | registering a service provider (i.e. maid, gardener etc.) into the system | | | |
| *Description:* | | A service provider will fill his credentials into the system and on acceptance will be allowed entry into the system via login otherwise will be notified of his failed registration. | | | |
| *Cross References:* | | R1.1, R1.2 | | | |
| **Pre-Conditions** | | SP must have the system installed on his device | | | |
| **Successful Post-Conditions** | | service provider will be allowed to login to the application. | | | |
| **Failure Post-Conditions** | | SP will be notified of failed registration due to certain ineligibility | | | |
|  | |  | | | |
| **Typical Course of Events** | | | | | |
| **Actor Action** | | | | **System Response** | |
| *1* | user enters the application | | |  |  |
| *2* | user fills out his personal and professional credentials into the form. | | |  |  |
|  |  | | | 3 | checks if the credentials satisfy acceptance criteria |
|  |  | | | 4 | redirects to the reference form |
| 5 | user fills out required reference information | | |  |  |
| 6 | submits the form | | |  |  |
|  |  | | | 7 | saves user credentials into the database |
|  |  | | | 8 | displays message of receival and eventual response to registration request |
|  |  | | |  |  |
|  | | |  | | |
| **Alternative Course** | | |  | | |
| Step 4: | | | SP credentials do not satisfy the acceptance criteria and invalid field input error is displayed | | |
| Step 6: | | | number of references submitted is not equal to the minimum references required. insufficient references error | | |

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| **Section: Main** | |  | | | |
| *Name:* | | Service provider authentication and login | | | |
| *Actors:* | | Service provider | | | |
| *Purpose:* | | authenticating a service provider before allowing entry into the system. | | | |
| *Description:* | | SP enters his email address and password and if credentials are valid then he will be allowed entry into the system otherwise he will be notified of invalid credentials | | | |
| *Cross References:* | | R2 | | | |
| **Pre-Conditions** | | SP has already been registered into the system and is currently not logged int | | | |
| **Successful Post-Conditions** | | service provider will be directed to the home page | | | |
| **Failure Post-Conditions** | | An error message will be displayed informing of invalid email or password. | | | |
|  | |  | | | |
| **Typical Course of Events** | | | | | |
| **Actor Action** | | | | **System Response** | |
| *1* | *SP enters the system* | | |  |  |
|  |  | | | 2 | displays the login form |
| 3 | SP enters email and password information into the system | | |  |  |
|  |  | | | 4 | checks the credentials against the database |
|  |  | | | 5 | returns approval and cookie after a match is found |
| 6 | directed to the home page | | |  |  |
|  | | |  | | |
| **Alternative Course** | | |  | | |
| step 3 | | | SP has forgotten password and presses **forgot password ?** | | |
| step 5 | | | credentials not found and invalid credentials error is displayed | | |

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| **Section: Main** | |  | | | |
| *Name:* | | Send one-off service request | | | |
| *Actors:* | | Service Seeker | | | |
| *Purpose:* | | to posit a service request to service providers for performance of customer specified tasks | | | |
| *Description:* | | SS specifies the service type he requires as well as the specific set of tasks he wishes to have performed and a service request is formed from these parameters which the SS can send to service providers. | | | |
| *Cross References:* | | R3.1, R3.2, R3.3, R3.4, R3.5 | | | |
| **Pre-Conditions** | | SS must be logged into the system | | | |
| **Successful Post-Conditions** | | The generated request is displayed on the current requests page | | | |
| **Failure Post-Conditions** | | message notification on failure to send request to Service provider | | | |
|  | |  | | | |
| **Typical Course of Events** | | | | | |
| **Actor Action** | | | | **System Response** | |
|  |  | | | 1 | displays Map view |
|  |  | | | 2 | requests service location from SS |
| 3 | enters service location to where the SP will have to arrive for service | | |  |  |
| 4 | confirms the service location | | |  |  |
|  |  | | | 5 | displays service types to choose from |
|  |  | | | 6 | displays task list to fill out |
| 7 | selects service type | | |  |  |
| 8 | fills out and confirms task list | | |  |  |
| 9 | confirms request | | |  |  |
|  |  | | | 10 | displays a filtered list of service men |
| 11 | broadcasts request to servicemen | | |  |  |
|  |  | | | 12 | sends request to the servicemen |
|  | | |  | | |
| **Alternative Course** | | |  | | |
| step 8 | | | tasks specified do not satisfy tasklist constraints and constraint error is generated | | |
| step 11 | | | cancels the request | | |

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| **Section: Main** | |  | | | |
| *Name:* | | send contract based service request | | | |
| *Actors:* | | Service seeker | | | |
| *Purpose:* | | To convey an offer of a temporary long-term employment to service provider | | | |
| *Description:* | | An SS can send a contract-based service request for temporarily employing a regular domestic service employee for a duration of minimum one month to a maximum 3 months | | | |
| *Cross References:* | | R3.1, R3.2, R3.4, R3.5 | | | |
| **Pre-Conditions** | | SS must be logged into the system | | | |
| **Successful Post-Conditions** | | The generated request is displayed on the current requests page | | | |
| **Failure Post-Conditions** | | message notification on failure to send request to SP | | | |
|  | |  | | | |
| **Typical Course of Events** | | | | | |
| **Actor Action** | | | | **System Response** | |
|  |  | | | 1 | Displays Map view |
|  |  | | | 2 | requests service location |
| 3 | enters service location | | |  |  |
| 4 | confirms service location | | |  |  |
|  |  | | | 5 | displays service types to choose from along with contract request |
| 6 | selects service type | | |  |  |
| 7 | fills out contract request form | | |  |  |
| 8 | confirms and submits request | | |  |  |
|  |  | | | 9 | generates a filtered list of servicemen |
| 10 | broadcasts request to servicemen in the list | | |  |  |
|  | | |  | | |
| **Alternative Course** | | |  | | |
| step 8 | | | request is not accepted due to invalid data entry in contract request form. invalid data error | | |

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| **Section: Main** | |  | | | |
| *Name:* | | *Establish service transaction* | | | |
| *Actors:* | | SP, SS | | | |
| *Purpose:* | | To initiate a service transaction between a service provider and service seeker | | | |
| *Description:* | | SP sends an offer of service to a service request made by SS and upon acceptance from SS, a transaction will be initiated between SP and SS | | | |
| *Cross References:* | | R4.1, R4.2 | | | |
| **Pre-Conditions** | | SP must be logged into the system | | | |
| **Successful Post-Conditions** | | transaction will be displayed as an In-Progress transaction | | | |
| **Failure Post-Conditions** | |  | | | |
|  | |  | | | |
| **Typical Course of Events** | | | | | |
| **Actor Action** | | | | **System Response** | |
| 1 | SP is notified of service request from SS | | |  |  |
| 2 | SP sends offer of service | | |  |  |
|  |  | | | 3 | transmits offer to SS |
| 4 | SS views offer of service | | |  |  |
| 5 | SS accepts offer of service | | |  |  |
|  |  | | | 6 | records the established transaction between SP and SS |
|  |  | | |  |  |
|  | | |  | | |
| **Alternative Course** | | |  | | |
| step 2 | | | SP does not send offer of service and ignores the request | | |
| step 5 | | | SS declines the offer of service | | |

* Non - Functional Requirements
* Performance Requirements
* Devices must have strong internet connection as the functioning and response time of various system components will vary in accordance with the internet on the device.
* Concurrent user load for the application must initially not exceed to more than N users.
* System will initially be capable of managing up to N user worth of data separately for both service providers and service seekers.
* Safety Requirements
* A copy of the data stored in the database shall be made out for backup purposes in case of loss of data or any other data compromise etc.
* Service provider CNIC and other sensitive information will be stored into the system to use for apprehending them for any wrongdoing.
* Security Requirements
* Before user is entered into the system, he will be authenticated through login and only after valid credentials are submitted, user will be allowed entry into the system
* Service provider image will be taken during registration in order to compare against image in CNIC for further authentication.
* Service provider credentials will be taken and will be ran against the Tasdeeq database to ensure the registering service provider has not engaged in any criminal activities previously in his life nor does he have a criminal record.
* User registration data will be stored in encrypted format in the database as a proactive measure against theft and breach of confidentiality
* Trustworthy and reliable 3rd party payment APIs will be used for online payment options
* The system shall automatically log out a user after a certain period of inactivity.
* References will be taken from registering service providers to ensure professional credibility of said providers.
* Reliability Requirements
* System will provide bilingual options to further ensure better understanding for people for people with differing abilities
* GraphQL based request/query processing and server interactions to ensure robust and speedy communication between the system and the server.
* To ensure sturdier data management and processing capabilities, MongoDB clusters and document-based database will be utilized.

* Usability Requirements
* User device must be equipped with strong internet connection
* User must have android and apple based mobile devices specifically phones.
* Users at the service provider end must have CNIC and email to register to use application
* Supportability Requirements
* Application will run on Android version 11, 12 and further.
* User Documentation

A user manual will be provided containing detailed tutorials and guidelines on the application, it's functions and how end users can successfully interact with and utilize the information. Information regarding the application and it's functions will also be partly available in the observer portal of the system which will serve as an advertisement of the application

* References

*List References*