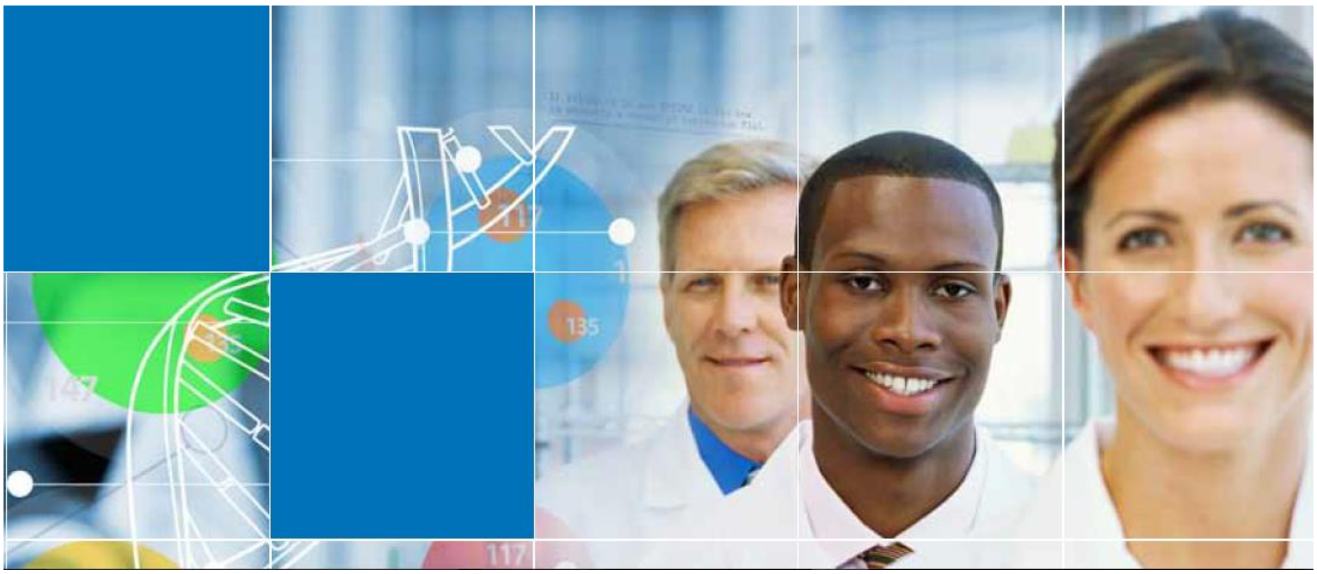
Business Requirement Document

(CRM Systems)



BY:

GROUP NUMBER: **6**

WEEKLY MEETING: WEDNESDAY 8:30 PM (ICE- BOX, HINDS HALL)

CRM System Requirements

USE CASE Authors:

Use Case Name	Author
Create customer record	Kalpana Balani
View customer Profile	Aditya Joshi
View Billing History	Harsh Avlani
View appointment details	Pratyush Kulwal
View Service history	Richa Malhotra
Customer Feedback	Daniel Fernandes
Integrate data from various sources	Pratyush Kulwal
Referral	Daniel Fernandes
Analytics Dashboard	Richa Malhotra

Healthcare industry in US – a brief overview

Over the years there has been a sudden surge in the healthcare spending in the US and ironically, the US is not getting healthier. For lesser increase in the employee wages there is higher increase in the insurance premiums. So, as a result the number of uninsured people are increasing. Even though a lot of organizations and employers today are trying their best to reduce the healthcare costs

US spends the most on healthcare as compared to any other country. Despite leading the world in spending on healthcare, the US healthcare system is ranked 37th in the world. US's publicly funded Medicare Program provides healthcare for everyone over the age of 65 and with the rates at which its spending is increasing, it will go bankrupt by the year 2019. Over half of small businesses can no longer afford to offer health insurance. In less than 20 years the uninsured population has increased from 31.1 million to 47 million. The uninsured population of US is greater than the combined population of Australia, Sweden, Ireland, and Greece. In the United States, the world's richest nation, nearly 1 out of every 6 are uninsured.

The company

GenNex Diagnostics and Devices Ltd., is a diagnostic company that partners with hospitals, Insurance companies and hospital networks in order to diversify their product and service portfolio. They are also pioneers in moving away from traditional revenue streams related to healthcare services by getting into information services. The Healthcare industry is dynamically transforming in order to accommodate changing consumer needs and government regulations that are targeted to improve Health Care in United States of America. The Payment model is shifting from Fee for Service to an outcome based fee. Organizations are partnering with unlikely businesses to expand their footprint and deliver new value/better end-to-end experiences to the consumers. These unique conglomerates are making Price Bundling and Risk distribution an option for Health care.

The Customer Relationship Management (CRM) solution

In today's world where businesses are competing with each other, customer relations and satisfaction plays an important role in growing and sustaining businesses. Healthcare industry is no different, where patients seek access to best healthcare at low costs. Providing best healthcare with affordability is a challenge for the entire industry. To overcome this challenge at GenNex, we have implemented a Customer Relationship Management system (CRM) which helps reach our customers and business partners. Our CRM system helps analyze customer satisfaction levels and helps us identify the gaps between the business processes and market needs.

We believe that our teams have developed a highly customizable system which not only addresses the current requirements, but which also considers the future needs.

In today's healthcare scenario, when a customer who needs a curative care comes to a diagnostic laboratory. The diagnostic lab has a set of steps and procedures by which patient is provided the services. From scheduling an appointment, billing the customer, conducting the diagnostic test and confidentially sharing the information regarding the test results with healthcare provider.

Once healthcare provider updates his insight with the CRM system, our system helps the care patient to reach the Pharmacies. Our CRM system not only helps our traditional customers, but it also helps our new customer base i.e. people who seek preventive care patients. We provide personalized health care recommendations, special discounts and offers through our CRM systems.

The value proposition of our CRM system is the interoperability of our system, interoperability of our CRM system allows us to interact with systems of our partners in a much more efficient and exchange information in much more better way.

The CRM solution is the front-facing platform through which the customer interacts with all the services offered by GenNex. The various services that the CRM solution offers are:

- Creating customer record
- Customer Channel Integrator
- Analytics Dashboard
- Customer Service History
- Billing Management
- Feedback Management
- Customer Referrals
- Customer Report Generation

Business Objectives:

- To simplify marketing and sales process
- To make user experience more efficient
- To provide better customer service
- To discover new customers and increase customer revenue
- To cross sell products more effectively
- To improve customer satisfaction
- To enhance sales and support teams
- To ensure system is complaint with HIPAA compliance
- To develop highly customizable and scalable CRM system
- To provide integration of sales and customer data for analysis and forecasting
- To design a smooth, efficient, effective and a high performing user experience for customers to access information
- To provide a platform to the user which allows easy access of data of all the departments they have interacted with or the services availed
- To provide a smooth user experience for internal teams/GenNex departments to promote standardization of data and its flow
- To promote accurate extraction of data and disposition of data to and from the required sources
- To process resolve customer complaints quickly, smoothly and effectively
- To provide accurate and real-time access of data to both internal and external customers
- To provide a feedback mechanism for all the GenNex departments
- To assist marketing teams for identifying potential customers by providing integration of sales and customer data for analysis and forecasting
- To generate and display dashboards for management and marketing teams
- To provide the internal customers with the option of generating customizable and scalable reports
- To provide the customer with a single record management system that allows a seamless interaction with information
- To integrate all the customer information across various channels through which the customer books appointments in all the departments.
- To allow the customer to keep a track of his transactions in a real-time manner

Stakeholder Objectives:

Different stakeholders involved in the Customer Relationship Management System include:

- **Customers:** Stakeholders who use the GenNex's CRM system from an external environment.
  There are two type of customers for GenNex CRM:
  1. **Registered Members**: These are customers who are already registered on the CRM system and also who use GenNex services.
  2. **Potential/Targeted Members:** These are future potential customers who make a sales or service enquiries.

  Registered Members have access to certain features like:
  - ❖ Viewing Billing History
  - ❖ Feedback and Reporting Complaints
  - ❖ View Benefit Quotes
  - ❖ Scheduling appointments

- **Internal Teams:** Internal stakeholders (GenNex's internal teams) as BQT, Patient tracking, At- Home services interacts with CRM system as follows:
  1. Teams access all the customer record related data from the CRM system
  2. Teams sends all the service reports generated to the CRM system
  3. Teams sends all the customer communication and channel data
  4. Data sent by different teams causes CRM system to generate triggers for feedback

- **Billing Team:** Billing team sends all the sales data as well as the billing history data to CRM team.

- **Analytics Team:** Analytics teams receives all the integrated communication and sales data for Data Analytics purposes. The team sends dashboards and customer reports to the CRM systems.

- **Marketing Teams:** Marketing team uses CRM systems to access dashboards and to make business decisions based on analytics reports to target potential customers and increase sales.

- **Information Technology team:** The IT Team provides back end and technical support to the CRM system. They play a crucial role when the CRM system crashes.

Requirements

Functional Requirements:

<u>Use Case: Create Customer Record</u>

Requirement Number	Name	Description	Details
FR001	Credentials Verification	System should be able to verify username and password entered.	When an existing customer enters his username and password, the system should verify from its database that the entered credentials are accurate.
FR002	Password Validation	The data format for a password created has to be verified by the System	The password should contain at least one upper case character, at least one lower case character, at least one special character and at least one numeric character. In case these conditions are not satisfied, the system should display a message.
FR003	Data entry formats verification	All the fields entered should follow the specific data entry formats	The system should verify that the fields like Address, Date of Birth and other fields have values pertaining to the required data format for that field
FR004	Verify filled fields	System should verify that all the fields have values entered in them.	A customer needs to fill each required field for the record to be saved. IF any field is left blank and record is tried to be updated, the System will generate a display message to fill all details.
FR005	Display message	System should be able to display all the fields and operation results.	After all the validations and verifications the system should be able to show the customer's transactional history in a standards format, which is compatible on all customer devices.
FR006	Data save/update	System should be able to save the data	When a customer updates details, System should save it successfully in the Database
FR007	Alert	The customer is sent an alert on registration.	When a new customer successfully creates an account on the System, the system sends an alert message to the customer.

Use Case: View Appointment Details

Requirement Number	Name	Description	Details
FR001	Display Calendar	System must be able to display scheduled bookings on the calendar	The Homepage of the view appointment details must fetch data from stakeholder database(s) by verifying connection strings and validating data format
FR002	Change Display of calendar	System must be able to change the view of calendar	When user clicks on a particular button for changing the display (Month, Week, Day) view. Display must change accordingly
FR003	Scheduling a new appointment	System must be able to redirect the customer to appointment booking page of respective department	When a user clicks on a particular button and then clicks on book an appointment, the system redirects the customer to a new page

Use Case: Channel Integrator

Requirement Number	Name	Description	Details
FR001	Merge Sales Database	System must be able to merge the sales data	System must be able to merge sales data from individual departments and verify the billing details from billing department database

FR002	Merge Communication channels Database	System must be able to merge the communication channels data	System must be able to merge communication data from individual departments
FR003	Error Handlers	System must be able to separate erroneous data	System must be able to separate erroneous data from the merged data and must be able to notify user
FR004	Validator	System must check that two databases are online	System must throw an error message and prompt user to select at least 2 databases
FR005	Automated Merger	System must run schedules for merging data	System must merge data on daily basis though automation

<u>Use: Case Referral Interface</u>

Requirement Number	**Name**	**Description**	**Details**
FR001	Search Customer	The customer ID, first name, last name can be used to search customer	Every referral needs to be linked to a customer. If an employee is adding a referral on behalf of a customer he should search for the customer profile in system. If customer himself is adding referral then this step is skipped since customer details are pre populated
FR002	Enter Referral details	This page is used to enter referral details that are provided by a customer	This page has mandatory fields like first name, last name, relationship to customer, phone number. The other fields are optional
FR003	Check for duplicate data	This validation logic will check if the referral details are already present in the system	The system will check if the phone number provided is already present in the data base. If so then the system will prompt the user that the contact

			information is already linked to an existing referral

Use case: View Service History

Requirement Number	Name	Description	Details
FR001	Customer ID verification	System should be able to connect to the customer profile once it is entered by the customer.	The customer ID is system generated having a length of 9 characters. So the system checks for the ID entered to be of the exact same size, format and should be accurate to match with the profile.
FR002	Password verification	Password is set by the customer while record creation and has to contain one capital letter and one number.	The password should match with the one stored in the customer's profile. If a reset has to occur, the password should not be same as previous 3 passwords.
FR003	Period validation	System should check for the period of the history requested by the customer.	If the period of the history requested is less than a year, then only it can be displayed else an error message is displayed.
FR004	Verify filled fields	System should verify that all the fields have values entered in them.	A customer needs to fill each required field for the record to be saved. IF any field is left blank and record is tried to be updated, the System will generate a display message to fill all details.
FR005	Display message	System should be able to display all the fields and operation results.	After all the validations and verifications the system should be able to show the customer's transactional history in a standards format, which is compatible on all customer devices.
FR006	Status update	System shall be updated with all the	System shall frequently update all the transactions

		recent transactions of the customer from all the departments.	and the details from all the other departments. If not updated the team needs to be notified.
FR007	Database update	System should be able to save the data.	When a customer updates details, System should save it successfully in the Database

Use Case: Feedback system

Requirement Number	**Name**	**Description**	**Details**
FR004	Generate Feedback form	The system shall create a new feedback form whenever a customer clicks on feedback icon	The feedback form is customized for each department. It is linked to every service request at the completion of service. The creation of a report or invoice is an indicator that the service is complete
FR005	Validate form page	The system will validate that the user has selected one and only one option from the Likert scale.	This is to ensure that the customer has provided holistic feedback and unambiguous feedback. The scale and questions will be made as objective as possible to avoid influencing the thought process
FR006	Save information	The system will save the feedback form in database	The system will validate the form for any error and will store this form in the database linked with the service request. The system will also notify the respective department that feedback was provided by a customer for a particular service number.

Use Case: Billing Information

Requirement Number	**Name**	**Description**	**Details**
FR007	Generate Billing request form	The system shall request for a billing form whenever a customer clicks on view bills icon.	The billing form is similar for all departments. It includes the following fields: • Username • Bill ID

			• Team Name
FR008	Validate form page	The system will validate that the user has entered the correct validations.	This is to check whether the user has entered correct credentials to view the billing information. If the user enters incorrect credentials, an error message will pop up saying, “the data enter is invalid.”
FR009	Update the temporal database	The system will update the temporal database (On CRM) such that CRM systems holds only billing data of past 1 month	Cases when user enters correct credentials to view the bill but the request is for a bill that is older than 1 month, the CRM will pop up a warning message, “Data too old, redirecting to the concerned team’s portal. Thank You,”

Use Case: View Customer Profile

Requirement Number	Name	Description	Details
FR001	Display Customer Profile	The system shall redirect to the customer profile page, showing basic details and recent activity.	The profile is set up by the customer, validating the integrity of the data. System sends a request to fetch the latest actions taken by the user such as scheduling an appointment.
FR002	Update Customer Information	The system will validate that the user has entered all the necessary fields and update the profile accordingly.	This is to allow the customer to edit his basic information such as address and/or contact details. If the user enters incorrect credentials, an error message will pop up saying, “The data entered is invalid.” Similarly, if a required field is left blank, the system will show the error message, “Starred field requires input.”
FR003	Change Settings	The system will redirect to the settings page allowing user to change his settings	This allows the customer to change some pre defined settings such as layout color, privacy settings, transaction detail update/delete, etc.

Use case: Analytics Dashboard

Requirement Number	Name	Description	Details
FR001	Customer ID verification	System should be able to connect to the customer profile once it is entered by the customer.	The customer ID is system generated having a length of 9 characters. So the system checks for the ID entered to be of the exact same size, format and should be accurate to match with the profile.
FR002	Password verification	Password is set by the customer while record creation and has to contain one capital letter and one number.	The password should match with the one stored in the customer's profile. If a reset has to occur, the password should not be same as previous 3 passwords.
FR003	Period validation	System should check for the period of the history requested by the customer.	If the period of the history requested is less than a year, then only it can be displayed else an error message is displayed.
FR004	Verify filled fields	System should verify that all the fields have values entered in them.	A customer needs to fill each required field for the record to be saved. IF any field is left blank and record is tried to be updated, the System will generate a display message to fill all details.
FR005	Export report	System should be able to export the report in the desired format, which should be compatible with all the devices.	A customer needs to request for the report in the formats mentioned in the drop-down list and should be able to download the report.
FR006	Display message	System should be able to display all the fields and operation results.	After all the validations and verifications the system should be able to show the customer's transactional history in a standards format, which is compatible on all customer devices.

FR007	Status update	System shall be updated with all the recent reports.	System shall frequently update all the reports and the details from the analytics departments. If not updated the team needs to be notified.
FR008	Database update	System should be able to save the data.	When a customer updates details, System should save it successfully in the Database

Non- Functional Requirements:

Requirement Number	Name	Details
NFR001	Performance	• The system must be online 24*7 without any unplanned outages • The system must be able to process more than 5,000 appointments in an hour • The system must be able to support 500 users at a particular instant • The response between the transition of pages should not be more than 0.8 seconds
NFR002	Accessibility	• Access and modification of databases shall be restricted • Customer must be able to see only their data • The system must allow respective teams to see customer data
NFR003	Efficiency	• The system must have distributed database in a similar format • Invalid data must be deleted occasionally
NFR004	Reliability	• System will throw an error message when there is an appointment time conflict • System will throw an error if database connectivity is not established.
NFR005	Response Time	• The System shall respond the updated data of Users within 3 seconds. • The CRM system shall redirect to the concerned team's portal if

		request for data is older than 1 month.
NFR006	Portability	• The CRM system should be accessible on different type of devices. It includes PC, Laptop (Windows and MAC) and Smart phone (Android, Apple and Windows OS)

Behavioral Requirements:

Use Case: Create Customer Record

Conditions	Rule 1	Rule 2	Rule 3	Rule 4	Rule 5
All required details are entered by the customer	Y	Y	Y	Y	N
Each data entry is in the required format	Y	Y	N	Y	N
Unique ID for existing customer is found	Y	N	Y	Y	N
Data is updated and saved to the database	Y	N	N	N	N
System Responses					
A customer record is successfully created/updated in the CRM System.	X				
The System generates a pop-up to enter the correct Member ID, and cannot proceed further to update records.		X			
The System generates an error/popup to the customer to enter the details in required format			X		
An error message is generated and the technical team is notified of the issue.				X	
The system immediately sends a popup message to the customer to fill in all the required details before trying to proceed					X

Use Case: View Appointment Details

Condition	Rule 1	Rule 2	Rule 3	Rule 4	Rule 5
User does not selects any option	Y	N	N	N	N
User selects “At- home” services	N	Y	N	N	N
User selects “ Benefit Quoting” Services	N	N	Y	N	N
User selects Diagnostic Testing	N	N	N	Y	N
User Click on Book Button	Y	Y	Y	Y	N
User Clicks on Day/Month/year view	N	N	N	N	Y
System Response					
System pops out an error window and prompts user to select and option	X				
System redirects to At- Home services page		X			
System redirects to BQT services page			X		
System redirects to Diagnostic services page				X	
System changes the calendar view					X

Use case – View Service History

- The ‘View Service History’ use case allows the customer to view his service history which includes all the transactional history the customer has had with GenNex. The pre-condition for the use case to be active is that the customers have taken a service from GenNex and its get triggered when a customer clicks on “ViewTransaction” history.
- General Requirements
  - Precondition: Customers have taken a service from GenNex
  - Trigger: This use case is initiated when a customer clicks on “View Transaction” history
  - Post-condition:
    - History is viewed by the customer
    - A trigger is sent for the feedback

Decision table for Behavior Modeling

	Case	Rules					
Conditions	Customer enters customer ID	Y	Y	Y	Y	Y	N
	Customer enters password	Y	N	Y	Y	Y	N
	Customer enters the	Y	Y	N	Y	Y	N

	period for the history						
	CRM searches for the history	Y	Y	Y	N	Y	N
	Service history is displayed to the customer	Y	Y	Y	Y	N	N
System response	The service history is displayed to the customer	x					
	The customer is prompted to Step2 again.		x				
	An error notification is displayed to the customer and prompted to Step 1			x			
	The concerned team is reported				x		
	Due to technical issues reports are not displayed correctly; the IT team is notified.					x	
	The system prompts to						x

	repeating Step 1						

Business rule:

- History older than a year is not been generated
- History will be generated only if the patient information is stored in the database

<u>Use case – Analytics Dashboard</u>

This use case describes the event of displaying the dashboards for the CRM (customer relationship management) solution. The customers can include both the internal and the external GenNex customers. The 'Analytics Dashboard' use case allows the customer to view his service history which includes all the transactional history the customer has had with GenNex. This use case is initiated when the customer requests for a report or a dashboard. Report or dashboard will be viewed by the customer and this activity gets updated in the database. This use case allows customers to view dashboards only 1 month old. For dashboards older than a months' period, a request gets generated to the Analytics team. This use case concludes when the customer views the desired report.

- General Requirements
  - Post condition: Report or dashboard will be viewed by the customer and this activity gets updated in the database.
  - Precondition: Assuming that after the registration of customers, the data is recorded, then only these reports or dashboards can be generated.
  - Trigger: This use case is initiated when the customer requests for a report or a dashboard.

Decision Table for Behavior modeling

	Case	Rules				
Conditions	Customer requests for a report or a dashboard to be generated (type of report, details)	Y	Y	Y	Y	N
	Online portal of CRM stores customer's data	Y	Y	Y	N	N
	CRM searches for the report	Y	Y	N	N	N
	For reports dated less than 1 month, it gets displayed to the customer	Y	N	N	N	N

System response	CRM stores the data and it searches for the report-dated less than 1 month	x				
	If the history requested is older than a year the an error message notification (report unavailable currently) is displayed and Analytics team is notified with the report request		x			
	If the report history is less than 1 month and still not available the customer is notified and Analytics team is notified for the report request OR If report requested is not in scope of GenNex's offerings, the customer is notified and asked for some other search strings			x		
	If CRM is not able to store the customer information, no further operation can be run and the technical glitch is notified to the IT team				x	
	If the customer enters incorrect data, the system prompts it the customer to try it again					x

Use Case: Channel Integrator

Condition	Rule 1	Rule 2	Rule 3
Data received from department is corrupted	Y	N	N
Duplicate Data is received from department	N	Y	N
Inconsistent customer data is present	N	N	Y
System Response			
System shall log error report and notify department	X		X
System shall store duplicate data in separate log report		X	

Use Case: Referral page

Referral Page 1				
Conditions	**Rule 1**	**Rule 2**	**Rule 3**	**Rule 4**
Customer ID is invalid	Y	N	N	N
First Name has special characters	N	Y	N	N
Last Name has special characters	N	N	Y	N
customer ID is valid	N	N	N	Y
First Name is valid	N	N	N	Y
Last Name is valid	N	N	N	Y
System response				
System throws Error message " ID invalid"	X			
System throws Error message "Name Field has invalid characters		X	X	
System displays list of customer IDs				X

Referral page 2							
Conditions	**Rule 1**	**Rule 2**	**Rule 3**	**Rule 4**	**Rule 5**	**Rule 6**	**Rule 7**
First Name has special characters	Y	N	N	N	N	N	N
Last Name has special characters	N	Y	N	N	N	N	N

Phone has characters or incorrect Format	N	N	Y	N	N	N	N
Relationship Field is empty	N	N	N	Y	N	N	N
Email has invalid characters or missing @	N	N	N	N	Y	N	N
Age has characters or is invalid	N	N	N	N	N	Y	N
Phone number already exists in system	N	N	N	N	N	N	Y
System Response							
System throws Error message "Name Field has invalid characters	X	X					
System throws Error message "Phone number is invalid"			X				
System throws Error message "Relationship needs to be entered"				X			
System throws Error message "Email is invalid"					X		
System throws an error message " age is invalid"						X	
System shows message “The referral already exists in the system”							X

Use Case: Feedback System

Condition	**Rule 1**	**Rule 2**	**Rule 3**
User does not select any option from the select boxes	Y	N	N
User selects one and only option per question asked	N	Y	N
User clicks on Next	Y	Y	N
User clicks on back	N	N	Y
System Response			

System will throw an error message “please select an option”	X		
System moves to next page		X	
System moves to back page			X

Use Case: Billing Information

Condition	**Rule 1**	**Rule 2**	**Rule 3**	**Rule 4**	**Rule 5**	**Rule 6**
User does not selects any option	Y	N	N	N	N	N
User selects “At- home” services	N	Y	N	N	N	N
User selects “ Benefit Quoting” Services	N	N	Y	N	N	N
User selects “Third Party Testers”	N	N	N	Y	N	N
User Click on “Patient Tracking System”	N	N	N	N	Y	N
User enters incorrect Bill Id	N	N	N	N	N	Y
System Response						
System pops out an error window and prompts user to select and option	X					
System redirects to At- Home services page		X				
System redirects to BQT services page			X			
System redirects to Diagnostic services page				X		
System changes the calendar view					X	
System pops out an error window and prompts user to reenter details						X

Data and Business Intelligence Requirements

Use Case: Create Customer Record

Requirement Number	Name	Description
DR001	Username	The username is important in order to identify which specific user (of a team or independent user) is accessing the CRM System

DR002	Password	Password is required to validate if the authorized user is trying to access the system
DR003	Customer ID	Each customer has a unique ID associated, which is required to identify the customer
DR004	Customer details	For a new customer, details like date of birth, address, contact number, insurance details are required to be stored in the database

Requirement Number	Name	Description
BI001	Customer profile linked to Social Networking Site	When a customer creates a new account, he is given the option of logging in or linking his profile using social networking sites like Facebook or Twitter

Use Case: View Appointment Details

Requirement Number	Name	Description
DR001	Appointment details	Appointment details are required Nor displaying the data on the calendar
DR002	Customer details	Customer details are required to run query against to check Nor appointment details

Requirement Number	Name	Description
BI001	Incoming Appointments	System shall calculate number of appointments in a day
BI002	Customer mapping	System shall calculate number of appointments from a particular location based on zip code
BI003	Archive data	Archive data of users who have not used the system Nor three years and remove

		the data from production environment

Use Case: View service history

Requirement Number	Name	Description
DR001	Customer ID	Customer ID is required for matching the desired customer to its profile, to show his transactional history
DR002	Password	The password has to be entered by the customer to authorize the customer
DR003	Period	The period for which the history needs to be generated is entered by the customer

Requirement Number	Name	Description
BI001	Efficiency	The history dated previous to one year cannot be displayed as it is not saved by the system to keep the CRM portal light and flexible.

Use Case: Channel Integrator

Requirement Number	Name	Description
DR001	Sales details	Sales details are required Nor merging data
DR002	Customer details	Customer details are required to run query against to check Nor appointment details
DR003	Communication details	Communication channel details are required Nor merging data

Requirement Number	Name	Description
BI001	Incoming sales	System shall calculate number of sales in a day
BI002	Customer mapping	System shall calculate number of appointments from a particular location based on zip code
BI003	Archive data	Archive data after one month
BI004	Predicted Sales	Analytics team shall collect the integrated data to display the predicted sales
BI005	Identifying Potential Customers	Analytics team shall collect the integrated data to display the potential customers
Bi006	Identifying popular services	Analytics team shall collect the integrated data to display the potential customers
BI007	Predicting growth in customers	Analytics team shall collect the integrated data to predict the growth of potential customers

Use Case: Referral System

Requirement Number	Name	Description
DR001	Customer profile	Customer profile details are required to link the referral
DR002	Referral details	Referral phone number and / or email are required to run verification tests

Requirement Number	Name	Description
BI001	Referral data	System shall calculate how many referrals are provided per month
BI002	Referral conversion	System shall calculate how many referrals are being

		converted to actual customers. Analysis can also be done as to what relationship of referrals provides higher turnover
BI003	Predict NPS	The referral count can also be used an indicator of NPS Nor a service depending on which services the customer availed which prompted them to refer someone.

Use Case: Feedback System

Requirement Number	Name	Description
DR001	Customer service history	Customer service details are required to link the Feedback
DR002	Department details	Department details are required to create custom Feedback Norms and also to direct Feedback to correct department

Requirement Number	Name	Description
BI001	Calculate NPS	Using aggregate Feedback data NPS Nor different services can be calculated
BI002	Nature improvement areas	Using aggregated Feedback areas of improvement can be identified.
BI003	Referral potential	Depending on sentiment and rating potential of referrals from particular customer can be predicted.

Use Case: Analytics dashboard

Requirement Number	Name	Description
DR001	Customer ID	Customer ID is required for matching the desired customer to its profile, to show his transactional history
DR002	Password	The password has to be entered by the customer to authorize the customer
DR003	Period	The period for which the history needs to be generated is entered by the customer
DR004	Report type	The report type in which the format or the domain of the report can be selected by the internal customer

Requirement Number	Name	Description
BI001	Efficiency	The analytical reports previous to one month cannot be displayed as it is not saved by the system to keep the CRM portal light and flexible.

Use Case: Billing Information

Requirement Number	Name	Description
DR001	Username	The username is important in order to identify which specific user (of a team or independent user) is accessing the CRM System
DR002	Billing Id	Billing Id is required to generate the bill.
DR003	Department details	Department details are required to redirect to that team's portal incase the bill is older than 1 month.

Requirement Number	Name	Description
BI001	Efficiency	These bills are used Nor viewing and maintenance Nor individual users. This way, the user does not waste time on evaluating bills
BI002	Archive data	Archive billing data with bill generation dates greater than 1 month to keep the CRM portal light and flexible.

Maintenance Requirements

Requirement Number	Name	Description
MI001	Database updating	Database must refresh in every night
MI002	Database backup	Database must be backed up every night
MI003	System Restart	The system must allow admin to restart the system in case of any irrecoverable and unknown failure
MI004	Database connection	The system shall notify the IT whenever there is an anomaly in the network connection
MI005	Data Archival	The system shall archive history data that is more than a year old
MI006	Profile Updating	System shall update profile whenever new data is entered, or a new transaction has happened

Security and Access requirements

Requirement Number	Name	Description
SA001	Customer identification	No user can access any part of the system without first registering an account with the system
SA002	Multiple sessions	One customer cannot log in from multiple devices simultaneously
SA003	Super User Access (Admin)	Super user shall have access to all the reports and functionalities of the system. Super user will have access to all the data tables in the data base Nor all CRUD operations
SA004	Super User Update (Admin)	Super user will be able to modify access Nor other users

Transitional Requirements

Requirement Number	Description
TR001	The admin shall make sure that the environment has been setup to move the system into the production environment
TR002	The admin shall make sure that the database password has been updated and backend code is successfully moved to production. They should verify that all data and packages are moved successfully and that there is no data source objects that are missed during deployment
TR003	The IT team shall make sure that the front end code is ready Nor deployment to production with required approver access
TR004	All databases in the test environment should be replicated in the production environment before code deployment
TR005	Channel Integration data of one month must be copied before using analytics operations
TR006	All database connections must be checked once the database has been replicated

TR007	The IT team shall setup test users to test the application on production environment before giving signoff to the testing team.
TR008	The IT team should be trained enough to roll back the system if any error occurs during the code transition from test environment to production environment
TR009	All triggers must be run on the production database before going live on production environment
TR010	Every team must ensure compatibility of data fields in their database before going live on the production environment.

Risks and Mitigation:

Risk rating: 1 (LOW) – 5 (High)

Risk Key	
0-5	LOW
5-8	MEDIUM
10+	HIGH

RISK Score: (Probability of Occurrence * Impact * Discovery Factor) / Prevention

Use Case: View Service History

RISK	PROBABILITY(P)	IMPACT (I)	Discovery Factor	Prevention	Risk Score	Category
User requests data that exceeds one year	5	1	5	10	2.5	LOW
Nor Reports greater than one month and there is a delay in delivery of report by analytics team	5	10	2	4	25	HIGH
Unauthorized access attempt to view service history	2	10	3	8	7.5	MEDIUM
Access to system from unknown device / location	3	5	3	10	4.5	LOW
System crashes when trying to login with credential	2	5	1	10	1	LOW

Nor valid input system does not display service history	**1**	**10**	**1**	**10**	**1**	**LOW**
Data consistencies during system update	**1**	**10**	**1**	**1**	**10**	**HIGH**

RISK	**KEY RISK INDICATORS**	**RISK MITIGATION**	**RISK LEVEL**
User requests data that exceeds one year	**N/A**	Notify the customer that CRM does not allow history reporting	**User Level**
Nor Reports greater than one month and there is a delay in delivery of report by analytics team	**N/A**	Follow up with the respective department and generate notification triggers	**Project level**
Unauthorized access attempt to view service history	Repeated log-in attempts	System can use 2 level authentication when anticipating fraud	**System Level**
Access to system from unknown device / location	Location not stored in Database	System can send email to customer to verify login	**User level**
System crashes when trying to login with credential	User feedback	Notify the IT team	**System level**
Nor valid input system does not display service history		System updates and smoke tests to be run regularly	**User level/System level**

Data consistencies during system update	Data Updating failures	Ensure good data base design in 3 NN	**System level**

Use Case: Analytics

RISK	PROBABILITY(P)	IMPACT(I)	Discovery Factor	Prevention	Risk Score	Category
Analytics team delays in sending report data	**5**	**10**	**2**	**4**	**25**	**HIGH**
Device compatibility issue Nor analytics reports	**2**	**10**	**2**	**2**	**20**	**HIGH**
Data from analytics team is incorrect	**3**	**10**	**5**	**5**	**30**	**HIGH**
CRM system is not able to generate custom reports	**1**	**1**	**1**	**1**	**1**	**LOW**
Report is not exporting to pdf formats	**10**	**1**	**1**	**1**	**10**	**LOW**

RISK	KEY RISK INDICATORS	RISK MITIGATION	RISK LEVEL
Analytics team delays	Pending queue of report	Regularly notify analytics team via automated	**User Level**

in sending report data	generation requests	notification system about pending requests	
Device compatibility issue Nor analytics reports	User feedback	Notify analytics info visualization team	**System Level**
Data from analytics team is incorrect	Inconsistencies in report data	Notify analytics info visualization team	**User Level**
CRM system is not able to generate custom reports	Error while exporting report	Notify analytics and IT team	System Level

Use Case: Calendar

RISK	**PROBABILITY(P)**	**IMPACT(I)**	**Discovery` Factor**	**Preventi on**	**Risk Score**	**Category**
System is not navigating to concerned department	**3**	**10**	**1**	**10**	**3**	**LOW**
System does not display appointments on calendar (system issues)	**1**	**10**	**1**	**10**	**1**	**LOW**

RISK	KEY RISK INDICATORS	RISK MITIGATION	RISK LEVEL
System is not navigating to concerned department	System unresponsive	System should check connectivity / session validity	**System Issues**
System does not display appointments on calendar (system issues)	Empty Calendar displayed	System should check connectivity / session validity	**System Issues**

<u>Use Case: Customer Records</u>

RISK	PROBABILITY(P)	IMPACT(I)	Discovery Factor	Prevention	Risk Score	Category
System does not log in with valid credentials	**1**	**7**	**1**	**10**	**0.7**	LOW
Customer provides invalid email	**10**	**6**	**1**	**10**	**6**	**MEDIUM**
Customer provides invalid SSN	**10**	**4**	**1**	**10**	**4**	LOW
System does not find member ID when updating	**1**	**8**	**3**	**8**	**3**	LOW

RISK	KEY RISK INDICATORS	RISK MITIGATION	RISK LEVEL
System does not log in with valid credentials	Multiple login attempts and customer complaint	System should check connectivity	**System Level**
Customer provides invalid email	**NA**	System should send verification email during registration	**User Level**
Customer provides invalid SSN	**NA**	System should cross reference SSN with central database	**User Level / Organization level**
System does not find member ID when updating	**NA**	System should check connectivity	**System Level**

Use Case: Billing Information

RISK	PROBABILITY(P)	IMPACT(I)	Discovery Factor	Prevention	Risk Score	Category
System does not log in with valid credentials	**2**	**8**	**1**	**10**	**1.6**	**LOW**
Customer provides invalid billing Id	**10**	**3**	**2**	**10**	**6**	**MEDIUM**
Customer enters correct bill	**9**	**3**	**2**	**5**	**10.8**	**HIGH**

Id but incorrect Team Name (or vice versa)						

RISK	KEY RISK INDICATORS	RISK MITIGATION	RISK LEVEL
System does not log in with valid credentials	Multiple login attempts and customer complaint	System should check connectivity	**System Level**
Customer provides invalid billing Id	**NA**	CRM should pop up an error message preventing further delay	**User Level**
Customer enters correct bill Id but incorrect Team Name (or vice versa)	**NA**	CRM should pop up an error message to enter correct credentials	**User Level**

Use Case: View Customer Profile

RISK	PROBABILITY(P)	IMPACT (I)	Discovery Factor	Prevention	Risk Score	Category
User inputs invalid credentials	**5**	**1**	**5**	**10**	**2.5**	LOW
Transactions are not updated on time and/or are un-viewable	**1**	**10**	**2**	**4**	**5**	LOW

Unauthorized access attempt to view profile	**2**	**10**	**3**	**8**	**7.5**	**MEDIUM**
Access to system from unknown device / location	**3**	**5**	**3**	**10**	**4.5**	**LOW**
System Failure on Login Attempt	**2**	**5**	**1**	**10**	**1**	**LOW**
User Details not visible after update attempt	**1**	**10**	**1**	**10**	**1**	**LOW**

RISK	**KEY RISK INDICATORS**	**RISK MITIGATION**	**RISK LEVEL**
User inputs invalid credentials	**N/A**	Notify the customer that CRM does recognize the ID password combination	**User Level**
Transactions are not updated on time and/or is un-viewable	User Complaint	Follow up with the respective department and generate notification	**System Level**
Unauthorized access attempt to view customer profile	Repeated log-in attempts	System can use 2 level authentication when anticipating fraud	**System Level**
Access from unknown device / location	Location not stored in Database	System can send email to customer to verify login	**User level**

System Failure on Login Attempt	User feedback	Notify the IT team	**System level**
User Details not visible after update attempt		System updates and tests to be run regularly	**User level/System level**

Conclusion:

It is clear from our business requirement document, that GenNex Ltd. has a lot to capitalize on. It holds an established position in the health care market, where the threats of new entrants are also relatively controlled. It is always important to be aware of the competition. We at GenNex Ltd. reach out to our customers in many different ways. We will continue to release new technology, products and processes, adding onto our revenue streams which will help us remain leaders in the health care market. And most importantly we strive every day to solidify our value proposition to our customers with our Customer Centric attitude and innovations to provide high Quality service.

We are confident that we have a bright future ahead.

Thank you!