Business Scenario

Nexus Communication System is an Organization system that provides two services like the tele-communications and Internet Services. It is one of the major vendors at the local place. It has now extended its services all over the territory due to the increase in demand for the internet service.

They actually provide two types of connections, one being the Dial – Up connection and the other being the Broadband connection. Due to the increase in demand for connection and as to increase the comfort level, they have opened the retail shops at each place so that the customer can enquire regarding the connection or place an order for the connection by directly visiting to the retail shops at their place in that city, instead of applying at the office at their city.

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After the order for a connection is received, they will check for the feasibility and if the area is feasible only then the customer will be provided with the connection. For a customer who has applied for the Dial – Up connection, the feasibility check will be conducted for both the landline and as well for the internet connection incase if the customer has applied for both the phone and internet connection and if the customer is holding the landline from the same vendor and now applied for the internet connection then the feasibility test is to be conducted for the internet connection only.

Feasibility check is to be conducted in order to check the distance as they consider the distance parameters for giving the connection, to check with the server availability, etc... as per the company patterns.

They get the equipments like the modems, routers, etc. from different product manufacturing vendors. So they even need to track the details of the stock available and as well they check for the requests for connection that they have received, so that they can order for the equipments based on the orders received for the connection.

The product details along with the details of Retail shops, Vendors and the purchase lists are taken care by the Admin. Also the Employee details are maintained by the Admin solely.

Your team is retained to

* Create a database design,
* Create data structure
* Add sample data
* Build related validation using database functions at the database level

Please go ahead and read the problem statement below.

Problem Statement

2.1 Assumption

As this website has many features which will help the company to face the break-neck competition in the industry technically solutions have been provided in order to solve the problems and more over the website is very user friendly which makes the users to operate it very easily. Nexus Communication System, has expanded their service all over the territory and has even started the retail outlets at each place, so as to increase the comfort level of the customers where the customers can make the payment easily also they can place an order or enquire for a new connection. The details of the customers are maintained, including the payments, based on the plan as chosen by the customer. Also the customer personal details are also maintained and he/she is provided with some unique 10 digit account id so as to track the connection details easily. Also the details like the address proofs, application form and the receipts are to be filed along with the customer’s records based on the year and area wise. This also maintain the list of the products that are being provided at the time of providing the connection based on the plan chosen, also the details of the payments.

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**2.2 Points to focus**

The details of the equipments (stock), employees, vendors are maintained and updated solely by the Admin (Manager). They also maintain the list of the applications for the connection, some customers try to change their plan, and as well some gets connection but some don’t due to the feasibility reports, etc.

Some services include:

1. Creation, maintenance and updating database, which contains

* Information Regarding the various plans
* Details of retail stores
* Details of the employees
* Details of customers, vendors are needed to be updated.
* Details of the orders generated
* Details of the products
* Details of the materials provided with the customer

1. Maintaining the records of the orders generated for the customer regarding the connection, and the products, also the feedback from the customer is to be collected
2. The billing for the order is to be calculated taking into account the customer entitlements in terms of discount and schemes chosen and the payment done previously.

**2.3 Business process in the application and flow chart**

**Note:** Team would implement using Java/JEE, HTML, CSS and JavaScript.

1. After entering the **URL** the application should take the user to the home page which would have some **links** like **customer, admin, accounts, technical and retail shop** these links should be common for all the pages to a user who can visit after he clicks on any of the link (ex. If he clicks on technical it should show technical details which will have links like **product details** and **connection details** as well as the page should also show the links as explained above). Here the user will be admin or customer they could be able to see the pages without **logging in.** Team has to provide information on all the pages which are linked.

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1. The home page should also have a separate section for **displaying images** regarding some advertisements and offers which should be keep changing after some seconds these must be common in all other linking page from home page
2. The team has to validate all the input data sending to the server, for e.g., If Admin/Customer tries to login without entering the values in the input field the web page should display an error message saying fields must not be empty.
3. The team should also take care of designing the database tables with appropriate constraints and should insert some sample records in each table (table creation details are mentioned in Activity section)
4. The data flow diagram should look as below.

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Tools to be used for development:

* Mongo DB Database
* Express JS with Mongo DB or Mongoose Module
* VS code
* HTML5,CSS3, TypeScript and Angular Framework

Activities to be done by the students

Students should first create all the tables like Login, Customer, Employee, Vendor, Retail, InternetCon, Connection, Order, LandlineCon, Code, Equipment and etc if you feel to have some more table according to the project requirement and create the constraints for the tables (Team can use sequence to auto update the primary key).

After creating the tables and their relationships they have to store some records to each table (at least 5 records).

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The following points explain what all the pages and their functionalities to be created by the students

**ADMIN LOGIN PAGE**

The Administrator can login through this page or login at home page by giving designation as administrator. The Administrator Username as “**Admin**” and password as “**admin**”. On submitting, goes to admin home page.

**ADMIN HOME PAGE**

The different details (the below are hyper links) maintained by Admin are

* Employee Details
* Stock Details
* Vendor Details

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* Retail Showroom details
* Connection plan Details

**ADMIN – Employee Details Home page**

The different operations (the below are hyper links) in Employee Details page are

* Add Employee Records
* Delete Employee Records
* Update Employee Records
* Display Employee Records

**ADD EMPLOYEE:**  On submitting new Employee record is inserted in database.

**DELETE EMPLOYEE Record:** First select Employee ID, then submit delete button and Employee record is deleted in database.

**UPDATE EMPLOYEE Record:** First select Employee ID, then submit update button which opens new page with employee Details, update details and submit update button and Employee record is updated in database

**DISPLAY Employee Details:** Display information of all the employees.

**ADMIN – Stock Details Home page**

The different operations in Stock Details page are-

* Add Stock Records
* Display stock Records

**ADD Stock Details:** Add Stock details to the database.

**DISPLAY Stock Details:** Display the Stock details in the database.

**ADMIN – Vendor Details Home page**

The different operations in Vendor Details page are-

* Add Vendors Records
* Delete Vendor Records
* Update Vendor Records
* Display Vendor records

**ADD Vendor Records:** On submitting, new Vendor record is inserted in database.

**DELETE Vendor Records:** First select Vendor ID, and then submit delete button and Vendor record is deleted in database.

**UPDATE Vendor Record:**  First select Vendor ID, then submit update button which opens new page with Vendor Details, update details and submit update button and Vendor record is updated in database.

**DISPLAY Vendor Details:**  Display the Vendors details in the database.

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**ADMIN – Retails Details Home page**

The different operations in Vendor Details page are-

* Add Retail Records
* Delete Retail Records
* Update Retail Records
* Display Retail Records

**ADD Retail Details:** On submitting, new Vendor record is inserted in database.

**DELETE Vendor Details:** First select Vendor ID, and then submit delete button and Vendor record is deleted in database.

**UPDATE Retail Details:** First select Vendor ID, then submit update button which opens new page with Vendor Details, update details and submit update button and Vendor record is updated in database.

**DISPLAY Retail Details:**  Display Retail showroom details in different cities.

**ADMIN – Connection Plan Details Home page**

The different operations in Vendor Details page are-

* Landline Connection details
* Internet Connection Plan details

**RETAIL LOGIN PAGE**

The Retail showroom employee can login through this page or login at home page by giving designation as Retail employee. The Retailer Username as “**Retail**” and password as “**r01**”. On submitting, goes to Retail showroom employee’s home page.

**RETAIL HOME PAGE**

The different operations done by the Retail department employee are-

* To make connection request to Technical department
* To check order status of different request send
* To maintain contact details of customer
* To maintain plan Details

**RETAIL- Connection Request:** Retail Employee Can send request for connection to technical department for the different orders placed by Customer.

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**RETAIL- Check order Status:** Maintains records of all the order send till date and whether connection is assigned to it or not.

**RETAIL- Customer Details:** Maintains customer details who have taken connection till date.

**RETAIL- Plan Details:** Maintains detail about the various Internet and Landline plans.

**TECHNICAL LOGIN PAGE**

The Technical employee can login through this page or login at home page by giving designation as Technical employee. The Retailer Username as “**Technical**” and password as “t01”. On submitting, goes to Technical employee’s home page.

**TECHNICAL HOME PAGE**

The Technical home page has following links for different operations like-

* Provide connection to customer based on Retail Request
* Update Connection
* Check Placed connection
* Product details are maintained

**TECHNICAL-Provide Connection**

Provide connection to customer based on Retail Request and feasibility of area i.e. its distance from tower if the distance is >3000m then connection is not feasible and connection can’t be provided. Else connection is provided and a unique AccountID is generated through stored procedure in Back end.

**TECHNICAL- Update Connection**

Update Connections as active, permanently inactive or temporarily inactive. The above status is updated in back end.

**TECHNICAL- Check Placed Connection**

Maintains Records Of the connection placed till date and order status.

**TECHNICAL-Product Details**

Maintains detail about the various product present in the stock.

**ACCOUNTS LOGIN PAGE**

The Accounts Department employee can login through this page or login at home page by giving designation as Accounts employee. The Accounts Username as “**Account**” and password as “**a01**”. On submitting, goes to Accounts employee’s home page

**ACCOUNTS HOME PAGE**

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At accounts Employee page , the different operations done are:

* Calculate Bill
* Maintain Bill Details
* Update Bill
* Calculate Plan Charges

**ACCOUNTS-Calculate Bill**

Calculate bill for various connections based on the plan and charges, and number of connections.

**ACCOUNTS-Bill Details**

Maintains the bill records for different connections and customers.

**ACCOUNTS-Update Bill Details**

Update the bill accounts for different active connections based on number of connections and plan type.

**ACCOUNTS-Plan Charges**

Maintains the initial plan charges based on the plan type for both landline and internet connection.

**CUSTOMER LOGIN PAGE**

If you are an existing customer then login through the login page. But if new user then goes to ‘new user?’ ink and register yourself.

**CUSTOMER HOME PAGE:**

At Customer page, the different operations done are:

* Place Order Details
* Check Status
* Change Profile
* Check Placed Order
* Bill Details

**CUSTOMER- PLACE ORDER DETAILS**

Gives the details of both the landline as well as internet connection. The customer can choose any one of it and place an order.

**CUSTOMER-CHECK STATUS**

Displays the status of the order placed by the customer. If the connection is provided gives an account-id and the status of the connection.

**CUSTOMER-UPDATE PROFILE**

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The customer will be able to update his profile if required.

**CUSTOMER-CHECKED PLACED ORDER**

Customer can check the list of orders placed.

**CUSTOMER-BILL**

Customer can get their bill details using this option generate the bill.