**TechGears CRM System**

**Key Requirements for TechGears CRM System**

1. **User Authentication and Authorization:**
   * Role-based access control (Admin, Sales, Support).
   * Secure password storage (hashed).
2. **Customer Management:**
   * CRUD operations for customer records.
   * Assign customers to specific sales reps.
3. **Lead Tracking:**
   * Manage lead lifecycle (New, In Progress, Converted, Lost).
   * Track lead sources for marketing analysis.
4. **Opportunity Management:**
   * Track deal stages and forecast revenue.
   * Set expected close dates and values.
5. **Interaction Logging:**
   * Record all customer interactions (calls, emails, meetings).
   * Associate interactions with users and customers.
6. **Product and Order Management:**
   * Maintain a product catalog.
   * Create and manage customer orders and order details.
7. **Ticketing System:**
   * Manage customer support tickets with statuses.
   * Prioritize and assign tickets to support agents.
8. **Reporting and Analytics:**
   * Generate reports on leads, opportunities, and sales.
   * Monitor customer interactions and support performance.
9. **Integration and APIs:**
   * Provide RESTful API endpoints for external system integration.
10. **Security and Compliance:**

* Implement data encryption in transit and at rest.
* Ensure GDPR/CCPA compliance for customer data.

1. **Scalability and Performance:**

* Optimize database indexing and caching for speed.
* Design for horizontal scaling to handle growth.

## Scenario:

1. **User Creation:**
   * An admin user creates a new sales representative account with the role "Sales Rep".
2. **Customer Acquisition:**
   * A new customer, "Tech Solutions Ltd.", contacts TechGears via the company website.
   * A new lead is created with the source "Website" and status "New".
3. **Lead Assignment and Follow-Up:**
   * The lead is assigned to the newly created sales representative.
   * The sales representative logs a follow-up interaction (Type: Call) with notes detailing the customer's interest in purchasing software.
4. **Opportunity Creation:**
   * After discussions, an opportunity is created for "Tech Solutions Ltd." with a stage of "Prospecting" and an estimated value of $50,000.
5. **Order Processing:**
   * The customer confirms the purchase of two software products.
   * An order is created, and two entries are added to the OrderDetails table reflecting the products and their quantities.
6. **Support Request:**
   * After the purchase, the customer encounters a technical issue.
   * A support ticket is created, with the status "Open" and priority "High".
   * The ticket is assigned to a support agent.
7. **Resolution and Reporting:**
   * The support agent resolves the issue, updates the ticket status to "Resolved", and logs a meeting interaction with the customer.
   * Management generates a report to analyze total sales, open opportunities, and customer satisfaction levels.

## Key Players in TechGears CRM System

1. **Customer:**
   * Interacts with the company via leads, orders, and support requests.
2. **Sales Representative:**
   * Manages leads, opportunities, and customer relationships.
3. **Support Agent:**
   * Handles customer support tickets and logs interactions.
4. **Admin User:**
   * Manages system settings, user accounts, and overall operations.
5. **Product Manager:**
   * Oversees the product catalog and updates product details.
6. **Management/Executive:**
   * Analyzes reports and monitors business performance.

## Sales Representative Functions

1. **Lead Management:**
   * View, create, update, and assign leads.
   * Track lead status through stages (New, In Progress, Converted, Lost).
2. **Customer Management:**
   * Access customer details.
   * Update customer information.
3. **Opportunity Tracking:**
   * Create and manage opportunities.
   * Update opportunity stages (Prospecting, Negotiation, Closed Won, Closed Lost).
4. **Interaction Logging:**
   * Record interactions (calls, emails, meetings, notes).
   * View interaction history for assigned customers.
5. **Order Management:**
   * Create and track customer orders.
   * Access order history and order details.
6. **Reporting and Performance Tracking:**
   * View personal performance metrics (closed deals, revenue generated).
   * Analyze sales pipeline and upcoming opportunities.
7. **Collaboration:**
   * Assign leads and opportunities to other team members.
   * Communicate via logged notes and internal messages.

## Support Agent Functions

1. **Ticket Management:**
   * View, create, update, and close support tickets.
   * Prioritize and categorize tickets (Low, Medium, High).
2. **Customer Interaction:**
   * Record and track customer communications.
   * Log interaction history linked to tickets.
3. **Assignment Handling:**
   * Accept and manage assigned support tickets.
   * Reassign tickets to other agents if necessary.
4. **Status Updates:**
   * Update ticket statuses (Open, In Progress, Resolved, Closed).
5. **Knowledge Base Contribution:**
   * Document solutions for future reference.
   * Update and maintain a knowledge base for common issues.
6. **Reporting and Monitoring:**
   * Track ticket resolution times and performance.
   * Generate reports on support activities and ticket metrics.
7. **Collaboration:**
   * Communicate with other agents and departments.
   * Share ticket notes and resolutions with the team.

## Microservices Architecture

1. **User Management Service**
   * Handles authentication (login/logout).
   * Manages user roles (Admin, Sales Rep, Support Agent).
   * CRUD operations for user profiles.
2. **Customer Management Service**
   * Manages customer information (creation, update, retrieval).
   * Handles customer assignment to sales representatives.
3. **Lead Management Service**
   * Manages lead generation and tracking.
   * Supports updating lead statuses (New, In Progress, Converted, Lost).
4. **Opportunity Management Service**
   * Tracks sales opportunities through different stages.
   * Calculates potential revenue and manages expected close dates.
5. **Interaction Management Service**
   * Logs customer interactions (calls, emails, meetings, notes).
   * Links interactions to users and customers.
6. **Product Management Service**
   * Manages product catalog (CRUD for products).
   * Updates product prices and descriptions.
7. **Order Management Service**
   * Handles order creation and tracking.
   * Manages order details (products, quantities, status).
8. **Support Ticket Service**
   * Manages customer support tickets (creation, update, assignment).
   * Tracks ticket statuses (Open, In Progress, Resolved, Closed).
9. **Reporting and Analytics Service**
   * Generates reports on sales performance, customer activity, and ticket resolution times.
   * Provides insights on business performance metrics.
10. **Notification Service**

* Sends notifications (email, in-app) for lead updates, ticket statuses, and assignment changes.