

GROUP PROJECT

Object Oriented Analysis and Design

Introduction

Quang An is a company that provides bus services to commuters. The company aims to provide safe and flexible transportation to its customers. In essence, the company makes continuous efforts to maximize customer satisfaction. The high quality of services provided by the company has led to a sizeable growth in its business.

The company's Customer Relations (CR) department serves as a liaison between Quang An and its customers. The main responsibility of this department is to enhance the image of Quang An company. For this purpose, the company constantly monitors customer feedback and then suggests and implements corrective actions. This is the most important task performed by the CR department because it increases customer goodwill. The current system for logging customer feedback is described below.

Current System

Customer feedback is categorized as complaints, suggestions, and commendations received from customers. The feedback may be related to any of the transportation services. The details about the regular customers of Quang An Company are maintained in the Customers Register. These details include the customer ID, the name, the address, the city, the province, the e-mail address, and the contact number. A representative from the CR department logs all details specified by the complainant in a Complaints Register. These details include the name of the customer who provided the feedback, the name of the representative who logged the feedback, the date of feedback, the source (verbal, written, or media), the feedback type (complaint, commendation, suggestion), the feedback category (driving behavior, operational shortcoming, vehicle condition), the operational department that is responsible for handling the complaint, the incident date, the place of incident, the bus stop, feedback description, the registration number of the vehicle, and the employee to whom the feedback will be assigned. The Complaint Register also stores the status of the complaint. When a new complaint is logged, the status of the complaint is marked as 'New'. Each complaint, commendation, and suggestion has a unique reference number. The prefix for the reference number differs in all three cases and is as follows:

- Complaint: CP
- Commendation: CM
- Suggestion: SG

The operational departments check the pending complaints daily and make decisions about investigations and corrective actions. The key person from the operational department assigns the complaint to an employee from the same department. When a case is assigned to an employee, the status of the complaint is changed to "Under Investigation". The assignee for a particular case investigates the validity of the case and adds the details about the investigation in the Investigation Details Register. These details include the reference number of the case, the validity of the complaint, and reasons in case the complaint is considered as invalid. If the complaint is considered valid, the register also includes details such as the name of the driver at fault. The assignee modifies the status to "Investigation Complete" and updates the date of completion of investigation.

The operational department implements corrective actions based on the investigation. After completing the investigation and implementing corrective actions, the operational department adds the details about the actions taken to the Corrective Actions Register. The details include the action taken in case of a valid complaint and name of the representative from the operational department who took the action. The representative from the operational department also updates the date of closure in the Complaint Register and changes the status of complaint to "Closed".

The CR department generates the following reports periodically:

- Pending complaints report in the format given below:

Pending Complaints Report					
Reference Number	Complainant's Name	Date of Complaint	Category	Complaint Details	Status
xxxxxxx	xxxxxx	dd-mm-yyyy	xxxxxxx	xxxxxxxxxxxxxxxxxxxxxx	xx

- Investigation report in the format given below:

Customer Feedback Investigation Report		
Reference No:	Feedback Category:	Feedback Date:
Complainant Name:		
Date Sent for Investigation:	Date of Completion of Investigation:	
Validity:	Reason:	Driver at Fault:
Investigation details:		

Proposed System

In order to enhance the effectiveness of the CR department and help it to better understand and address the customer requirements, the management of Quang An company has decided to automate the operations in the CR department.

The new system should perform the following functions:

- The new system should store data about operational departments such as the department ID and department name. The system should also store data about employees in the CR department and operational departments. The details include the employee ID, the name, the address, the date of birth, the date of joining, the designation (Key person/Assignee), the department, and the password that the employee will use to log on to the system. In addition, the system should store details such as ID, name, address, age, and license number of the drivers employed by the company.
- The system should provide a logon screen for the employees. The logon screen should accept the employee ID and the password and validate it against the employee details.
- Only employees from the CR department should be allowed to log customer feedback.
- All operational departments should be able to view the pending complaints. The system should ensure that this option of viewing details is available only to the key person in an operational department, such as the manager, the group leader, or the department head. The key person should also be provided with the option to assign a complaint for investigation to an employee from the same department. The system should accept the feedback number of the complaint from the user, validate the reference number, display all the details about the feedback, and allow the user to enter the assignee. The system should also update the status of the feedback automatically.
- After an employee completes the investigation, the system should provide an option for the employee to enter investigation details. The system should accept the reference number and the investigation details from the user. It should then update the status of feedback.
- The system should allow users to enter corrective action details and update the status of the feedback.
- The new system should be capable of generating the Pending Complaints and Customer Complaints Investigation reports.
- Based on the feedback received from the regular customers, the organization has decided to launch a Web site to facilitate the customers to enter feedback details online. In case of feedback received through the Web site, the source of the feedback should be automatically set to “Web site”.
- The Web site should also provide an option for the customers to view their feedback status. In case the feedback is under investigation, only the details from the Complaints Register need to be displayed. If the feedback status is “Investigation Complete”, the feedback and investigation details should be displayed. If the feedback status is closed, the feedback, the investigation details, and corrective actions should be displayed.
- In addition to these services, the Web site should provide a link for viewing the details about the new services introduced by Quang An Company. The details to be displayed include the starting point, the destination, the agency, the contact person, the e-mail address, the telephone number, and the services provided.

In order to develop the software system for Quang An Company, you need to analyze the current system and create a design for the proposed system, using UML.