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Assignment #4

Eden Bay Case pt2

**Task 1: Additional Questions**

**Marie**

Open-ended question: How do you currently document maintenance activities for the fleet vehicles?

Close-ended question: Do you think the current maintenance tracking system is efficient?

Range-of-response question: how satisfied are you with the accuracy of maintenance cost records on a scale of 1-10?

**Martin**:

Open-ended question: Can you walk me through the process of scheduling routine maintenance for the vehicles?

Close-ended question: Is there a specific software program you use to track vehicle maintenance?

Range-of-response question: How often do you encounter delays in obtaining necessary parts for vehicle repairs? (options: rarely, occasionally, frequently)

**Phil**:

Open-ended question: What challenges do you face when allocating the maintenance budget across different vehicle types?

Close-ended question: Would you prefer a system that automatically generates maintenance schedules based on vehicle usage?

Range-of-response question: How would you rate the current system in terms of its ability to predict upcoming maintenance needs? (options: poor, fair, good, excellent)

**Alice**:

Open-ended question: How do you prioritize maintenance tasks when multiple vehicles require attention simultaneously?

Close-ended question: Are you satisfied with the current level of detail in maintenance reports provided by the system?

Range-of-response question: How would you describe the ease of access to historical maintenance data? (options: difficult, moderate, easy)

**Joe**:

Open-ended question: In your opinion, what improvements could be made to streamline the maintenance approval process?

Close-ended question: Do you think integrating a mobile application for maintenance requests would be beneficial?

Range-of-response question: How much time do you spend on average processing maintenance invoices each month? (options: 1 hour or less, 1-3 hours, 3 hours or more)

**Task 2: System Requirements**

**Functional Requirements:**

Ability to track vehicle maintenance schedules and generate reminders for routine servicing.

Record keeping for all maintenance activities including repairs, replacements, and inspections.

Integration with a financial module to manage maintenance budget allocation and expenditure tracking.

Generation of comprehensive reports on maintenance history, costs, and trends.

User roles and permissions to ensure data security and access control.

Compatibility with mobile devices for remote access and data input.

Integration with existing fleet management systems for seamless data exchange.

**Non-functional Requirements:**

**Performance**: The system should respond promptly to user queries and data retrieval requests.

**Reliability**: Minimal downtime and data loss should be ensured through regular backups and robust error handling mechanisms.

**Usability**: Intuitive user interface design and ease of navigation to facilitate user adoption and efficiency.

**Scalability**: The system should accommodate future growth in the fleet size and maintenance complexity without significant re-engineering.

**Security**: Data encryption, authentication, and authorization mechanisms to safeguard sensitive maintenance information.

**Compliance**: Adherence to relevant regulations and standards governing vehicle maintenance and financial record-keeping.

**Flexibility**: Customization options to adapt to evolving business needs and process changes.

**Task 3: Sampling Methods**

Several sampling methods can be employed to analyze vehicle records:

**Random (Simple) Sampling**: Selecting vehicle records randomly from the entire population. This method ensures each record has an equal chance of being chosen and is suitable for obtaining a representative sample.

**Stratified Sampling:** Dividing the vehicle records into strata based on certain characteristics (e.g., vehicle type, age, usage) and then randomly selecting samples from each stratum. This method ensures representation from different categories within the population.

**Systematic Sampling**: Selecting every nth vehicle record from a sorted list. This method is efficient and straightforward but may introduce bias if there's a pattern in the ordering of records.

Considering the need for a comprehensive analysis and to ensure representation across different vehicle types and maintenance histories, a combination of stratified sampling and random sampling would be most appropriate. This would provide a balanced representation of the fleet and help identify any patterns or discrepancies in maintenance records effectively.