Question (1)

Case Study 1: Improving Restaurant WaitTimes (DMAIC Method)

- **Background: A popular local restaurant is experiencing longer-than-average wait times during peak hours. This issue is leading to increased customer complaints and a noticeable loss in business. The restaurant seeks to reduce wait times to improve customer satisfaction and increase overall profitability.**

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Define: long waiting times affect on customers satisfaction that decrease total profit

Measure: waiting times in minutes and seconds

Analyze: the causes of long waiting times that may be because stuff is not enough to handle all orders, that may because cookers are not efficient

Improve: increase stuff members, upgrade cookers

Control: monitor and measure waiting times

Question (2)

Case Study 2: Software Upgrade Rollout (PDCA Method)

- **Background:** A technology firm is preparing to roll out a major software update designed to enhance user experience and introduce new features. Previous upgrade rollouts have encountered user resistance and bug-related complaints, affecting user satisfaction and the overall success of the updates. The firm aims to use the PDCA method to ensure a smoother rollout, minimize issues, and improve user acceptance

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plan: we will suppose that the problem is in minimum hardware required is not common

do: re-design software and use algorithms with low complexity time and memory

check: release a beta version of this software and monitor how it works

Act: if it works well release for all customers as main

Question (3)

Case Study 3: Reducing Employees Turnover (Root Cause Analysis)

- **Background:** A retail company has been experiencing high employee turnover over the past year, especially among new hires within their first six months of employment. This high turnover rate is impacting team stability and increasing recruitment and training costs. The company aims to use Root Cause Analysis to identify the underlying causes of this issue and develop strategies to improve employee retention.
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Identify: high percentage of employees are turnover

Collect: collect data about their salaries, bonuses, working hours, the duration of employment, the firms they went to and their new salaries.

Analyze: get relations between all employees who turned over

Identify root causes: ask five hierarchical questions to get base reason like why they turnover? Because of low salaries. Why do they get low salaries? because debts.....

develop solutions: we should depend on freelancers by 50%.....

monitor: what percentage of turnover during those 3 months

Question (4)

Problem 1: Applying DMAIC

A restaurant is experiencing an unusually high turnover rate of its wait staff. Use the DMAIC framework to propose how the management could address this issue. Include at least one action for each step.

Define: high turnover rate of its wait staff

Measure: Number of clients that turnover, waiting times.

Analyze: compare waiting times at our restaurant with common waiting times, show cooking times and the quality of cooks.

Improve: increase stuff members and their quality, upgrade cookers

Control: monitor and measure waiting times

Problem 2: Root Cause Analysis (RCA)

A retail store finds that its weekend sales have been consistently low compared to weekdays. Conduct a root cause analysis using the Five Whys technique to determine potential reasons and suggest actionable solutions.

Identify: weekend sales have been consistently low

Collect: data about clients on weekends, especially their age, data about the location of this store and common stores in this area

Analyze: get relation between these 3 variables ^

Identify root causes: my clients are students Why? Because our location is full with schools …….

develop solutions: construct discounts during weekends, add a new branch for entertainment

monitor: the effect of these changes.

Problem 3: PDCA in Real Life

Your team is responsible for launching a new customer feedback portal for the company. Describe how you would use the PDCA cycle to ensure successful implementation of the portal.

Plan: we need to get real and true feedback about our company
Do: launch a beta version of this portal
Check: compare between data driven Decisions came from this data and Data-Inspired Decisions
Act: if the difference between those decisions is low, we will release it for all clients.

Problem 4: Crafting SMART Questions

Rewrite the following vague question into a SMART question:

"How can we improve customer satisfaction with our service?"

If you are part of our business Family, what things you want to low light, others need to highlight.

Question (4)

Multiple-choice questions (MCQs)

1. What is the primary purpose of the DMAIC framework?

a) Conducting market research

b) Improving and stabilizing processes

c) Designing new products

d) Evaluating employee performance

2. Which step in the DMAIC framework focuses on identifying the root causes of defects?

a) Define

b) Measure

c) Analyze

d) Control

3. In the PDCA cycle, what is the main goal of the "Check" phase?

a) Develop solutions to the problem

b) Evaluate the effectiveness of a tested solution

c) Monitor and sustain the improvements

d) Identify new problems for analysis

4. What tool is commonly used in Root Cause Analysis (RCA) to identify underlying causes?

a) Pareto Chart

b) Fishbone Diagram

c) Gantt Chart

d) PERT Chart

5. Which of the following best describes a "Specific" question in the SMART framework?

a) Broad and general in nature

b) Focused on a precise topic or issue

c) Aimed at long-term goals

d) Evaluating multiple issues at once

6. What is a significant risk associated with poor-quality data?

a) Increased computational speed

b) Misleading analysis and decisions

c) Reduced use of technology

d) Enhanced security protocols

7. What does data-driven decision-making emphasize?

a) Subjective judgment and intuition

b) Decisions made purely from data insights

c) Equal weighting of intuition and data

d) Avoiding the use of analytics tools

8. What is a major issue in integrating data from diverse sources?

a) Excessive storage requirements

b) Breaking down data silos

c) Reduced data collection rates

d) Overloading analytics dashboards