<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Customer Lifetime Value for Car Service Center | Lee Yih Ven</title>

<link rel="stylesheet" href="/data-analyst-portfolio/style.css">

</head>

<body>

<!-- Two-Column Layout Wrapper -->

<div class="container">

<!-- Left Column (Personal Info and Contact) -->

<aside class="left-column">

<header>

<h1>Lee Yih Ven</h1>

<h2>Data Analytics Portfolio</h2>

</header>

<section class="intro">

<p>Data-driven insights to unlock business growth and innovation. Specializing in helping businesses make smarter, faster decisions.</p>

</section>

<!-- Contact Section in Left Column -->

<section class="contact">

<h2>Contact</h2>

<p>Have a project in mind? Let’s work together to transform your data into actionable insights.</p>

<ul>

<li>Email: <a href="mailto:director@pinnacleslearningsolution.com">director@pinnacleslearningsolution.com</a></li>

<li>Phone: +6014-920709</li>

</ul>

</section>

</aside>

<!-- Right Column (Full Case Study Content) -->

<main class="right-column">

<section class="case-study-content">

<header>

<h1>Customer Lifetime Value for a Car Service Center</h1>

<p>Analyzing CLV to identify high-spending customers, improve engagement, and boost profitability.</p>

</header>

<!-- Case Study Sections -->

<section>

<h2>Executive Summary</h2>

<p>This case study focuses on analyzing customer lifetime value (CLV) for a car service center, using a predictive model to identify high-spending customers. The goal is to offer actionable insights into how customer visit frequency, service preferences, and loyalty programs impact revenue and retention. The analysis highlights the importance of retaining high spenders and encourages strategies to boost engagement, maximize profitability, and enhance long-term customer loyalty.</p>

</section>

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<h2>Problem Statement</h2>

<p>The car service center needs to understand the factors influencing customer lifetime value, particularly among high-spending customers, to increase customer retention and optimize revenue generation. Key questions include: How can the car service center retain high spenders, encourage repeat visits, and maximize profitability through tailored services, discounts, or loyalty programs?</p>

</section>

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<h2>Approach</h2>

<ul>

<li><strong>Dataset Background:</strong> The dataset provided customer details such as visit frequency, service types, spending patterns, and loyalty program participation.</li>

<li><strong>Study Framework:</strong> The framework focused on identifying the spending behaviors of high-value customers and analyzing how service preferences, discounts, and loyalty programs affect predicted lifetime value.</li>

<li><strong>Descriptive Query:</strong> The initial descriptive analysis segmented customers into high, medium, and low spenders and examined factors like service types and discount usage.</li>

<li><strong>Predictive Model:</strong> A customer lifetime value model was built to predict long-term spending, focusing on high-value customers and identifying patterns in visit frequency, loyalty programs, and discount usage.</li>

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<h2>Results</h2>

<h3>1. High Spender Dominance</h3>

<p>The analysis found that 2,887 customers are predicted to have a lifetime value exceeding $500, far outweighing the medium spender segment (113 customers with a value between $100 and $500).</p>

<img src="https://raw.githubusercontent.com/lyven81/data-analyst-portfolio/main/images/car-service-CLV/high-spender-dominance.png" alt="High Spender Dominance Visualization" width="600">

<h3>2. Visit Frequency Matters</h3>

<p>Customers visiting more frequently (e.g., 11 times per year) show a higher lifetime value, with values ranging from $549.95 to $555.05. Encouraging repeat visits through personalized offers or maintenance reminders can lead to significant revenue growth.</p>

<h3>3. Loyalty Program Benefits</h3>

<p>High-spending loyalty program members have higher predicted lifetime values (up to $574.66), demonstrating the program’s effectiveness in retaining valuable customers. Non-loyalty high spenders still exhibit significant value, indicating an opportunity to increase their engagement through targeted loyalty incentives.</p>

<img src="https://raw.githubusercontent.com/lyven81/data-analyst-portfolio/main/images/car-service-CLV/loyalty-program-benefits.png" alt="Loyalty Program Benefits Visualization" width="600">

<h3>4. Non-Discount Buyers</h3>

<p>High spenders who do not use discounts remain highly valuable, with lifetime values between $564.32 and $567.49. These customers show strong brand loyalty, suggesting the car service center should focus on providing premium services rather than offering frequent discounts.</p>

<img src="https://raw.githubusercontent.com/lyven81/data-analyst-portfolio/main/images/car-service-CLV/non-discount-buyers.png" alt="Non-Discount Buyers Visualization" width="600">

<h3>5. Model Evaluation</h3>

<p>The prediction model performed well with an RMSE (Root Mean Squared Error) of 271.61, indicating an average error of $271.61 in predicting customer spending. This provides a reasonable level of accuracy in identifying high-spending customers, offering a valuable tool for strategic decision-making.</p>

<img src="https://raw.githubusercontent.com/lyven81/data-analyst-portfolio/main/images/car-service-CLV/model-evaluation.png" alt="Model Evaluation Visualization" width="600">

</section>

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<h2>Recommendations</h2>

<ul>

<li><strong>Retention of High Spenders:</strong> Focus on retaining high-spending customers by offering premium services, personalized communication, and exclusive rewards based on service types and visit frequency.</li>

<li><strong>Enhance Visit Frequency:</strong> Implement strategies such as service reminders or bundled packages to encourage more frequent visits. This can significantly increase lifetime value.</li>

<li><strong>Loyalty Program Expansion:</strong> Target high spenders who are not yet loyalty program members with personalized incentives to join, increasing long-term retention and value.</li>

<li><strong>Maximize Non-Discount Buyers:</strong> Avoid over-reliance on discounts for high spenders. Instead, focus on value-added services that enhance customer satisfaction and loyalty without compromising profit margins.</li>

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<h2>Conclusion</h2>

<p>By leveraging predictive models and focusing on key factors such as visit frequency, loyalty program participation, and non-discount behaviors, the car service center can optimize its customer retention strategies. The ability to predict and retain high spenders is crucial for maximizing long-term profitability and sustaining business growth.</p>

</section>

</section>

</main>

</div>

<footer>

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</footer>

</body>

</html>