**Quantium Retail Analytics: Trial Store Analysis Report**

**1. Introduction**

This report presents an analysis of the trial store performance to assess the impact of new store layouts on chip sales. Three trial stores (77, 86, and 88) were selected, and their performance was compared against carefully chosen control stores.

**2. Methodology**

To evaluate the impact of the new layout, we:

1. Selected control stores based on similarity in sales and customer trends before the trial period.
2. Measured the performance of trial stores relative to their control stores.
3. Conducted statistical tests to determine if the observed differences were significant.

**Control Store Selection**

* **Trial Store 77** → Control Store **233**
* **Trial Store 86** → Control Store **155**
* **Trial Store 88** → Control Store **237**

Control stores were selected using:

* **Pearson correlation** to find stores with similar sales trends.
* **Magnitude distance** to ensure comparable performance levels.
* **Composite score** combining correlation and magnitude distance to rank the best control store.

**3. Performance Analysis**

**3.1 Trial Store 77 vs Control Store 233**

* Sales in the trial store were **significantly higher** in March and April.
* Customer count also showed a notable increase.
* The trial store performed **outside the 95% confidence interval** of the control store in two of the three trial months.
* **Conclusion**: The trial had a **positive impact** on sales.

**3.2 Trial Store 86 vs Control Store 155**

* Sales remained **within the 95% confidence interval** for most of the trial period.
* The number of customers increased, but sales did not significantly improve.
* **Conclusion**: The trial had **no statistically significant effect** on sales.
* **Recommendation**: Investigate possible differences in trial execution.

**3.3 Trial Store 88 vs Control Store 237**

* Sales and customer count increased significantly.
* The trial store’s performance was **outside the 95% confidence interval** in two of the three trial months.
* **Conclusion**: The trial had a **significant positive effect** on sales.

**4. Recommendations & Next Steps**

**4.1 Expansion of the Trial**

* **Stores 77 and 88:** The trial results indicate a **successful impact on sales**, suggesting potential for a **wider rollout** of the new layout.
* **Store 86:** The lack of significant improvement suggests the need for a **review of trial implementation** before further rollout.

**4.2 Further Investigations**

* **Pricing & Promotions:** Investigate whether promotions influenced the results.
* **Long-Term Impact:** Monitor whether the sales increase is sustained over time.

**4.3 Final Recommendation**

* **Proceed with implementing the new store layout across more stores**, focusing on stores with similar customer behavior as trial stores 77 and 88.
* **Refine and re-test in Store 86** to identify any potential barriers to success.

**5. Visual Summary**

(Include graphs showing total sales trends, customer count trends, and statistical significance results.)

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