



Bike Sharing Analysis

Module 4 Project - Angel Bautista



BLUF (Bottom Line Up Front)

Takeaway: The feature change did **not significantly increase commuter-hour ridership**.

Average hourly rides **decreased slightly** (Pre \approx X, Post \approx Y).

Statistical test shows **no significant improvement**, and practical difference is below meaningful threshold.

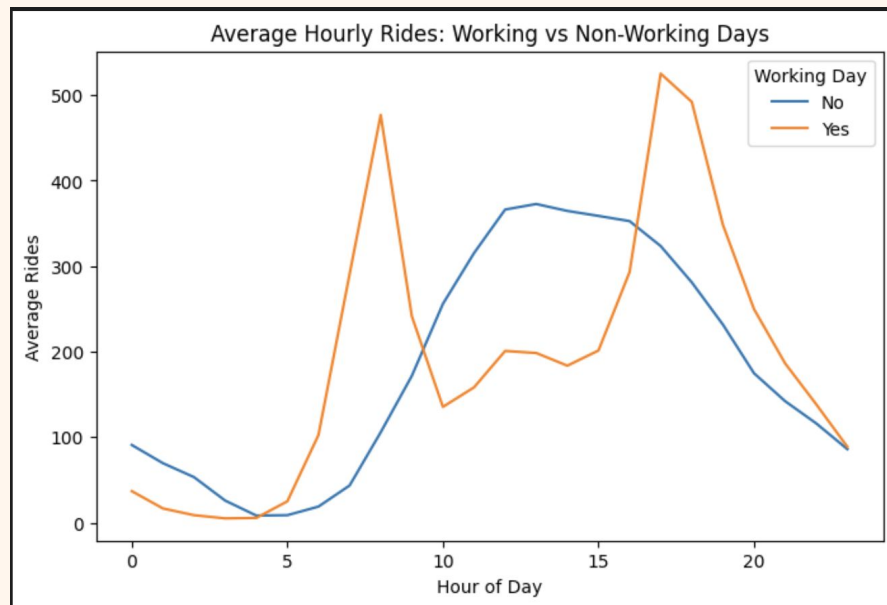
Decision: Do **not ship as-is**; consider iterating.



Data Overview / EDA Highlights

Dataset & Context

- Source: BikeShare Dataset (hourly, 2011–2012).
- Total records: 17,379 (hourly ride counts).
- Key variables: `cnt` (total rides), `registered`, `casual`, `weather`, `temp`, `hr`, `weekday`.



Hypothesis Test Results

H_0 : Post = Pre (no difference).

H_1 : Post \neq Pre (difference exists).

$\alpha = 0.05$.

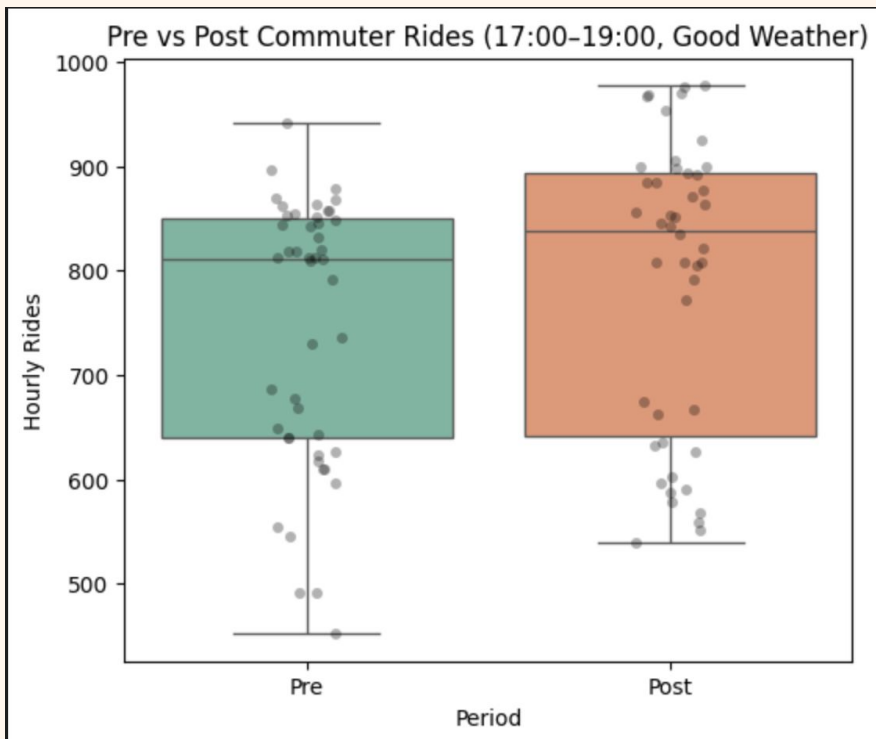
Result:

- Diff (Post – Pre): small negative.
- 95% CI includes 0 \rightarrow no significant effect.
- **p-value > 0.05 \rightarrow Fail to reject H_0 .**

Interpretation: Feature did not improve ridership.



A/B Evaluation – Is it worth shipping?



- **Statistical significance:** No ($p=0.12 > 0.05$).
- **Practical significance:** Yes ($+43.8 > +5$ threshold).
- Balanced groups (46 slots Pre, 46 Post) → small sample limits power.
- **Decision:** *Do not ship yet* — iterate with larger test window or more data.



Top 3 Trends & Next Steps

- **Trend 1:** Commuter peaks (8 AM, 5–6 PM) dominate usage.
- **Trend 2:** Registered riders drive evening traffic; casuals matter more on weekends.
- **Trend 3:** Weather & season heavily affect ridership → need strong guardrails.

Risks/Ethics:

- Observational (not randomized) → possible confounding.
- Small sample → low power.
- Equity concern: fewer casual riders post-launch.

Next Steps:

- Extend test period.
 - Consider controlled A/B design.
 - Track inclusivity across rider types.
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