



# *Telecom Customer Churn Analysis*

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# Project Overview

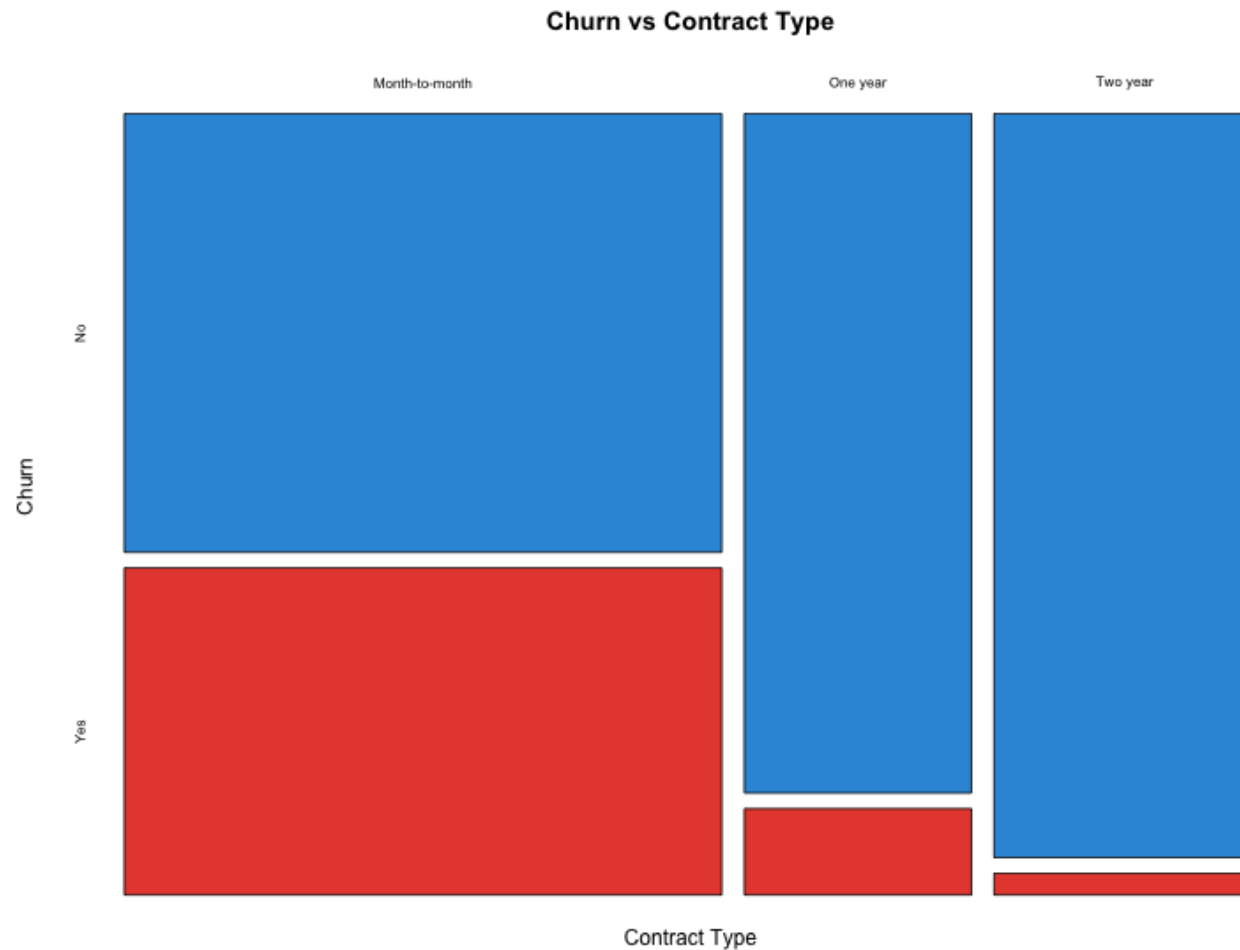
- Dataset: Telco Customer Churn (IBM Sample Data)
- 7,043 customers, 21 variables
- Goal: Understand factors that influence churn and customer value





# Data Cleaning

- Converted categorical columns
  - Handled NA in TotalCharges
  - Combined levels like "No internet service" > "No"
  - Removed customerID (non-informative)
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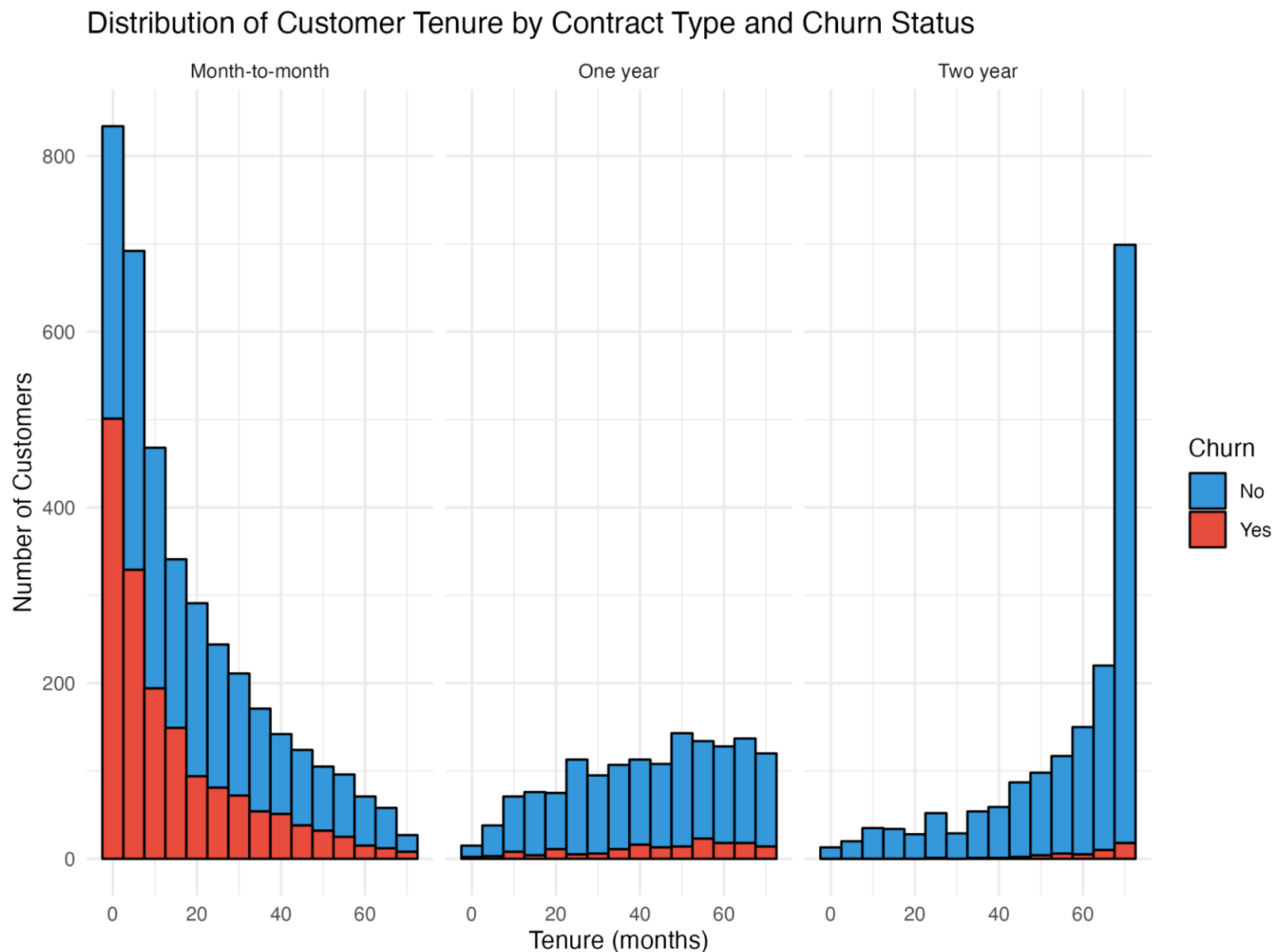


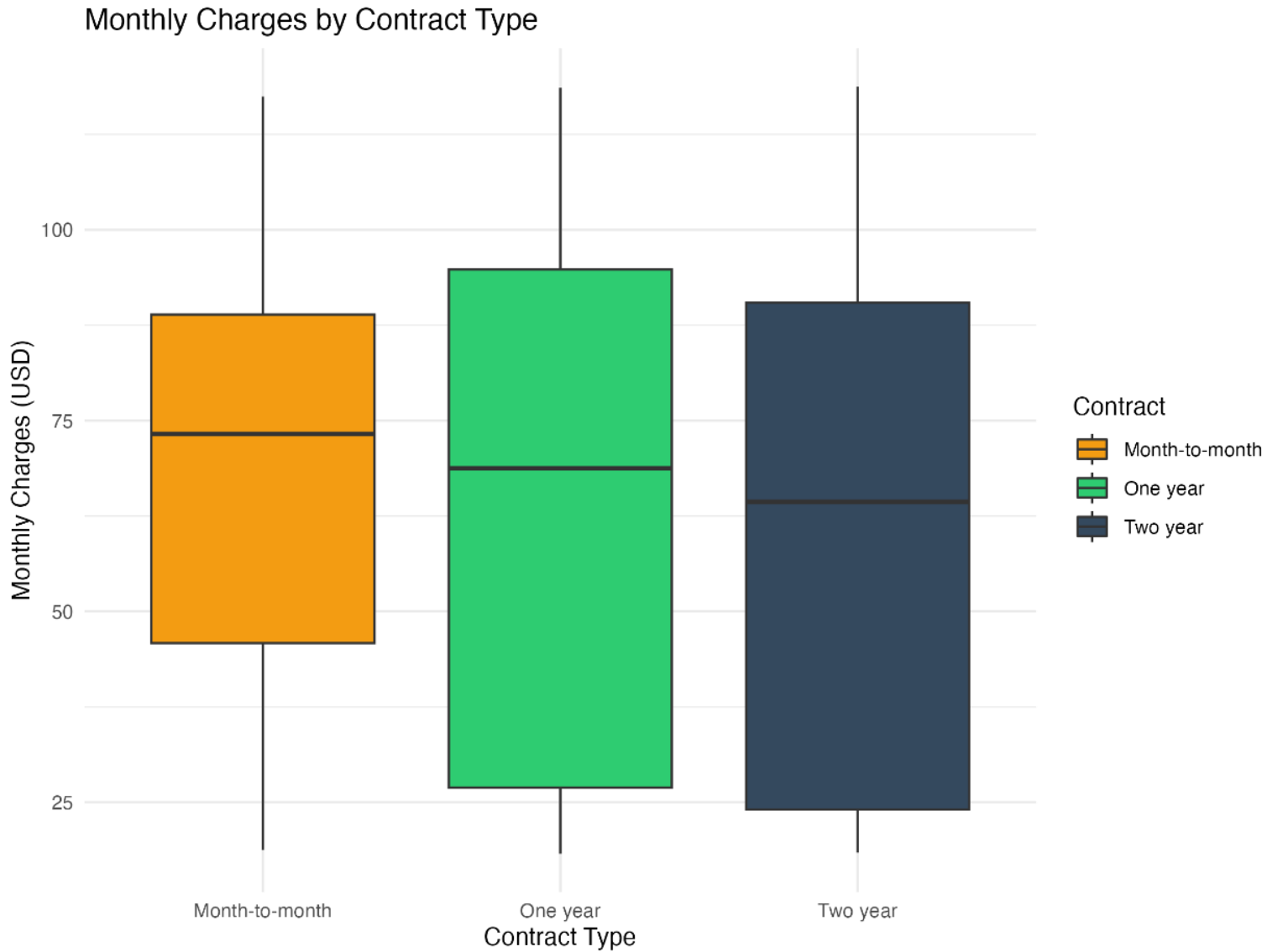
## Churn By Contract Type

- Mosaic plot
- *Key Insight:* Month-to-month contracts > much higher churn
- Long-term contracts = customer stability

# Tenure Distribution

- Histogram by contract + churn
- New customers (0–5 mo) = spike in churn
- Tenured customers rarely churn
- Opportunity: Focus on new customer onboarding

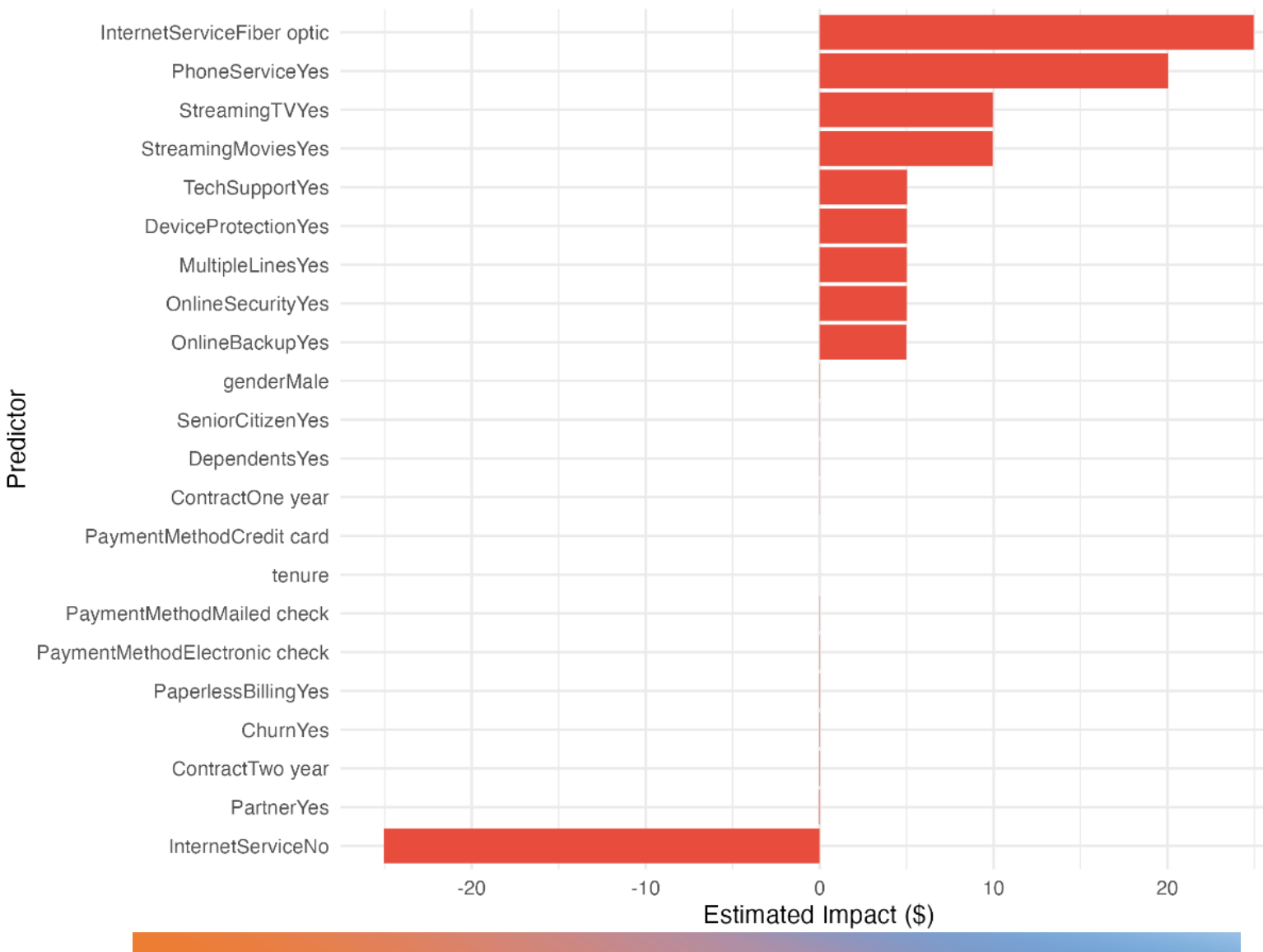




## Monthly Charges

- Key Insight: Month-to-month plans have higher and more varied charges.
- Long-term contracts = lower, more stable bills — likely due to bundling or discounts.

Regression Coefficients: Impact on Monthly Charges

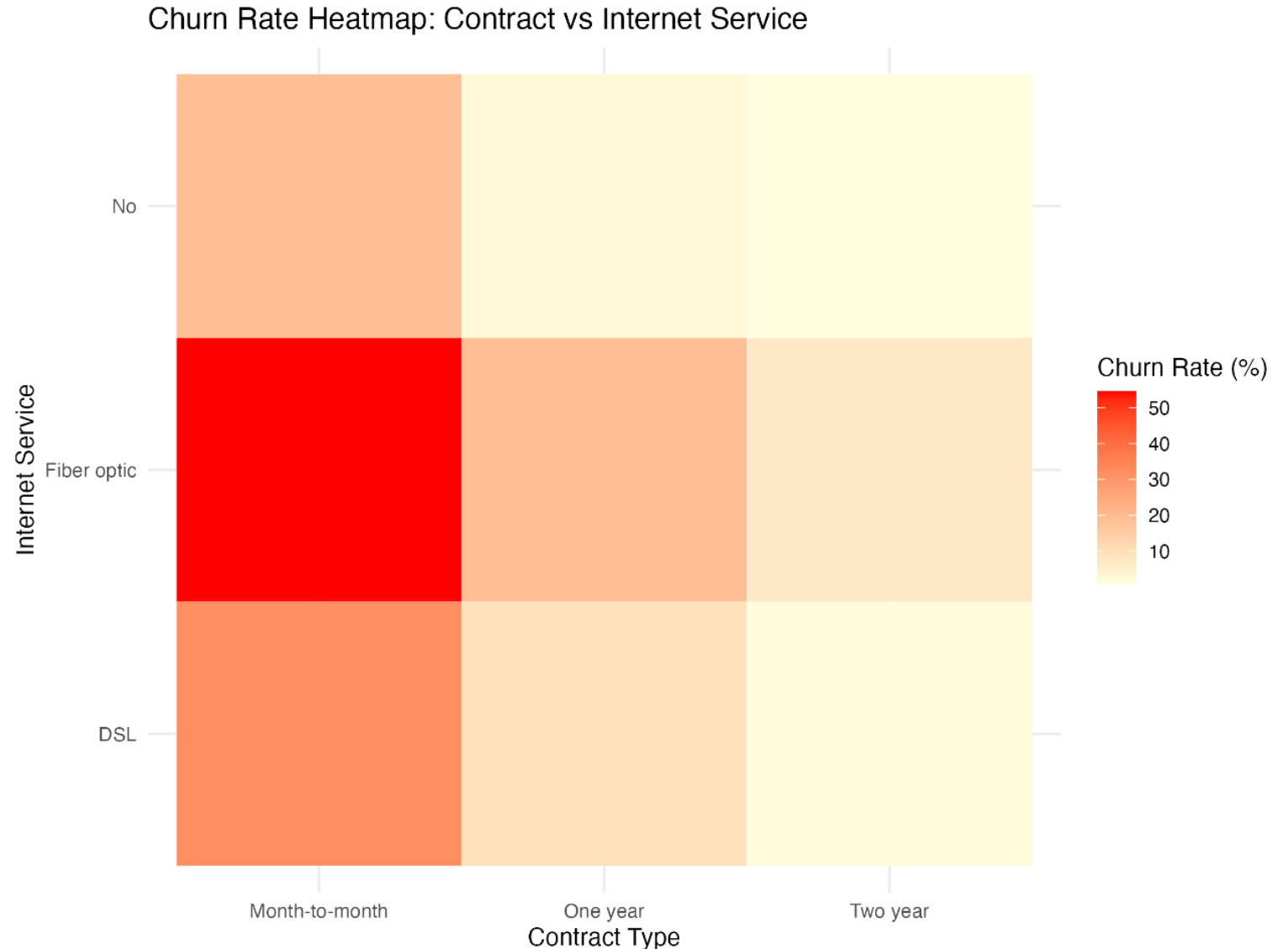


## Drivers of Monthly Charges

- Biggest cost drivers:
- Fiber optic internet
- Add-on services (StreamingTV, Tech Support)
- Month-to-month contracts
- Lower charges:
- No internet service
- Long-term contracts

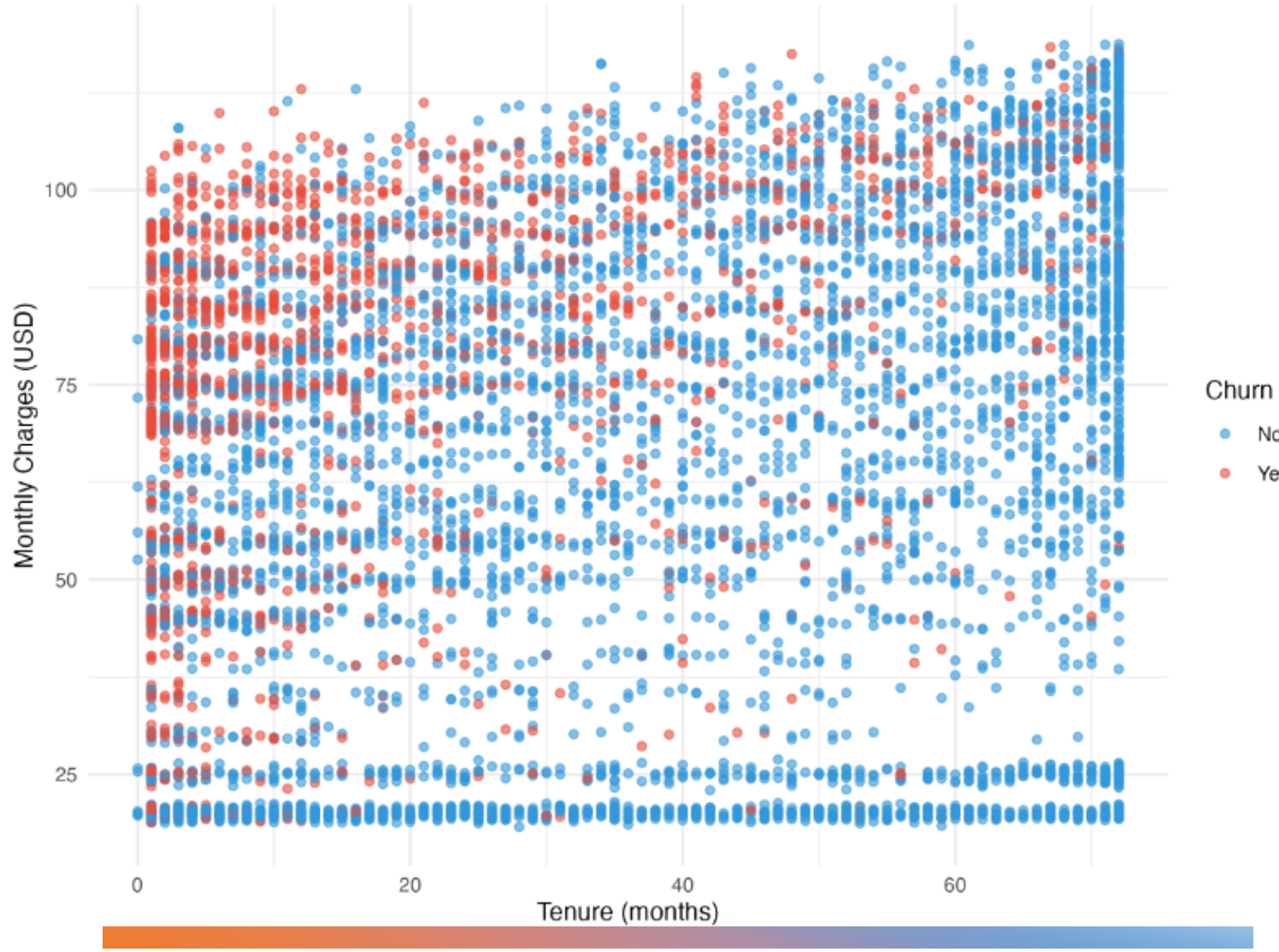
# Churn Rate by Contract Type and Internet Service

- Key Insight:** Fiber optic + month-to-month customers churn the most.
- DSL + long-term = most stable group.
- Strategy:** Offer contract incentives to fiber users or improve service quality.





Monthly Charges vs Tenure, by Churn Status



## Churn By Tenure and Monthly Charges

- **Key Insight:** New, high-paying customers churn the most.
- Loyal customers = low churn, moderate charges.
- **Opportunity:** Support early high-spenders before they churn.