**Key Insights from EDA 📊**

1️⃣ **Churn Distribution**

* The dataset is **imbalanced**: More customers stayed (No Churn) than left.
* We may need **oversampling (SMOTE)** or **undersampling** before modeling.

2️⃣ **Tenure vs. Churn**

* Customers with **shorter tenure (0-20 months)** have **higher churn rates**.
* Long-term customers (>40 months) rarely churn.
* **Possible Action:** Encourage long-term contracts to reduce churn.

3️⃣ **Monthly Charges vs. Churn**

* **Higher monthly charges = More churn** (median is higher for Yes churners).
* Customers with lower charges seem more loyal.
* **Possible Action:** Offer discounts or loyalty benefits to high-paying customers.

What we can observe for each feature:

* Gender: There is barely any difference in churn percentage between men and women;
* Senior Citizen: The churn percentage for senior customers are above 40%, indicating a high likelihood of churn from that group;
* Partner: Single customers are more likely to churn than customers with partners;
* Dependents: Customers with dependents are less likely to churn than customers without any dependents.

We could go a little further and combine the two ‘family-related’ features, ‘Partner’ and ‘Dependents’ to see if, in fact, both of them contribute to the chance of customer churn or retention.

It is expected that the majority of customers with dependents are married and, for instance, it could be that the partnership has more influence on the target than the fact that a customer has or hasn’t a child. Although this might be unlikely, by analyzing both features together, we can discard such hypothesis with more confidence.

## **4. Business Implications**

1️⃣ **Customer Retention Strategy**

* **High-Churn Groups (Month-to-month, No Tech Support, Fiber Optic users)** should be **targeted with discounts or loyalty programs**.
* **Offer bundled discounts for long-term contracts** to reduce churn.

2️⃣ **Service Upselling Opportunities**

* Customers **without security/tech support** are more likely to churn → **Upsell these services**.
* Introduce a **"trial period" for high-risk customers**.

3️⃣ **Proactive Engagement**

* If a customer’s **churn probability is >70%**, **flag them for proactive intervention**.
* **Personalized email offers** or **customer service calls** can help retain them.