# Improving Upfront Pricing Precision

- ## Introduction

  **Upfront pricing** is important in ride-hailing services because it allows riders to know how much their journey will cost ahead of time. Imagine you're booking a ride. Upfront pricing lets you see the estimated fare before you book, just like a taxi fare. This helps you:

  - **Plan your budget:** Know exactly what you'll pay beforehand, no surprises!
  - **Compare prices:** Easily compare different services and choose the best fit for your needs.

- ## Understanding Upfront Pricing

  - **Business Perspective:**
    - Upfront pricing allows riders to make informed decisions about their ride, encouraging them to choose your service over competitors.
    - It increases trust and loyalty by removing surprises at the conclusion of the journey.
    - Furthermore, precise upfront pricing helps your company maintain healthy profit margins by minimizing underpricing and ensuring that drivers are fairly compensated.
  - **Technical Perspective:**
    - Upfront pricing is based on predictive models that calculate the ultimate fee based on the projected distance and time.
    - These models combine historical ride data with real-time traffic conditions, weather forecasts, and pickup/drop-off locations.

- ## Data Analysis and Opportunities for Improvement

  - **Business Perspective:**

    The analysis focuses on identifying factors that lead to significant deviations between the upfront price and the final fare (more than a 20% difference). Excessive deviations can be detrimental to both riders and the company. Riders might feel cheated, impacting brand image and customer satisfaction. On the other hand, consistently underpricing rides can lead to revenue losses for the company.

  - **Technical Perspective:**

The given data contains a variety of parameters, such as expected and actual distance/duration, GPS signal strength, destination modifications, and rider/driver app versions. By evaluating this data, we can uncover patterns linked to big price differences. This information aids in the refinement of prediction models, increasing accuracy, and reducing disparities.

- ## Top 2 opportunities
  - **Improving prediction models for distance and time:**

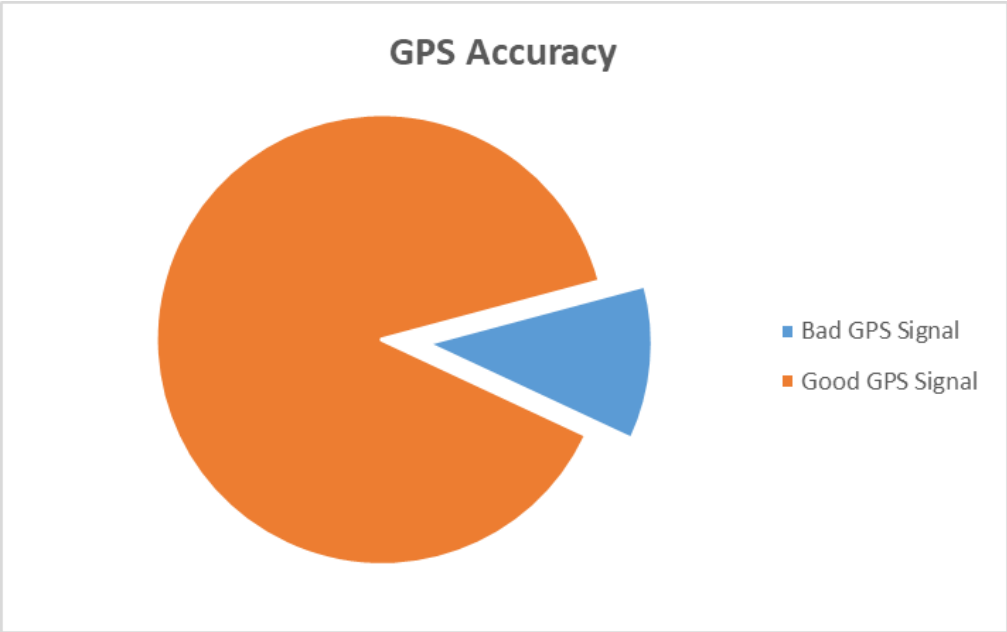
| metered_price | upfront_price | price_deviation | price_deviation_percentage |
|---|---|---|---|
| 4.04 | 10 | -5.96 | -59.6 |
| 6.09 | 3.6 | 2.49 | *69.16666667* |
| 4.32 | 3.5 | 0.82 | *23.42857143* |
| 72871.72 | | 72871.72 | 0 |
| 20032.5 | 19500 | 532.5 | 2.730769231 |

The above table shows that there is a pricing variance of more than 20%, which might contribute to lower customer satisfaction. After analyzing the overall data, I found that around 35% of the booking amount that the customers paid was greater than 20%.

**How can the company improve it?**

- Getting better at predicting time and distance: There are multiple factors due to which there is a 20% deviation in the price. It can be due to bad weather, heavy traffic, or bad GPS connections. The company should improve its prediction model to be more accurate.

  - **Impact of Bad GPS Signals on Upfront Pricing Accuracy:**




The above graph shows the ratio of a bad GPS signal to a good GPS signal. This can happen due to inaccurate location data that is entered by either the rider or the driver.

**How can the company improve it?**

- Data Filtering: In severe circumstances of low GPS signal, consider temporarily removing upfront charging for those journeys and informing the rider of the reason.
- Improve the User Experience: Communicate clearly to passengers when the GPS signal is weak and how this may affect the accuracy of upfront pricing.