

Model Development Phase Template

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| Date | 25 June 2025 |
| Team ID | LTVIP2025TMID41281 |
| Project Title | TrafficTelligence: Advanced Traffic Volume Estimation with Machine Learning |
| Maximum Marks | 5 Marks |

Feature Selection Report

In the forthcoming update, each feature will be accompanied by a brief description. Users will indicate whether it's selected or not, providing reasoning for their decision. This process will streamline decision-making and enhance transparency in feature selection.

| Feature | Description | Selected (Yes/No) | Reasoning |
|---------|-----------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------|
| holiday | this feature contains value whether current day is of holiday or not. | No | Rejected due to 99% NULL values, indicating insufficient data for analysis. |

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| temp | This feature contains the temperature in Kelvin unit | No | Excluded because temperature showed minimal impact on efficiency during training and testing so as a process of dimension reduction we rejected this column. |
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| rain | It contains the amount of rain currently raining | Yes | The amount of rain could have impact on traffic movement and volume. Like some cancelling of trips and journey due to rain. |
| snow | This column contains the amount of snowfall. | No | Not selected because 99% of the data recorded zero snowfall, leading to a large data imbalance. |
| weather | This column contains current weather like sunny, clear, foggy, etc | Yes | Weather have effect on traffic movement and volume. Like during foggy weather traffic volume might decrease or during clear and sunny weather volume might increase. |
| date | It has current date in DD-MMYYYY format | Yes | As we have deleted the holiday column, so date column is important for deciding holiday. So it is selected to help determine holidays and assess the impact of different months and years on traffic volume. |

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| Time | IT has time in 24 hours format in HH:MM: SS | Yes | Time has largest impact on traffic volume. It can be considered crucial as it greatly affects traffic volume, especially during peak office hours and midday lulls. |
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