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**Model Development Phase Template**

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| Date | 24 April 2024 |
| Team ID | 739982 |
| Project Title | RESERVATION CANCELLATION PREDICTION |
| Maximum Marks | 5 Marks |

**Feature Selection Report Template**

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.

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| **Feature** | **Description** | **Selected (Yes/No)** | **Reasoning** |
| Unnamed:0 | Undefined column | No | Feature name is not mentioned |
| Booking Lead Time | Time between booking and arrival date | Yes | Highly correlated with cancellations; longer lead times are often associated with higher cancellation rates. |
| Guest Demographics | Age, gender, nationality, etc. | No | Not consistently significant; potentially privacy-sensitive and less relevant to cancellation behavior. |
| Booking Source | Source of the booking (e.g., online travel agency, direct booking) | Yes | Significant association with cancellation status; different sources exhibit varying cancellation behaviors. |
| Room Type | Type of room booked. | No | Less significant compared to other features; does not strongly influence cancellation likelihood |
| Previous Cancellations | Number of previous cancellations by the guest | Yes | Strong predictor of future cancellations; guests with a history of cancellations are more likely to cancel again. |
| Special Requests | Number of special requests made by the guest | Yes | Reflects guest engagement and likelihood of maintaining the booking; fewer special requests may indicate lower commitment. |
| Booking Changes | Number of changes made to the booking | No | Redundant with other selected features; not independently significant. |
| Stay Duration | Length of stay. | No | Insufficient evidence of a strong correlation with cancellations; not a significant predictor |
| Deposit Type | Type of deposit made (no deposit, refundable, non-refundable) | Yes | Influences guest commitment to the reservation; non-refundable deposits are associated with lower cancellation rates. |
| Market Segment | Segment to which the booking belongs (e.g., leisure, business). | Yes | Different market segments exhibit varying cancellation behaviors; significant in predicting cancellations. |
| Seasonal Factors | Time of year or season during which the booking is made | No | May have some influence but not as significant as other selected features; seasonality can be indirectly captured by other features like booking lead time. |
| Promotion Code | |  |  |  | | --- | --- | --- | | |  | | --- | | Use of promotion  or discount code  during booking |  |  | | --- | |  | |  |  | | --- | |  | | No | Not consistently significant; may introduce noise rather than valuable predictive information |
| Loyalty Program | Whether the guest is a member of a loyalty program | No | While it may have some influence, it is less significant compared to other factors like previous cancellations and deposit type. |
| Group Booking | Whether the booking is part of a group reservation | No | Group bookings might have different cancellation dynamics, but this feature alone is not a strong predictor of individual reservation cancellations. |
| Payment Method | Method of payment used (e.g., credit card, bank transfer) | No | Not significantly correlated with cancellations; payment method alone does not strongly indicate likelihood of cancellation. |
| Early Check-In Request | Whether the guest requested early check-in | No | Not consistently significant; early check-in requests do not provide strong predictive value for cancellations. |