Model Development Phase Template

Date	15 March 2024
Team ID	738193
Project Title	Hospital Readmission Prediction Using Machine Learning
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.

Feature	Description	Selected (Yes/No)	Reasoning
Feature 1 gender	This column provide the patient gender count as male and female but also provide unnecessary columns like **Unknown/ Invalid**	Yes	As gender columns provide us necessary information related to patient gender count in hospital , accordingly we compare the rejoin count in hospital before or after 30day of Male and Female just we remove unnecessary columns like **Unknown/Invalid**

Feature	Description	Selected (Yes/No)	Reasoning

Feature 2 race	The "race" column in the Hospital Readmission Prediction dataset tells us about the racial or ethnic background of the patients. It might include categories like White, Black, Hispanic, Asian, and others	No	Information about the racial or ethnic background of the patients is not available in this dataset.
Feature 3 payer_code	It might include codes representing different insurance companies or government programs like Medicare or Medicaid. This information helps researchers understand how different types of insurance coverage relate to hospital readmission rates.	No	Information about the specific type of health insurance or payer covering the patient's medical expenses is not available in this dataset.

Feature	Description	Selected (Yes/No)	Reasoning
Feature 4 medical_specialty	It might include specialties like cardiology, neurology, orthopedics, and many others. This information helps researchers understand if the specialization of the medical provider has any influence on hospital readmission rates.	No	Information about the specific field of medicine that the doctor or healthcare provider specializes in is not available in this dataset
Feature 5 weight	It might include measurements in kilograms or pounds.However it's important to note that this column might not always be included or filled out, as weight information might not be available for all patients	No	Not included, Since Information about the weight of the patients recorded during their hospital visit is not available in this dataset

Feature	Description	Selected (Yes/No)	Reasoning
Feature 6 encounter_id	It is a unique identifier assigned to each patient encounter, or visit to the hospital. It helps to distinguish one patient visit from another. This ID is used for tracking and organizing patient data within the dataset.	No	Unique identifiers assigned to each patient encounter or visit to the hospitalare not available in this dataset.

Feature 7 patient_nbr	It is a unique identifier assigned to eachpatient. It helps to distinguish one patient from another within the dataset. This number is used to track and organize patient-related information, such as their medical history and treatments, throughout the dataset.	No	We did not include the "patient_nbr" column in the Hospital Readmission Prediction dataset. This means that unique identifiers assigned to each patient are not available in this dataset.

Feature 8 citoglipton	If a patient received citoglipton, the value in this column would typically be Yes," otherwise it would be "No." This information helps researchersanalyze the impact of this specificmedicatio nonpatientoutco mes and readmissionrates	No	Information about whether the drug "citoglipton" was administered to patients during their treatment is not available in this dataset.

Feature	Description	Selected (Yes/No)	Reasoning
Feature 9 examide	If a patient received examide, the value in this column would typically be "Yes," otherwise it would be "No." This information helps researchers analyze the impact of this specific medication on patient outcomes and readmission rates.	No	Information about whether the drug "examide" was administered to patients during their treatment is not available inthis dataset.

Feature	Description	Selected (Yes/No)	Reasoning
Feature 10 A1Cresult	It shows the result of the A1Ctest for each patient. This testmeasures the average blood sugar level over the past two to	Yes	We included the "A1Cresult" column in the Hospital Readmission Prediction dataset. This column shows the result ofthe A1C test for each patient, which measures their average blood sugar level over the past two to three months.The results are categorized into different levels like "Normal,"

	three months. The results are categorized into different levels, such as "Normal," "Abnormal," "None" (if the test wasn't conducted), or "Not tested." This information helps healthcare providers monitor and manage diabetesin patients, whichcan affect their likelihood of hospital readmission.		"Abnormal," "None" (if the test wasn't conducted), or "Not tested." This helps healthcare providers monitor and manage diabetes in patients, which canaffect their likelihood of hospital readmission.

Feature	Description	Selected (Yes/No)	Reasoning
Feature 11 max_glu_se rum	It indicates the highest glucose serum test result recorded for each patient during their hospital visit. Glucose serum tests measure the level of sugar	Yes	This column shows the highest glucose serum test result recorded for each patient during their hospital visit. Glucose serum tests measure the level of sugar in the blood. The results in this column are typically categorized as "Normal," "Abnormal," "None" (if the test wasn't conducted), or "Not tested."

	in the blood. The results in this column are typically categorized as "Normal," "Abnormal," "None" (if the test wasn't conducted), or "Not tested."		

Feature	Description	Selected (Yes/No)	Reasoning
Feature 12 metformin	It indicates whether the medication "metformin" was prescribed to patients during their treatment. If a patient received metformin, the value in this column would typically be "Yes," indicating they were prescribed the medication. If not, the value would be "No."	Yes	It helps us understand if patients were prescribed the medication "metformin" during their treatment. By knowing whether patients received metformin ornot, we can study its impact on patient outcomes, particularly in managing conditions like diabetes, and how it relates to the likelihood of hospital readmission. This information is valuable for healthcare research and improving patient care strategies.

Feature	Description	Selected (Yes/No)	Reasoning
Feature 13 repaglinide	It indicates whether the medication "repaglinide" was prescribed to patients during their treatment. If a patient received repaglinide, the value in this column would typically be "Yes," indicating they were prescribed the medication. If not, the value would be "No."	Yes	This information helps us study the medication's impact on patient outcomes, especially in managing conditions like diabetes. By analyzing whether patients received repaglinide or not, we can better understand its association with hospital readmission rates and improve healthcare strategies accordingly.
Feature 14 chlorpropam ide	If a patient received chlorpropamide, the value in this column would typically be "Yes," indicating they were prescribed the medication. If not, the value would be "No." This information helps researchers analyze the	Yes	This information helps us study the medication's impact on patient outcomes, especially in managing conditions like diabetes. By analyzing whether patients received chlorpropamide or not, we can better understand its association with hospital readmission rates andimprove healthcare strategies accordingly.

	impact of chlorpropamide usage on patient outcomes and readmission rates, particularly in managing conditions like diabetes.		

Feature	Description	Selected (Yes/No)	Reasoning
Feature 15 nateglinide	It indicates whether the medication "nateglinide" was prescribed to patients during their treatment. If a patient received nateglinide, the value in this column would typically be "Yes," indicating they were prescribed the medication. If not, the value would be "No."	Yes	If patients were prescribed the medication "nateglinide" during their treatment. This information helps us study the medication's impact on patient outcomes, especially in managing conditions like diabetes. By analyzing whether patients received nateglinide or not,we can better understand its association with hospital readmission rates and improve healthcare strategies accordingly

Feature 16 chlorpropam ide	If a patient received chlorpropamide, the value in this column would typically be "Yes," indicating they were prescribed the medication. If not, the value would be "No." This information helps researchers analyze the impact of chlorpropamide usage on patient outcomes and readmission rates, particularly in managing conditions like diabetes.	Yes	This information helps us study the medication's impact on patient outcomes, especially in managing conditions like diabetes. By analyzing whether patients received chlorpropamide or not, we can better understand its association with hospital readmission rates andimprove healthcare strategies accordingly.

Feature 17 insulin	If a patient received insulin, the value in this column would typically be "Yes," indicating they were prescribed the medication. If not, the value would be "No." This information helps researchersanalyze the impact of insulin usage on patientoutcomes and	Yes	This information helps us study the impact of insulin usage on patient outcomes, especially in managing conditions like diabetes. By analyzing whether patients receivedinsulin or not, we can better understand its association with hospital readmission rates and improve healthcare strategies accordingly.

	readmission rates, particularlyin managing conditions like diabetes.		

Feature 18 diabetesMed	If indicates whether a patient was prescribed any medication for diabetes duringtheir treatment. If a patient received medication for diabetes, the value in this column would typically be "Yes," indicating they were prescribed medication. If not, the value would be "No."	Yes	It Understand if patients were prescribed medication for diabetes during their treatment. This information helps us study the impact of diabetes medication on patient outcomes, such as hospital readmission rates. By analyzing whether patients were prescribed diabetes medication or not, we can better understand how medication adherence affects healthcare outcomes and improve treatment strategies accordingly