Model Development Phase

Date	3 July 2024
Team ID	740011
Project Title	Thyroid Classification using ML
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
Age	Age of the patient	Yes	Age is a critical factor in thyroid conditions. Different age groups may have different prevalence rates and symptoms.
Sex	Sex of the patient	Yes	Sex influences the likelihood of thyroid diseases, with females being more prone to thyroid issues.
on_thyroxine	Currently on thyroxine medication	Yes	This medication directly affects thyroid function tests and is essential for diagnosis.
query_on_thyroxine	Currently on thyroxine medication	Yes	Important to determine if patient history indicates prior thyroxine treatment.

on_antithyroid_medication	Currently on antithyroid medication	Yes	Indicates treatment for hyperthyroidism, affecting diagnosis and management.
sick	Currently sick	Yes	Illness can impact thyroid function and test results, making this a necessary feature.
pregnant	Pregnancy status	Yes	Pregnancy significantly affects thyroid function and requires distinct clinical management.
thyroid_surgery	History of thyroid surgery	Yes	Past thyroid surgery can alter thyroid function and influence current health status.
I131_treatment	History of I131 treatment	Yes	Radioactive iodine treatment affects thyroid tissue and is relevant for diagnosis.
query_hypothyroid	Query if hypothyroid	Yes	Helps identify patients with suspected underactive thyroid for further testing.
query_hyperthyrroid	Query if hyperthyroid	Yes	Identifies patients with suspected overactive thyroid for targeted diagnostics.
lithiium	History of lithium use	Yes	Lithium can cause thyroid dysfunction and needs to be considered in the diagnosis.
goitre	Presence of goitre	Yes	Visible enlargement of the thyroid gland is a key clinical sign in thyroid disease.

Tumor	Presence of thyroid tumor	**Yes**	Tumors can affect thyroid function and require specific clinical attention.
hypopituitary	Hypopituitary condition	**Yes**	Pituitary gland issues can alter thyroid hormone levels, impacting diagnosis.
Psych	Psychological status	**Yes**	Psychological health can be affected by or affect thyroid conditions, making it a relevant feature.
TSH_measured	TSH (Thyroid Stimulating Hormone) measured	**Yes**	TSH levels are a primary indicator of thyroid function and crucial for diagnosis.
TSH	TSH value	**Yes**	The actual TSH value provides direct insight into thyroid gland activity.
T3_measured	T3 (Triiodothyronine) measured	**Yes**	Measuring T3 helps diagnose hyperthyroidism and assess thyroid function.
T3	T3 value	**Yes**	The T3 value is essential for a detailed understanding of thyroid status.
TT4_measured	TT4 (Total Thyroxine) measured	**Yes**	Measuring TT4 helps in assessing thyroid hormone levels in the body
TT4	TT4 value	**Yes**	The TT4 value is important for evaluating overall thyroid function

T4U_measureds	T4U (Thyroxine Uptake) measured	**Yes**	T4U measurement helps in understanding thyroid hormone transport and availability.
T4U	T4U value	**Yes**	The T4U value aids in the comprehensive analysis of thyroid function.
FTI_measured	FTI (Free Thyroxi	**Yes**	FTI provides an index of free thyroid hormone, critical for diagnosis.
FTI	FTI value	**Yes**	FTI provides an index of free thyroid hormone, critical for diagnosis.
TBG_measured	TBG (Thyroxine-Binding Globulin) measured	**No**	TBG measurement is less commonly needed and may not provide additional diagnostic value
TBG	TBG value	**No**	The TBG value is not essential for routine thyroid function evaluation.
Referral_source	Source of patient r	**No**	Referral source does not directly impact the diagnosis or management of thyroid conditions.
target	Target classification label	**No**	Target labels are used for model training, not feature selection.