

Model Development Phase Template

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| Date | 3 July 2024 |
| Team ID | 739901 |
| Project Title | Thyroid Classification using ML |
| 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 |
|--------------------|-----------------------------------|-------------------|--|
| 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. |

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| 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_hyperthyroid | Query if hyperthyroid | Yes | Identifies patients with suspected overactive thyroid for targeted diagnostics. |
| lithium | 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. |

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| 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 |

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| 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 Thyroxine Index) | 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 referral | 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. |