Model Development Phase Template

Date	17 June 2025
Team ID	SWTID1749653449
Project Title	Economic Growth: A Machine Learning Approach to GDP per Capita Prediction
Maximum Marks	6 Marks

Model Selection Report

In the forthcoming Model Selection Report, various models will be outlined, detailing their descriptions, hyperparameters, and performance metrics, including Accuracy or F1 Score. This comprehensive report will provide insights into the chosen models and their effectiveness.

Model Selection Report:

Model	Description	Hyperparameters	Performance Metric (R^2 Score)
Linear Regression	A basic statistical model assuming a linear relationship between input features and GDP per capita. Simple, fast, and interpretable but limited with non-linearity.	Default (no tuning)	**0.78**
Random Forest Regressor	An ensemble method of decision trees;	`n_estimators=100`, `max_depth=None`, `random_state=42`	**0.91**

	captures non-linear relationships well, reduces overfitting, and offers good generalization performance for GDP prediction.		
Support Vector Regressor (SVR)	Predicts GDP using support vectors and kernel functions; handles high-dimensional data but sensitive to feature scaling and parameter tuning.	`kernel='rbf', C=1.0, epsilon=0.1`	**-0.26** *(Poor performance)*