**Corporation ESG Grade Classifying model based on Financial Statements**

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* Introduction
* Topic: To classify domestic corporation ESG Grade based on financial statements
* A brief literature review
  + The authors built an algorithm that classifies corporate's ESG grade (2023.03.21.).
  + They collected numeric values representing corporate’s financial statement as well as ESG overall rating offered by Korean Institute of Corporate governance and sustainability.
  + By considering past data from 2019 to 2021, they could obtain 1,780 rows with 13 columns.

- Dataset: 1,780 rows x 13 cols

- Predictor Variable: 12 varibles

- Target Variable: 1 variable (Binary)

* Overall plan
  + Follow thesis paper's methodology using the same Variables
  + Add the number of data instances by expanding the period and collecting past data
  + Extract additional Financial Features according to other papers
  + We will try to get Highly Accurate classifying ML model and find The Important Features
* Teammate and work division
* Topic selection & planning: Koo Minkyu
* Dataset preparation: Park Minseung
* Model selection & training: ALL
* Evaluation & parameter tuning: ALL
* Problem Statement
* problem definition
  + To classify domestic corporation ESG grade based on financial statements
  + To Find important variables that impacts ESG activities
* Approach
  + Broader approach than Thesis Paper
  + ML algorithm that predicts Future ESG overall grades based on corporation’s financial statement
* Dataset
  + Financial statements from DART(Data Analysis, Retrieval and Transfer System)
  + ESG grades By Korean Institute of Corporate governance and sustainability
* Hypthesis
  + The Higher Financial Structure and Growth index, The Higher ESG Grade
  + Executive Growth and the Ratio of outside executives will be the powerful features
* Expected results and evaluation
* Technical Approach
* Algorithms: Logistic regression, randomforest, deep neural networks
* Results and evaluation metrics: Accuracy, F1-score, and AUR-ROC curve
* Limitations
  + Low number of whole domestic companies
  + Company Data instances' dependency issue when retrieving past record