Using Machine Learning Analysis to Predict How Parenting Methods Impact Child Development

Abstract
Child development is a topic that will always be relevant since it is the process that each person goes through in the early years of their lives. The factors influencing this development vary, and we're particularly interested in learning about the different ways that parents are involved in their child's life. We found a suitable dataset that focuses on children in primary to middle school and explores how engaged the parents of those children are in their school life, how they display discipline, warmth, and emotional support, how they create the home environment, etc.

Problem
Using questionnaires given to parents, our system should be able to predict which aspects of parenting habits lead to different characteristic development for their children. Motivation, attentiveness, effort, and other behavioral traits are ranked on a scale of 1-4. In the context of motivation, a (1) would mean "very low motivation," (2) is "low motivation," (3) is "high motivation," and (4) would be "very high motivation."

Input
The input is the responses to each of the questions provided by the parents from the questionnaire.

Output
The output would show areas of child development, and each area will be assigned the appropriate scaling.

ML Technique
We decided to implement supervised learning because we think it's the most efficient method to help us classify the input into different categories to give the correct output.

Dataset
Number of data points: 40k+ Number of features: 10

Provided below is a detailed description of our dataset:
https://nces.ed.gov/ecls/dataproducts.asp#ECLS-B
https://nces.ed.gov/ecls/kinderdatainformation.asp