Exploring the Relationship Between Feature Attribution Methods and Model Performance

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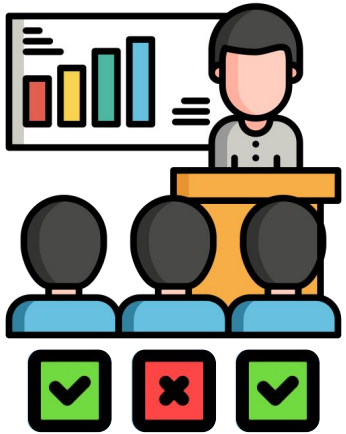
Motivation

Educational Context

ML models

Predictions



Why?

Image: Flaticon.com

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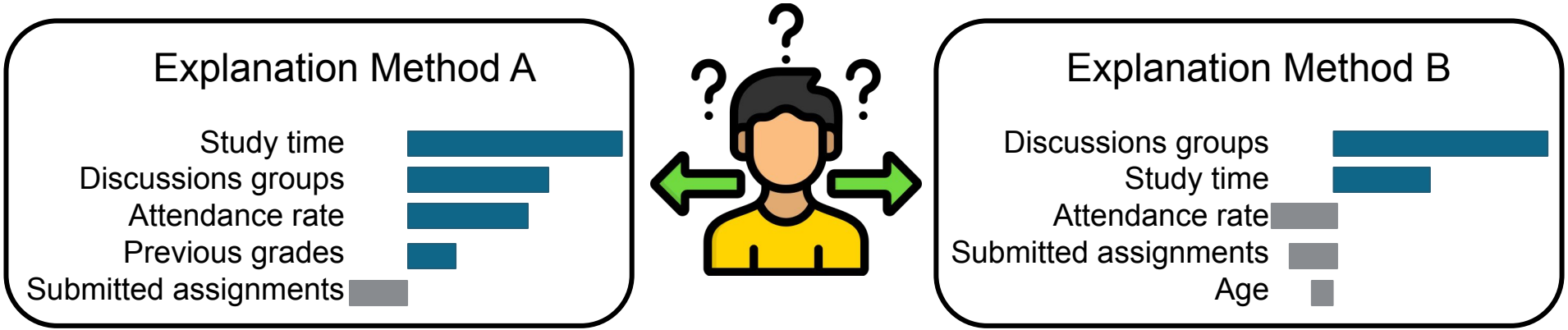
Feature Attribution Methods

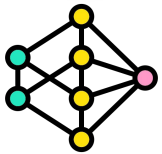
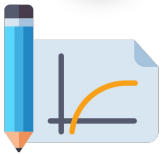
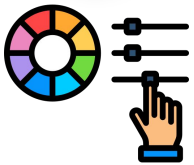


Research Question

Is there a correlation between the model's performance and the disagreement level observed among explanation methods?

Study methodology

1. Two datasets
2. Training a Neural Network
3. AUC Metric
4. 9 Feature attribution techniques
5. Measure (dis)agreement
6. Spearman's rank correlation

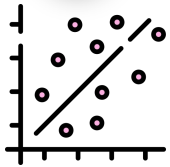
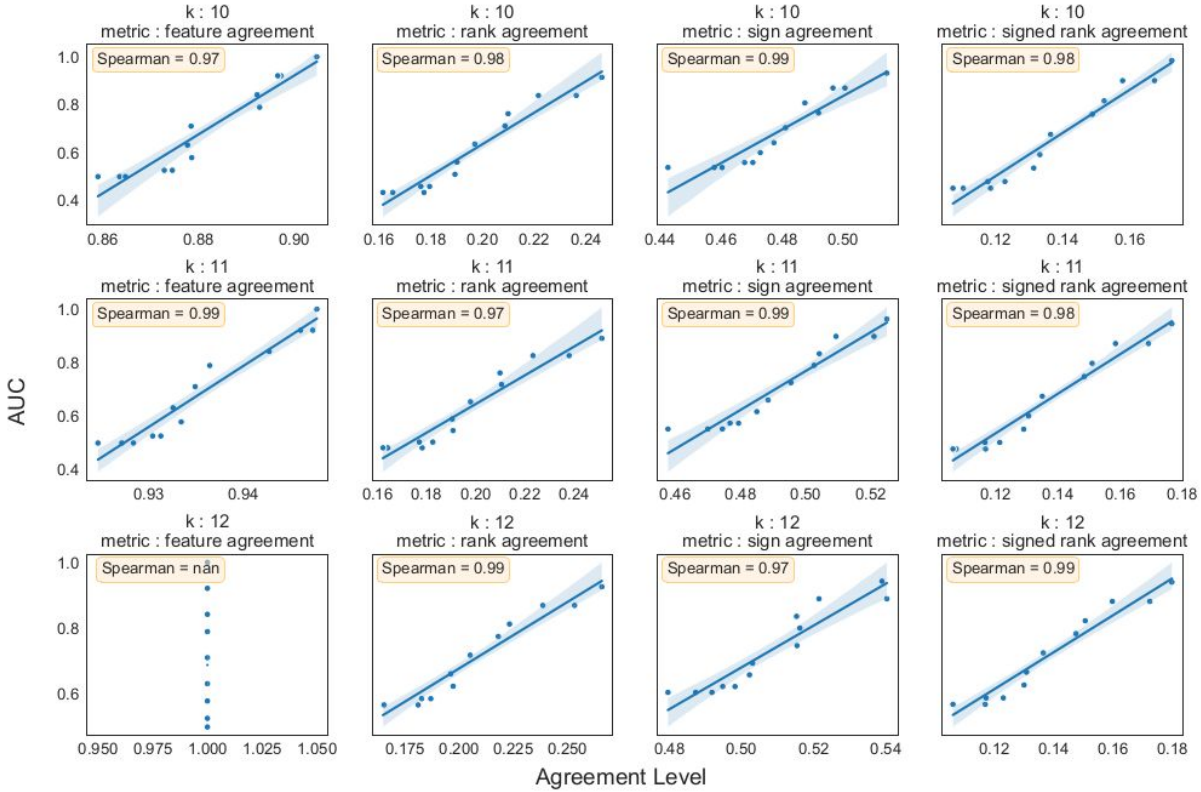


Image: Flaticon.com

Results

Our results show that models with an AUC greater than or equal to 0.8 consistently exhibit the highest levels of agreement among explanation methods.



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