CYBR101 Final Project DANMU AGU

Project Title:

The Impact of AI Adoption, Revenue Increase, and AI-Generated Content on Human-AI Collaboration Across Countries

1. Statement of the Problem

This project aims to explore the factors that influence the level of human-AI collaboration across countries and industries. As AI becomes increasingly embedded in global business operations, it is important to understand whether AI adoption rate, AI-generated content, and AI-driven revenue growth affect the degree to which organizations adopt collaborative strategies between humans and AI systems.

2. Dataset

The dataset, titled aidata.csv, includes records from multiple countries. (sources: Kaggle)

The features selected for this analysis include:

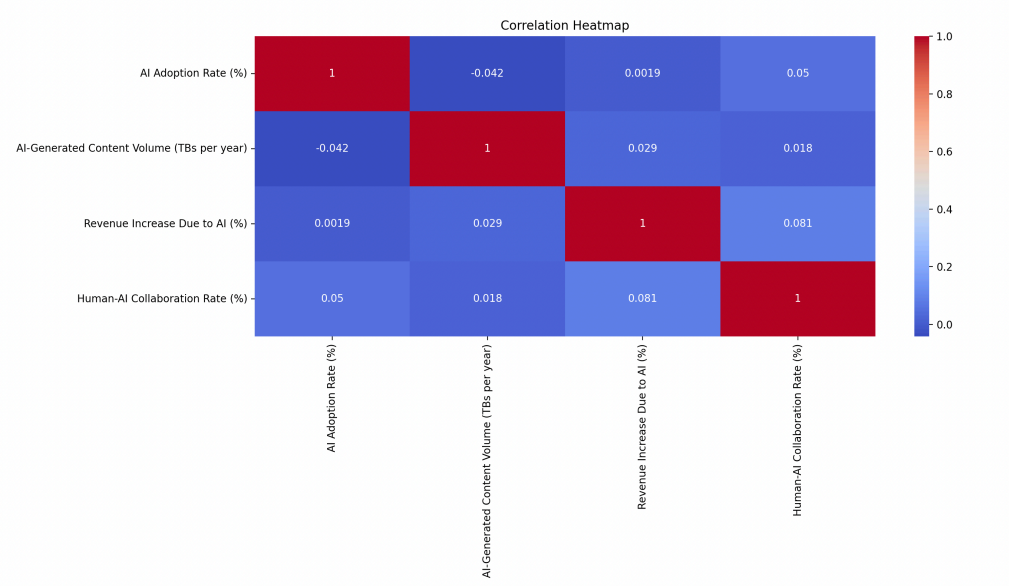
- AI Adoption Rate (%)
- AI-Generated Content Volume (TBs per year)
- Revenue Increase Due to AI (%)
- Human-AI Collaboration Rate (%)

The dataset contained over 200 valid entries after removing rows with missing values. A basic cleaning step (dropna) was applied to ensure consistency.

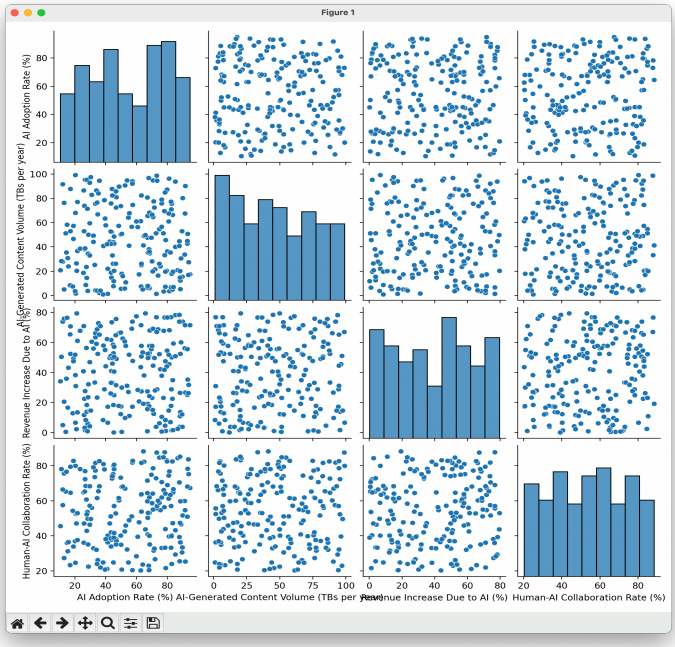
3. Results

I performed a correlation analysis and multiple linear regression to investigate the relationships among the variables.

Heatmap of Correlation:



The correlation matrix shows that revenue increase due to AI is positively correlated with human-AI collaboration rate, while the other two predictors show weaker or insignificant correlations.



Regression Summary:

Regression results indicate that revenue increase due to AI is a statistically significant predictor ($p < 0.05$) of the collaboration rate, while AI adoption rate and AI-generated content volume are not significant in this model.

4. Functionality Overview

The program was developed using Python with libraries including pandas, seaborn, matplotlib, and statsmodels. The program performs the following steps:

1. Data loading and cleaning using pandas
2. Correlation analysis and visualization with seaborn heatmaps
3. Multiple linear regression using statsmodels.OLS
4. Scatterplot matrix creation to visualize relationships between variables

Charts were generated to support the interpretation of the results and to identify possible patterns

5. Conclusion

The analysis suggests that revenue growth from AI plays a meaningful role in increasing human-AI collaboration, which could be due to better infrastructure, incentives, or readiness in organizations benefiting financially from AI. On the other hand, raw AI adoption and content generation volume did not show a significant impact, indicating that simply using AI does not necessarily lead to collaboration.

Future work could focus on industry-specific patterns, the role of regulation, and the long-term trends in collaboration over time.