# **DS5500 Data Science Capstone**

# Automated Grading of Handwritten Assignments in Mathematics

### **Weekly Report for week commencing 10 March 2024**

Project Description:

The primary goal of this project is to leverage the latest advancements in HMER and MLP to develop a comprehensive solution for the automatic grading of handwritten math assignments at the school level. By combining these technologies, this project aims to address the challenges associated with grading handwritten math assignments and enhance the efficiency and effectiveness of math education.

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| Tasks accomplished last week |
| Troubleshooted encoder-decoder model |
| Revisited Literature to find alternate approaches |
| Trained and tested Segmentation and Symbol Recognition models |
| Developing the expression tree algorithm for grading comparison |

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| Tasks to be accomplished next week |
| Complete the algorithm and compare answers |
| Implement grading strategies and algorithms |
| Add line segmentation for longer answers (additional features) |

Issues or changes:

Changed symbol recognition and tree building algorithm due to practical difficulties.

## Progress demonstrated with a sample:

Original Image:

A black text on a white background

Description automatically generated

Segmentation Output:

A black and white text

Description automatically generated with medium confidence

Symbol Recognition Output:

A black screen with white text

Description automatically generated

Expression Tree:

A diagram of a graph

Description automatically generated