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EEE4334

Code:

A computer screen shot of text

Description automatically generated

A computer screen shot of text

Description automatically generated

A screen shot of a computer program

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A screenshot of a computer program

Description automatically generated

PLA code submission:

A computer screen shot of a black screen

Description automatically generated

PLA processing:

A screenshot of a computer

Description automatically generated

Using Malloc instead of fgets :

A screenshot of a computer

Description automatically generated

PLA code breakdown:

The code below takes in input logic in the form of PLA and minimizes the number of terms in its truth table. It reads the file which contains a truth table and inputs and outputs. There are functions that process the data such as parse\_pla by processing the input file to extract the number of inputs, outputs, and dynamically stores input and output labels and populated the truth table with the data from the file. After parsing, the function print\_pla displays the original PLA data, including the number of inputs/outputs and the complete truth table. (images shown above)

The main functionality of the program is in the minimize\_pla function, which attemps to combine terms in the truth table to reduce its size. The combines\_terms function compares pairs of the truth table rows and combines them if they differ by exactly one input bit. The combined result marks the don’t cares and keeps the output the same. If two terms are successfully combined, one of the original rows is marked as unused, therefore removing it from the truth table. The goal is to reduce the number of rows in the table while maintain the over logic.

After minimization, the simplifies PLA is save into an output file with the same format as the input using the save\_minimization\_pla function. This file includes the number of input and outputs, the input/output labes, and the reduces truth table. The overall purpose of the code is to optimize a given PLA by combining terms that have minimal differences, taking away complexity.

Output PLA:

A computer screen with white text

Description automatically generated

The variables label are not showing due the fact the parsing of the PLA handling but it is shown minimized truth table and the correct amount of inputs and outputs