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Matrix Calculator Project

The Matrix Calculator project is a Haskell application program that uses the command-line interface to interact with users for performing matrix operations. The application supports following matrix operations functionalities:

Identity Matrix

- ➔ Generate an identity matrix of a given size.
- ➔ Makes in the one size value of a matrix.

Matrix Transposition

- ➔ Transpose a given matrix.
- ➔ Takes in elements of a matrix and the matrix.

Matrix Scalar Multiplication

- ➔ Multiply a matrix by a scalar value.
- ➔ Takes in a Scalar Value and a matrix, then map with a multiplication recursively.

Matrix Addition

- ➔ Add two matrices elementwise.
- ➔ Takes two matrices' elements and zip with addition function (+)

Matrix Subtraction

- ➔ Subtract one matrix from another elementwise.
- ➔ Takes two matrices' elements and zip with subtraction function (-)

Matrix Multiplication

- ➔ Multiply two matrices using the standard matrix multiplication rules.
- ➔ Takes two matrices' elements, transpose the second matrix so that the rows become the columns allowing to first strictly zip with multiplication then sum or fold the elements.

Users can use the matrix calculator application by selecting an action/operation from a provided menu and then provide the necessary input values, such as matrix sizes and elements through the command line. Pure functions were separated from the I/O operations for all computational logic by separating them and the I/O operations.