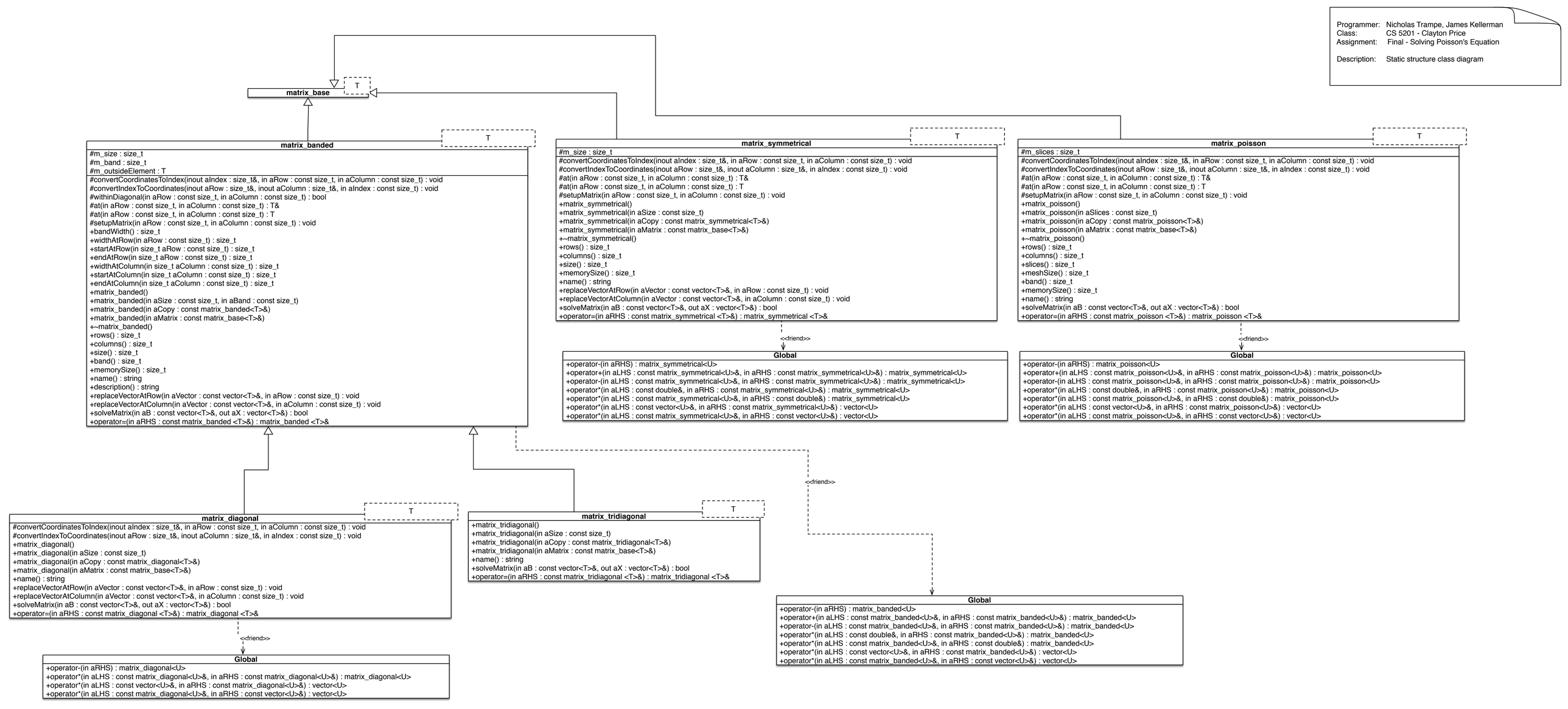
Programmer: Nicholas Trampe, James Kellerman
Class: CS 5201 - Clayton Price
Assignment: Final - Solving Poisson's Equation
Description: Static structure class diagram
matrix_base
T
matrix_banded
T
#m_size : size_t
#m_band : size_t
#m_outsideElement : T
#convertCoordinatesToIndex(inout aIndex : size_t&, in aRow : const size_t, in aColumn : const size_t) : void
#convertIndexToCoordinates(inout aRow : size_t&, inout aColumn : size_t&, in aIndex : const size_t) : void
#withinDiagonal(in aRow : const size_t, in aColumn : const size_t) : bool
#at(in aRow : const size_t, in aColumn : const size_t) : T&
#at(in aRow : const size_t, in aColumn : const size_t) : T
#setupMatrix(in aRow : const size_t, in aColumn : const size_t) : void
+bandWidth() : size_t
+widthAtRow(in aRow : const size_t) : size_t
+startAtRow(in size_t aRow : const size_t) : size_t
+endAtRow(in size_t aRow : const size_t) : size_t
+widthAtColumn(in size_t aColumn : const size_t) : size_t
+startAtColumn(in size_t aColumn : const size_t) : size_t
+endAtColumn(in size_t aColumn : const size_t) : size_t
+matrix_banded()
+matrix_banded(in aSize : const size_t, in aBand : const size_t)
+matrix_banded(in aCopy : const matrix_banded<T>&)
+matrix_banded(in aMatrix : const matrix_base<T>&)
+~matrix_banded()
+rows() : size_t
+columns() : size_t
+size() : size_t
+band() : size_t
+memorySize() : size_t
+name() : string
+description() : string
+replaceVectorAtRow(in aVector : const vector<T>&, in aRow : const size_t) : void
+replaceVectorAtColumn(in aVector : const vector<T>&, in aColumn : const size_t) : void
+solveMatrix(in aB : const vector<T>&, out aX : vector<T>&) : bool
+operator=(in aRHS : const matrix_banded <T>&) : matrix_banded <T>&
matrix_symmetrical
T
#m_size : size_t
#convertCoordinatesToIndex(inout aIndex : size_t&, in aRow : const size_t, in aColumn : const size_t) : void
#convertIndexToCoordinates(inout aRow : size_t&, inout aColumn : size_t&, in aIndex : const size_t) : void
#at(in aRow : const size_t, in aColumn : const size_t) : T&
#at(in aRow : const size_t, in aColumn : const size_t) : T
#setupMatrix(in aRow : const size_t, in aColumn : const size_t) : void
+matrix_symmetrical()
+matrix_symmetrical(in aSize : const size_t)
+matrix_symmetrical(in aCopy : const matrix_symmetrical<T>&)
+matrix_symmetrical(in aMatrix : const matrix_base<T>&)
+~matrix_symmetrical()
+rows() : size_t
+columns() : size_t
+size() : size_t
+memorySize() : size_t
+name() : string
+replaceVectorAtRow(in aVector : const vector<T>&, in aRow : const size_t) : void
+replaceVectorAtColumn(in aVector : const vector<T>&, in aColumn : const size_t) : void
+solveMatrix(in aB : const vector<T>&, out aX : vector<T>&) : bool
+operator=(in aRHS : const matrix_symmetrical <T>&) : matrix_symmetrical <T>&
matrix_poisson
T
#m_slices : size_t
#convertCoordinatesToIndex(inout aIndex : size_t&, in aRow : const size_t, in aColumn : const size_t) : void
#convertIndexToCoordinates(inout aRow : size_t&, inout aColumn : size_t&, in aIndex : const size_t) : void
#at(in aRow : const size_t, in aColumn : const size_t) : T&
#at(in aRow : const size_t, in aColumn : const size_t) : T
#setupMatrix(in aRow : const size_t, in aColumn : const size_t) : void
+matrix_poisson()
+matrix_poisson(in aSlices : const size_t)
+matrix_poisson(in aCopy : const matrix_poisson<T>&)
+matrix_poisson(in aMatrix : const matrix_base<T>&)
+~matrix_poisson()
+rows() : size_t
+columns() : size_t
+slices() : size_t
+meshSize() : size_t
+band() : size_t
+memorySize() : size_t
+name() : string
+solveMatrix(in aB : const vector<T>&, out aX : vector<T>&) : bool
+operator=(in aRHS : const matrix_poisson <T>&) : matrix_poisson <T>&
<<friend>>
Global
+operator-(in aRHS) : matrix_symmetrical<U>
+operator+(in aLHS : const matrix_symmetrical<U>&, in aRHS : const matrix_symmetrical<U>&) : matrix_symmetrical<U>
+operator-(in aLHS : const matrix_symmetrical<U>&, in aRHS : const matrix_symmetrical<U>&) : matrix_symmetrical<U>
+operator*(in aLHS : const double&, in aRHS : const matrix_symmetrical<U>&) : matrix_symmetrical<U>
+operator*(in aLHS : const matrix_symmetrical<U>&, in aRHS : const double&) : matrix_symmetrical<U>
+operator*(in aLHS : const vector<U>&, in aRHS : const matrix_symmetrical<U>&) : vector<U>
+operator*(in aLHS : const matrix_symmetrical<U>&, in aRHS : const vector<U>&) : vector<U>
<<friend>>
Global
+operator-(in aRHS) : matrix_poisson<U>
+operator+(in aLHS : const matrix_poisson<U>&, in aRHS : const matrix_poisson<U>&) : matrix_poisson<U>
+operator-(in aLHS : const matrix_poisson<U>&, in aRHS : const matrix_poisson<U>&) : matrix_poisson<U>
+operator*(in aLHS : const double&, in aRHS : const matrix_poisson<U>&) : matrix_poisson<U>
+operator*(in aLHS : const matrix_poisson<U>&, in aRHS : const double&) : matrix_poisson<U>
+operator*(in aLHS : const vector<U>&, in aRHS : const matrix_poisson<U>&) : vector<U>
+operator*(in aLHS : const matrix_poisson<U>&, in aRHS : const vector<U>&) : vector<U>
matrix_diagonal
T
#convertCoordinatesToIndex(inout aIndex : size_t&, in aRow : const size_t, in aColumn : const size_t) : void
#convertIndexToCoordinates(inout aRow : size_t&, inout aColumn : size_t&, in aIndex : const size_t) : void
+matrix_diagonal()
+matrix_diagonal(in aSize : const size_t)
+matrix_diagonal(in aCopy : const matrix_diagonal<T>&)
+matrix_diagonal(in aMatrix : const matrix_base<T>&)
+name() : string
+replaceVectorAtRow(in aVector : const vector<T>&, in aRow : const size_t) : void
+replaceVectorAtColumn(in aVector : const vector<T>&, in aColumn : const size_t) : void
+solveMatrix(in aB : const vector<T>&, out aX : vector<T>&) : bool
+operator=(in aRHS : const matrix_diagonal <T>&) : matrix_diagonal <T>&
matrix_tridiagonal
T
+matrix_tridiagonal()
+matrix_tridiagonal(in aSize : const size_t)
+matrix_tridiagonal(in aCopy : const matrix_tridiagonal<T>&)
+matrix_tridiagonal(in aMatrix : const matrix_base<T>&)
+name() : string
+solveMatrix(in aB : const vector<T>&, out aX : vector<T>&) : bool
+operator=(in aRHS : const matrix_tridiagonal <T>&) : matrix_tridiagonal <T>&
<<friend>>
Global
+operator-(in aRHS) : matrix_diagonal<U>
+operator*(in aLHS : const matrix_diagonal<U>&, in aRHS : const matrix_diagonal<U>&) : matrix_diagonal<U>
+operator*(in aLHS : const vector<U>&, in aRHS : const matrix_diagonal<U>&) : vector<U>
+operator*(in aLHS : const matrix_diagonal<U>&, in aRHS : const vector<U>&) : vector<U>
<<friend>>
Global
+operator-(in aRHS) : matrix_banded<U>
+operator+(in aLHS : const matrix_banded<U>&, in aRHS : const matrix_banded<U>&) : matrix_banded<U>
+operator-(in aLHS : const matrix_banded<U>&, in aRHS : const matrix_banded<U>&) : matrix_banded<U>
+operator*(in aLHS : const double&, in aRHS : const matrix_banded<U>&) : matrix_banded<U>
+operator*(in aLHS : const matrix_banded<U>&, in aRHS : const double&) : matrix_banded<U>
+operator*(in aLHS : const vector<U>&, in aRHS : const matrix_banded<U>&) : vector<U>
+operator*(in aLHS : const matrix_banded<U>&, in aRHS : const vector<U>&) : vector<U>