

# COMP 215 Assignment #6

Due November 8th (note this is a Thursday) at 11:55PM

## 1 Description

In A6, you will be providing two implementations of the `IDoubleMatrix` interface. This is an interface to a sparse matrix of `double` values. You should implement the interface with an `ISparseArray` of `IDoubleVector` objects. One of your implementations is a “row major” implementation, and the other is a “column major” implementation; these two implementations will be called `RowMajorDoubleMatrix` and `ColumnMajorDoubleMatrix`, respectively. `RowMajorDoubleMatrix` is implemented as an `ISparseArray` of rows, where each row is itself an `IDoubleVector` object. `ColumnMajorDoubleMatrix` is implemented as an `ISparseArray` of columns, where each column is itself an `IDoubleVector` object.

Both implementations should have a constructor that takes three parameters: the first is an `int` that corresponds to the number of rows in the matrix; the second is an `int` that corresponds to the number of columns, and the third is a `double` that corresponds to the initial value that should appear in every entry in the matrix.

You are free to design any inheritance hierarchy you want to get this to work, though naturally you should take into account all of the best practices described in class to date.

## 2 Grading

20% of your grade will measure the quality of your documentation and of the class hierarchy that you design. The remaining 80% of your grade is based upon the correctness of your implementation.

## 3 Getting Started

To start, you should download the following files:

- `IDoubleMatrix.java`. This contains the interface you need to implement.
- `IDoubleVector.java`. This is from A2.
- `ISparseArray.java`. This is from A3.
- `IIndexedData.java`. This is from A3.
- `DoubleMatrixTester.java`. The test code.
- `doublevector.jar`, which contains implementations of the `IDoubleVector` classes and the `ISparseArray` classes.

Use all of those to create a `HW6.drjava` project.

## 4 Turnin

On Owlspace, you should turn in the `HW6.drjava` project file that DrJava creates when you create your project, as well as any and all `.java` source files or `.jar` files that you create or use in your project, plus your `MyTestCases.txt` file. The goal here is for us to be able to simply fire up DrJava using your `.drjava` project, and everything should work without having to move files around or add files to the

project. Please comment out any debugging output from your code before you turn it in. Please upload each file directly. Do not create an archive (zip, rar, etc.).

Be super-careful and double check after you submit. Make sure you have turned in exactly what you thought you have turned in. **Make sure you turn in your Java source files and NOT your class files!** On each and every assignment, one or two people neglect to turn in their Java source files.

## **5 Academic Honesty**

Please keep the academic honesty policy in mind as you work on the assignment.