PH 4433/6433 HW6: due Wednesday Oct 21

Complete all parts of 8.3.4 on page 173–175, using LAPACK for the matrix processing. Below are some notes/hints. To see the arguments you need to each LAPACK subroutine, look up the man page for each. For example, `man dgetrf`. Also see the example programs on the class website. To initialize a two dimensional array in Fortran (for example for the matrix in 8.3.4 part 1), you can do

```
a=reshape([4.0d0,3.0d0,2.0d0,-2.0d0,6.0d0,1.0d0,1.0d0,-4.0d0,8.0d0],[3,3])
```

1. For finding the inverse use `DGETRF` and feed the resulting LU-factored matrix into `DGETRI`.
2. Use `DGESV`.
3. Use `DGEEV`. Compute only the *right* eigenvalues and eigenvectors. This does not require a complex type, `DGEEV` returns the real and imaginary parts in separate `real` arrays.
4. Same as part 3.
5. `DGESV` again.