Programming in C++
Fall 2005
Assignment #2

Part I.

Convert your value function code into a callable C++ mex-file that satisfies the following criteria:

1. Put all the code into one file. The mex-file should be organized such that the gateway routine is in a separate function from the computational routine. The layout should be as follows: include files, function prototypes, the declaration of variables with file scope, the mexFunction, the computational functions.

2. The code should be well commented and neatly presented.

3. The mex file should be a function that takes 1 input: a guess for the initial value function, and returns 3 items: the capital grid, optimal policy function, and optimal value function.

4. The parameters beta, alpha, delta, and sigma should be set in matlab. The mex-file should access these parameters using either the mexGetVariable or mexGetVariablePtr function. The number of points in the capital grid can be set directly in the mex-file if need be.

5. The mex-file should output the iteration and the value of the distance metric at each iteration to the matlab screen using the function mexPrintf.

Part II.

Write a short matlab script file that

1. Assigns values to beta, alpha, delta, and sigma.

2. Generates an initial guess for value function.

3. Calls the mex-file.

4. Plots the optimal value function and policy function.

Send your mex-file source code, matlab script file, and the compiled .dll file to me by December 20th.

Note: You can get summaries of specific mexfunctions and mxfunctions at

`http://www.mathworks.com/access/helpdesk/help/techdoc/apiref/apiref.html`