26-01-2017

MECE101 Resit Exam

Name:

Surname:

Number:

**Q1)** Write a MATLAB function that computes the Fibonacci square of size n. Your function declaration would be as:

output1=function\_exam\_q1(n)

where n is the input (size of the Fibonacci matrix) and output1 is the output (obtained Fibonacci matrix)

Sample result of calling this function:

output1=function\_exam\_q1(2) will give the matrix

$$output1=\left[\begin{matrix}1&1\\1&0\end{matrix}\right]$$

output1=function\_exam\_q1(3) will give the matrix

$$output1=\left[\begin{matrix}1&1&1\\1&2&0\\1&0&0\end{matrix}\right]$$

output1=function\_exam\_q1(4) will give the matrix

$$output1=\left[\begin{matrix}\begin{matrix}1&1\\1&2\end{matrix}&\begin{matrix}1&1\\3&0\end{matrix}\\\begin{matrix}1&3\\1&0\end{matrix}&\begin{matrix}0&0\\0&0\end{matrix}\end{matrix}\right]$$

output1=function\_exam\_q1(5) will give the matrix

$$output1=\left[\begin{matrix}\begin{matrix}1&1\\1&2\end{matrix}&\begin{matrix}1&1&1\\3&4&0\end{matrix}\\\begin{matrix}1&3\\1&4\\1&0\end{matrix}&\begin{matrix}6&0&0\\0&0&0\\0&0&0\end{matrix}\end{matrix}\right]$$

Solution

function output1 = function\_exam\_q1(n)

output1(1,1:n)=1;

output1(1:n,1)=1;

if n~=1,

 for i=2:n,

 for j=2:n,

 if i+j>n+1,

 output1(i,j)=0;

 else

 output1(i,j)=output1(i-1,j)+output1(i,j-1);

 end

 end

 end

end

end