General Computer Science for Engineers CISC 106 Midterm 2 Review

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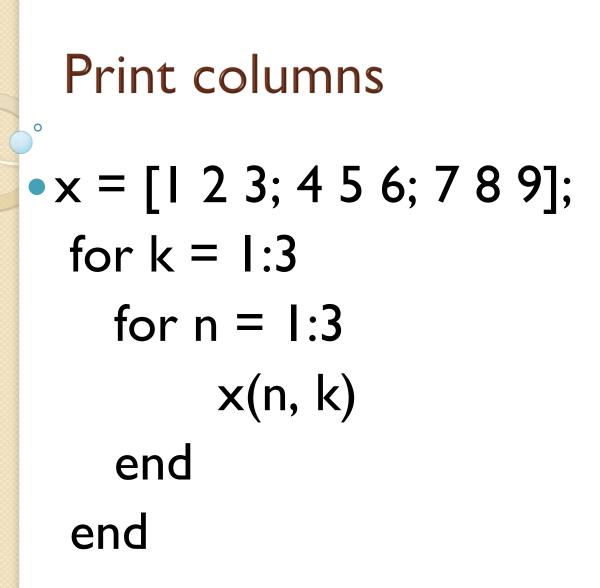
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Lecture Overview

- Looping
- Scripts vs functions
- Recursive functions
- Selection sort

```
Print rows
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• x = [1 2 3; 4 5 6; 7 8 9];
 for k = 1:3
    for n = 1:3
         x(k, n)
    end
  end
```



Script versus Functions

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- Can a script take in a parameter?
- Can a function change a variable in your current environment?
- Can a script return an output?
- Can you call a script by name?

Recursive Functions

Study this!

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- Be able to code a recursive function from a recursive definition
- Review (at least) the following:
 - Lecture 9 and 10
 - Lab 4 and Lab 6

Recursive Functions

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expt(base,exponent) = base, if exponent is one base * expt(base,exponent-1) otherwise

Write the code that implements the "expt" function.

```
Recursive Functions
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function num = expt(base, exponent)
  if (exponent == 1)
    num = base;
  else
    exponent = exponent - I;
    num = base * expt(base,exponent);
  end
end
```

Selection Sort (English)

while not at end of array find the minimum value from the current location (loc) to the end of the array swap the current loc with the min's loc End while

Selection Sort (pseudo code)

```
Loop through from i = 0 to n-1
  minLoc = I
  min = array[i]
    Loop through from j = i+1 to n
       if min > array[j] then
           minLoc = jmin = array[j]
      end inner loop
  tmp = array[i]
  array[i] = array[minLoc]
  array[minLoc] = tmp
end outer loop
```

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