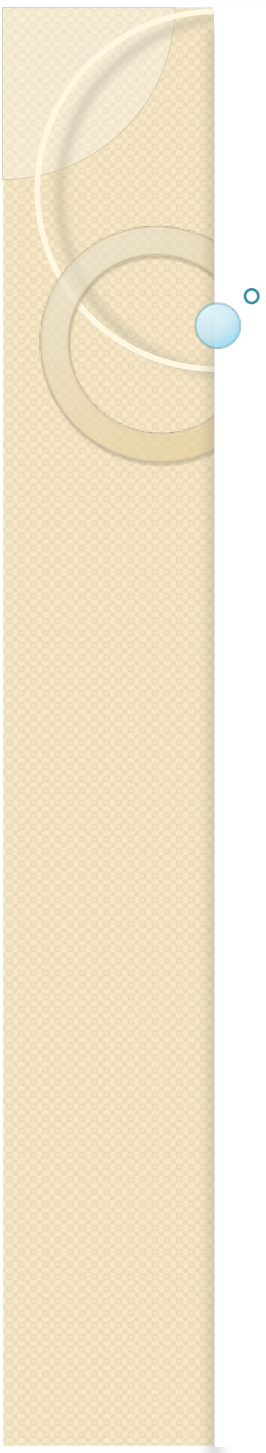




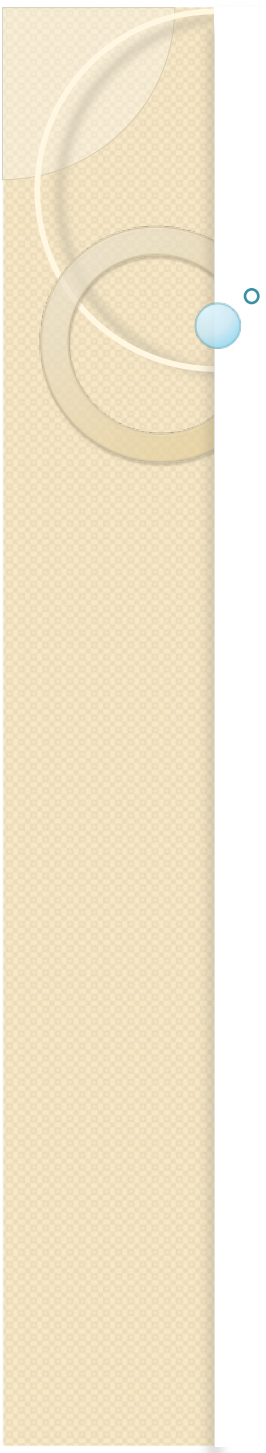
General Computer Science for Engineers CISC 106 Lecture 20

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Lecture Overview

- Project I update
- Pseudo Code
- Checking if an Array is Sorted
- Finding a number in an Array



Pseudo Code

- No Standard.
- Write in an informal method
- Do not worry about syntax errors
- Emphasis on writing down solution
- But closer to programming than English

Pseudo Code

- Simple Example : Add all numbers in array

Intialize i to zero

for n from 1 to end of array

$i = i + \text{array}(n)$

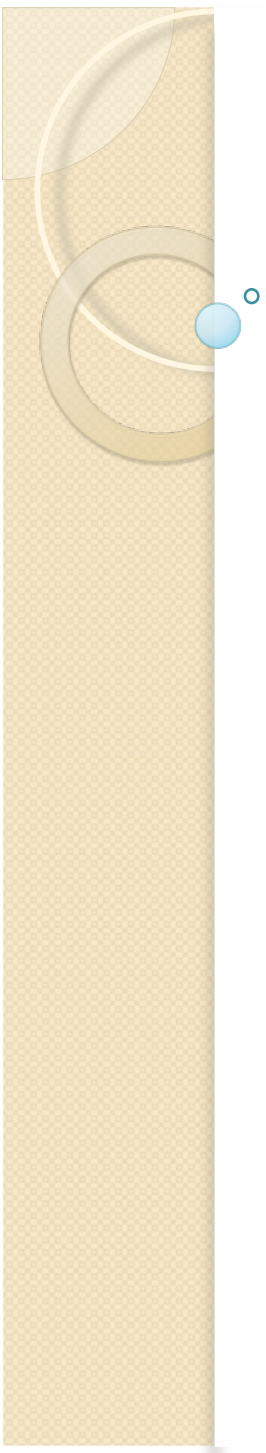
return value of i

Arrays

- $A = [3 \ 7 \ 10 \ 15 \ 19 \ 33]$

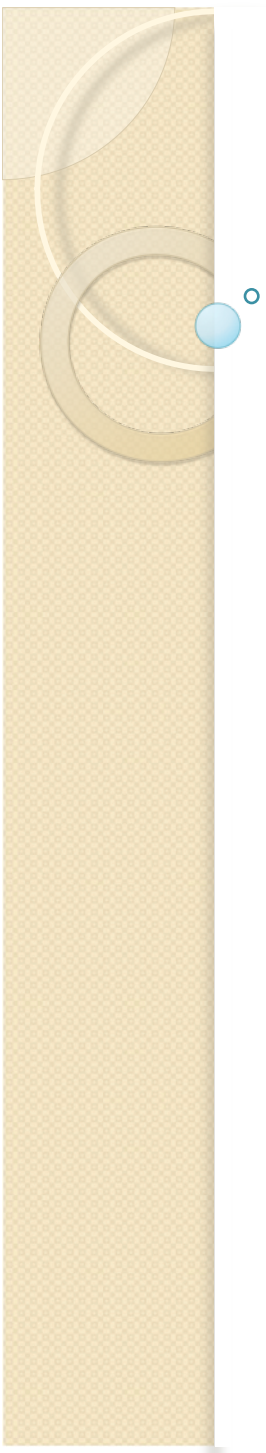
A

3	7	10	15	19	33
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Check if Array is Sorted

- Function Name?
- Arguments?
- Return Value?



English First: Is Array Sorted?

Check all numbers in array
if the one before is less than the one after

If $\text{array}(n) > \text{array}(n+1)$ array not sorted

Pseudocode: Is Array Sorted?

function sorted = isArraySorted (array)

 initialize sorted to true

 len = length of array minus 1

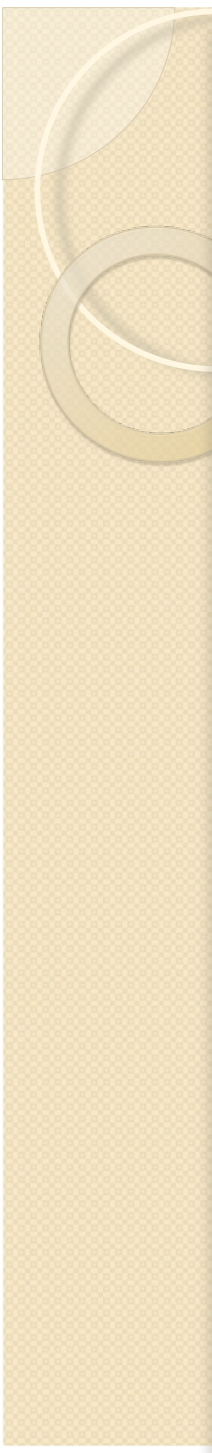
 for j = 1 to len

 if array(j) > array(j+1)

 sorted is false

Finding a Number in an Array

```
function sorted = isSorted(array)
    sorted = true;
    len = length(array) - 1;
    for j = 1:len
        if (array(j) > array(j+1))
            sorted = false
        end
    end
    sorted
end
```



Tackling a Problem

Write English first!

- .What are the data structures needed?
- . Do I need a loop? What kind would work best?
- .Then write pseudo code.

Finding an number in array

- Store numbers in array
- Initialize array index to 1
- Initialize number found boolean variable
- while number not found or array length not exceeded
 - if current array position has num
 - set number found
- end
- If number found report!

Finding a number in an array

```
>> x = 1;  
>> numberFound = false;  
>> while (numberFound ==  
        false)  
    if (a(x) == 3.14)  
        numberFound = true;  
    end  
end
```

What else is missing?