MATLAB Examples

Selim Aksoy
Bilkent University
Department of Computer Engineering
saksoy@cs.bilkent.edu.tr

MATLAB Examples

- Find the number of positive numbers in a vector

```
x = input( 'Enter a vector: ' );
count = 0;
for ii = 1:length(x),
   if ( x(ii) > 0 ),
      count = count + 1;
   end
end
fprintf('Number of positive numbers is %d\n', count);
```


MATLAB Examples

- Find the index of the largest number in a vector

```
x = input( 'Enter a vector: ' );
max_value = x(1);
max_index = 1;
for ii = 2:length(x),
   if ( x(ii) > max_value ),
      max_value = x(ii);
      max_index = ii;
   end
end
fprintf( 'Max value is %d\n', max_value );
fprintf( 'Its index is %d\n', max_index );
```

- What if the max value occurs more than once?

MATLAB Examples

- Print a triangle of stars in n rows

```
n = input( 'Enter the number of rows: ' );
for ii = 1:n,
   for jj = 1:ii,
      fprintf( '*' );
   end
   fprintf( '\n' );
end
```


MATLAB Examples

- Find the k^{th} digit of a number (k^{th} digit from the right)

```
num = input( 'Enter the number: ' );
k = input( 'Enter the digit you want: ' );
num_orig = num;
for ii = 1:k,
   digit = mod( num, 10 );
   num = fix( num / 10 );
end
fprintf('Digit %d of %d is %d\n', k, num_orig, digit);
```


MATLAB Examples

- Sort the numbers in a given vector

```
x = input( 'Enter the vector to sort: ' );
n = length(x);      %length of the vector
%Sort the vector in ascending order using selection sort
for ii = 1:n-1,
    %Find the minimum value in x(ii) through x(n)
    iptr = ii;
    for jj = ii+1:n,
        if ( x(jj) < x(iptr) ),
            iptr = jj;
        end
    end
    %iptr now points to the minimum value,
    %so swap x(iptr) with x(ii) if ii ~= iptr
    if ( ii ~= iptr ),
        temp = x(ii);
        x(ii) = x(iptr);
        x(iptr) = temp;
    end
end
disp( 'Sorted vector:' );
disp(x);
```