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

```matlab
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
', count);
```

MATLAB Examples

Find the index of the largest number in a vector

```matlab
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
', max_value);
fprintf('Its index is %d
', max_index);

What if the max value occurs more than once?
```

MATLAB Examples

Print a triangle of stars in n rows

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

MATLAB Examples

Find the k\textsuperscript{th} digit of a number (k\textsuperscript{th} digit from the right)

```matlab
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
', k, num_orig, digit);
```

MATLAB Examples

Sort the numbers in a given vector

```matlab
x = input('Enter the vector: ');
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);
```