KATEDRA INFORMATYKI STOSOWANEJ POLITECHNIKA ŁÓDZKA

Programowanie w środowisku Matlab

Dr inż. Piotr Urbanek

IF

```
if expression
  commands (evaluated if expression is true)
else
  commands (evaluated if expression is false)
end
```

```
if expression1
  commands (evaluated if expression 1 is true)
elseif expression 2
  commands (evaluated if expression 2 is true)
elseif …
.
.
.
else
  commands (executed if all previous
expressions evaluate to false)
end
```

```
t0 = 1;
t1 = [1 0];
if n == 0
  T = t0;
elseif n == 1;
  T = t1;
else
  for k=2:n
T = [2*t1 0] - [0 0 t0];
    t0 = t1;
    t1 = T;
end
end
```

INSTRUKCJA „FOR”

for index = expression
block of statements
end

```
for k = 1:2:n
...
end
```

```
for k = n:-1:1
...
end
```

```
x = 1:5;        %  create a row vector
sumx = 0;       %  initialize the sum

for k = 1:length(x)
        sumx = sumx + x(k);
end
```

```
for x = 0:pi/15:pi
        fprintf('%8.2f   %8.5f\n',x,sin(x));
end
```

INSTRUKCJA „WHILE”

$$\sqrt{x} \rightarrow r_k = \frac{1}{2}\left(r_{k-1} + \frac{x}{r_{k-1}}\right)$$

```
while expression
        block of statements
end
```

```
r = ... % initialize
rold = ...
while abs(rold-r) > delta
        rold = r;
        r = 0.5*(rold + x/rold);
end
```

```
maxit = 25;
it = 0;
while abs(rold-r) > delta & it<maxit
        rold = r;
        r = 0.5*(rold + x/rold);
        it = it + 1;
end
```

BREAK

```
x = rand(1,n);
k = 1;
while  k<=n
        if  x(k)>0.8
                break
        end
        k = k + 1;
end
fprintf('x(k)=%f    for  k = %d    n = %d\n',x(k),k,n);
```

SWITCH-CASE

```
switch expression (scalar or string)
   case value1 (executes if expression
evaluates to value1)
      commands
   case value2 (executes if expression
evaluates to value2)
      commands
.
.
.
   otherwise
     statements
end
```

```
x = ceil(10*rand);
switch x
case {1,2}
     disp('Probability = 20%');
case {3,4,5}
     disp('Probability = 30%');
otherwise
disp('Probability = 50%');
end
```