Laboratory 7

Source

Exercise 1

```
pwd //current directory path
```

```
ans =
'C:\Users\Kamil\code\MAPT\mapt2\lab7'
```

```
whos //list workspace variables
```

```
  Name          Size            Bytes  Class     Attributes

  A            10x4               320  double
  ans           1x35               70  char
  columns       1x1                 8  double
  k             1x1                 8  double
  kk            1x5                40  double
  m             1x1                 8  double
  rows          1x1                 8  double
```

```
ls //list files in current directory
```

```
.               ..              Ex_1.m          Ex_2.m          Ex_3.m          first_function.m  first_sc
```

Exercise 3

```
clear all;

% matrix operations/operacje na macierzach
A = [1 2 3 4 5; 6 7 8 9 5];
A = [A' A'; A' A']
```

```
A = 10×4
     1     6     1     6
     2     7     2     7
     3     8     3     8
     4     9     4     9
     5     5     5     5
     1     6     1     6
     2     7     2     7
     3     8     3     8
     4     9     4     9
     5     5     5     5
```

```

%% if, else if
if size(A,1)==size(A,2)
    disp(' the same number of the columns and rows ')
elseif size(A,1)<size(A,2)
    disp(' more columns than rows ')
else
    disp(' more rows than columns ')
end
```

more rows than columns

```
%% pętla for
disp(' for loop')
```

```
 for loop
```

```
[rows, columns] = size(A)
```

```
rows =
    10
columns =
     4
```

```
for k = 1:1:rows
    disp('iterator value:')
    k
    disp('k-th row of the matrix A:')
    A(k,:)
    % pause(1)
end
```

```
iterator value:
k =
     1
k-th row of the matrix A:
ans = 1×4
     1     6     1     6
iterator value:
k =
     2
k-th row of the matrix A:
ans = 1×4
     2     7     2     7
iterator value:
k =
     3
k-th row of the matrix A:
ans = 1×4
     3     8     3     8
iterator value:
k =
     4
k-th row of the matrix A:
ans = 1×4
     4     9     4     9
iterator value:
k =
     5
k-th row of the matrix A:
ans = 1×4
     5     5     5     5
iterator value:
k =
     6
k-th row of the matrix A:
ans = 1×4
     1     6     1     6
```

```
iterator value:
k =
     7
k-th row of the matrix A:
ans = 1×4
     2     7     2     7
iterator value:
k =
     8
k-th row of the matrix A:
ans = 1×4
     3     8     3     8
iterator value:
k =
     9
k-th row of the matrix A:
ans = 1×4
     4     9     4     9
iterator value:
k =
    10
k-th row of the matrix A:
ans = 1×4
     5     5     5     5
```

```
kk = [4 1 3 5 4]
```

```
kk = 1×5
     4     1     3     5     4
```

```
for k = kk
    disp('iterator value:')
    k
    disp('k-th row of the matrix A:')
    A(k,:)
    % pause(1)
end
```

```
iterator value:
k =
     4
k-th row of the matrix A:
ans = 1×4
     4     9     4     9
iterator value:
k =
     1
k-th row of the matrix A:
ans = 1×4
     1     6     1     6
iterator value:
k =
     3
k-th row of the matrix A:
ans = 1×4
     3     8     3     8
iterator value:
k =
     5
```

```
k-th row of the matrix A:
ans = 1×4
     5     5     5     5
iterator value:
k =
     4
k-th row of the matrix A:
ans = 1×4
     4     9     4     9
```

```
% %% while loop/pętla while
disp(' While loop /Pętla while ')
```

```
 While loop /Pętla while
```

```
[rows, columns] = size(A)
```

```
rows =
    10
columns =
     4
```

```
m=1;
while m < rows
  disp('iterator value:')
  % m
  disp('k-th row of the matrix A:')
  A(m,:)
  m = m + 1;
end
```

```
iterator value:
k-th row of the matrix A:
ans = 1×4
     1     6     1     6
iterator value:
k-th row of the matrix A:
ans = 1×4
     2     7     2     7
iterator value:
k-th row of the matrix A:
ans = 1×4
     3     8     3     8
iterator value:
k-th row of the matrix A:
ans = 1×4
     4     9     4     9
iterator value:
k-th row of the matrix A:
ans = 1×4
     5     5     5     5
iterator value:
k-th row of the matrix A:
ans = 1×4
     1     6     1     6
iterator value:
k-th row of the matrix A:
ans = 1×4
```

```
     2     7     2     7
iterator value:
k-th row of the matrix A:
ans = 1×4
     3     8     3     8
iterator value:
k-th row of the matrix A:
ans = 1×4
     4     9     4     9
```