OK, how do we calculate the inverse for A (2x2) matrix

Well, A=[a, b]
         [c, d]

the inverse is

[Swap a&d and negative b&c in A]

$$A^{-1} = \frac{1}{(a*d-b*c)} * [\ d, -b; -c\ a]$$

determinant of **A**

In matlab Inv(**A**)

x + 3y = 5

4x +5y=6

Solve the equations by using matrix

A=[1 3;4 5   ]

v=[x;y] output

B=[5;6]

A*v=B   ->>   v=A^{-1}$_*$B

If you know that matrix A =matrix B then find x,y,z

A=[1   2   x+y+z

    5   x   8

    9 6   0]

B=[1   2   3

    5   7   8

   x+y 6 0]

X+2y+z=-4

2x-y+z=3

3x+y-z=2

Use matrices A*X=B to Prove

z=-1

y=-2

X=1

Control flow - if

Sometimes you want to execute a block of code only if a certain condition is met.

The *if* statement has the general form:

if *condition*

   statements

end

```
if age < 20
   do something
end
```

Control flow - if

if age < 20
   disp('You are younger than 20 years')
end

In an if-statement the condition is a Boolean expression. A Boolean can only take one of two values, *true* or *false*.

If the condition is evaluated to *true* the statements inside the if-statement are executed.

The if-statement is ended by the keyword *end*.

Control flow – Relational operators

There are six relational operators and they all return true or false.

- A < B (A less than B)
- A > B (A greater than B)
- A <= B (A less than or equal to B)
- A >= B (A equal to or greater than B)
- A == B (A equal to B)
- A ~= B (A not equal to B)

Control flow – if, else

Often you want to do one thing if a condition is true and a different thing if it is false. For this we have the optional *else*-clause of the if statement

x = -0.5;

```
if x < 0
    x = x*x - 1      %This is executed if x is a negative number
else
    x = x*x          %This will be executed if x is zero or greater
end
```
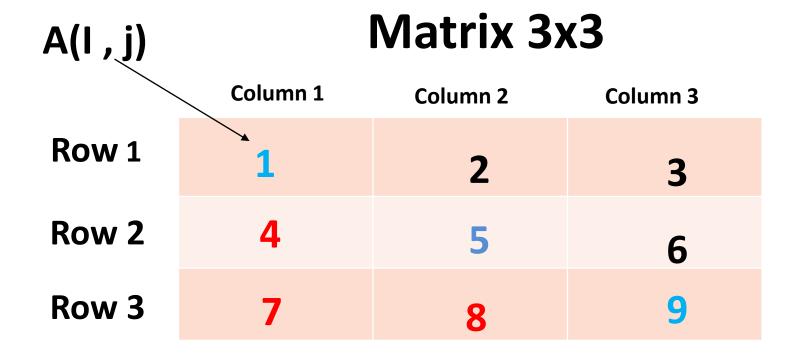
else is a reserved keyword.

Control flow – if, elseif

Then we have the cases when we have more than two options to consider. For this we have the *elseif* keyword.

x = -0.5;

```
if x < 0
    x = x^2 * -1   %Executed if x is a negative number
elseif x == 0
    x = inf        %Executed if x is zero, inf is a constant.
else
    x = x^2        %Executed if x is a positive number
end
```

H.w

A(I , j)

Matrix 3x3

	Column 1	Column 2	Column 3
Row 1	1	2	3
Row 2	4	5	6
Row 3	7	8	9

What is the conditions to (note use if--- end condition)

Display the lower numbers of Diagonal

Display the odd numbers   of matrix

Display the even numbers of matrix