HOW TO USE ZYX

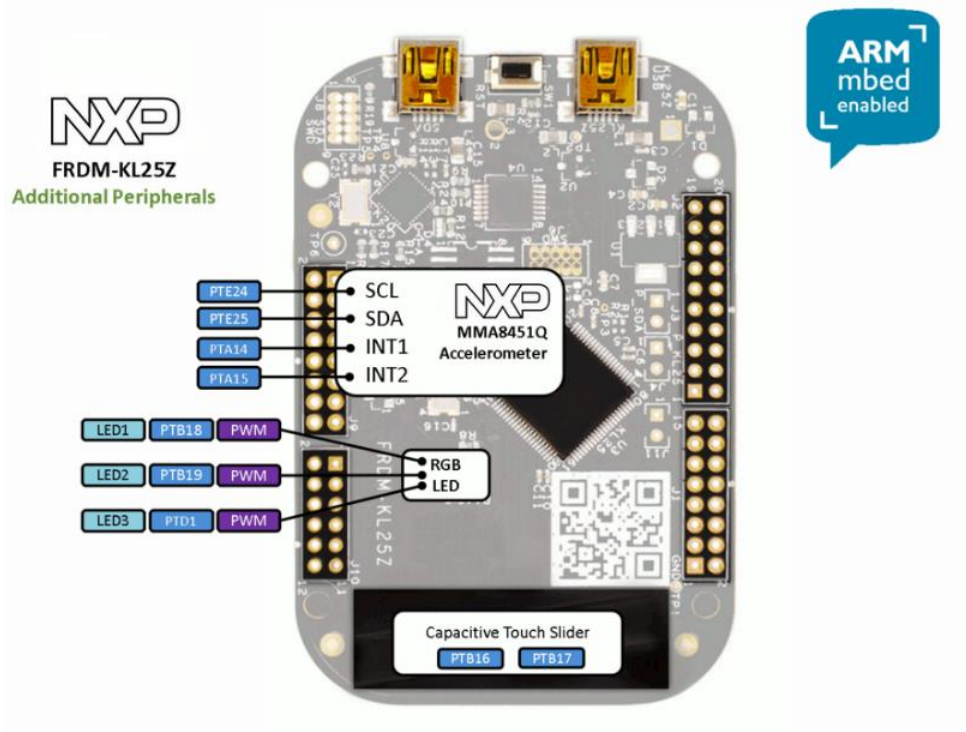
A new programming language introduction

Variable

- **Variables** are used to store information to be referenced and manipulated in a computer program.

A box you named it and belonged to you !
You can load any information you want!

For example : led =Greenled, led is variable you can name any you like.



Object

- The object corresponding to the hardware component.
- **Green LED---Greenled**
- **Red LED------Redled**
- **Blue LED------Blueled**
- **Touchpad------Touchpad**
- **Accelerometer-Acc**
- For example : led =Greenled, Greenled is the name of object ,you **can not** change the name

Algorithm

- a list of instructions, placed in the right order to make something happen

greenled=Greenled	Green LED assigned to Variable greenled
blueled=Blueled	Blue LED assigned to Variable blueled
greenled =On	Switch on the Green LED
Blueled =On	Switch on the Blue LED

Case 1-Algorithm

Switch on the Red LED:

redled= Redled

redled=On

How to switch on Blue LED or Red LED?

Case 2-Algorithm

Switch on more than one LED to make different colour:

- greenled=Greenled
- redled= Redled
- greenled=On
- redled=On

Could you make purple, cyan or white colour?

Case 3-Algorithm

Blink the Red LED twice

- redled= Redled
- redled=On
- Wait = 1
- redled=Off
- Wait = 1
- redled=On
- Wait = 1
- redled=Off

Could you make green LED flash three times?

Repetition

- Making an Algorithm happen till a certain condition is unsatisfied

Let the Green LED blink five times

myled= Greenled	Greenled assigned to variable myled.
repeat =5	5 assigned to variable repeat for count the times.
While(repeat > 0)	While the repeat great than 0 ,excute the block code
{	{ block start-
myled = On	Switch on Green LED
Wait = 0.7	Wait 0.7second
myled = Off	Switch off Green LED
repeat = repeat -1	The value of repeat is taken away one
Wait=0.7	-block end}
}	

Case 4-Repetition

Blink the Green LED forever

- greenled=Greenled
- While(True)
- {
- greenled=On
- Wait=0.6
- greenled=Off
- }

Could you make red LED blink forever?

Selection

- Making an Algorithm happen only if a certain condition is satisfied

Let the Green LED blink five times

myled= Greenled	Greenled assigned to variable myled.
If(myled Eq On)	When Green LED is on, then execute the block code
{	{ block start-
myled = Off	Switch off Green LED
}	-- block end}
Wait=0.6	Wait 0.6second
If(myled Eq Off)	When Green LED is off, then execute the block code
{	{ block start-
myled = On	Switch on Green LED
}	-block end}

Case 5-Selection

Blink Green LED and Red LED in turns

- greenled=Greenled
- redled=Redled

  state=1
- While(True)
- {
  - If (state Eq 0)
  - {
    - state=1
    - greenled=On
    - Redled=Off
  - }

continue

- If(state Eq 1)
- {
  - state=0
  - redled=On
  - greenled=Off
- }
- }

Could you flash yellow LED and red LED in turns?

Options

- when we have number of options and we need to perform a different task for each choice

Is the green LED on or off?

```
myled= Greenled
state =1
Switch state
{
   Case 1:
       myled = Off
       Break
   Case 0:
      myled = On
       Break
}
```

Greenled assigned to variable myled.
1 assigned to variable state for making option.
Make decision according to the value of state
{ block start-
option 1: if the value of state is 1 then execute the following code till to meet the "Break"
Switch off Greenled
Break means stop to run the following code
option 2: if the value of state is 0 then execute the following code till to meet the "Break"
Switch on Greenled
Break means stop to run the following code
-block end}

Case 6-Options

Switch on Green LED , Yellow LED in turns

- greenled=Greenled
- redled=Redled
- blueled=Blueled

  state=1

- While(True)
- {
  - Switch state
  - {
    - Case 1:
    - greenled=On
    - Break

continue

  - Case 2:
    - greenled=Off
    - state=3
    - Break
  - Case 3:
  - redled=On
  - greenled=On
  - Break
  - }
  - Wait=0.6
  - }

Could you switch yellow LED , red LED and blue LED in turns?

Practise

1.Red LED flash forever

2.White LED flash forever

3.Red, blue and green LED flash in turns

4.Blue LED flash 6 times

5.Switch on Red ,Blue and Green LED sequential, then switch off Red ,Blue and Green LED sequential

More interesting

- Using Accelerometer to control the light
- acc=Acc
- led1=Redled
- led2=Greenled
- led3=Blueled
- While(True)
- {
- led1=acc.X
- ed2=acc.Y
- led3=acc.Z
- }

More interesting

```
greenled= Greenled
redled= Redled
blueled= Blueled
tsi=Touchsensor
While(True)
{
  distance=tsi.D
If (distance>0 And distance<13)
{
 redled =!redled
}
If (distance>13 And distance<26)
{
   greenled=!greenled
}
If (distance>26 And distance<40)
{
   blueled=! blueled
}
}
```

What will happen?

You can read C++/C code! --End

```
#include "mbed.h"
DigitalOut led1(LED1); // Red LED
DigitalOut led2(LED2); // Green LED
DigitalOut led3(LED3); // Blue LED

int main() {
    while(1) {
                    led1 = 0 ;
                    led2 = 0;
                    led3 = 1;
}
}
```