Good Vs Bad Coding Styles

EE337

Microcontroller Pt51

Presented by: Zeal Sheth

- Main program is Wall of Code
- Non Modular Code
- Poor Indentation
- Repetition of bunch of code lines
- Overwriting of register values
- No Comments

;TITLE: BAD CODING STYLES TO **BLINK LEDs** ;AUTHOR : ZEAL SHETH (WEL) LED EQU PO Main Program is ORG 00H hugh wall of code. LJMP MAIN Non modular. Difficult to debug **ORG 100H** MAIN: MOV LED,#00H BACK: MOV A, #55H MOV LED,A ._____

MOV R1, #0FFH MOV R2, #0FFH

DELAY1:

NOP DJNZ R1, DELAY1 DJNZ R2, DELAY1

MOV A,#0AAH MOV LED,A

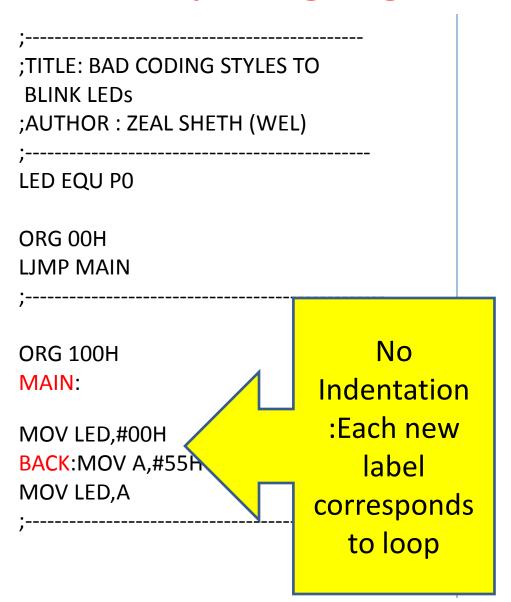
MOV R1, #0FFH MOV R2, #0FFH

DELAY1:

NOP DJNZ R1, DELAY1 DJNZ R2, DELAY1

SJMP BACK

FIN: SJMP FIN; ALL DONE.



MOV R1, #0FFH MOV R2, #0FFH

DELAY1:

NOP DJNZ R1, DELAY1 DJNZ R2, DELAY1

MOV A,#0AAH MOV LED,A

MOV R1, #0FFH MOV R2, #0FFH DFLAY1:

NOP DJNZ R1, DELAY1 DJNZ R2, DELAY1

SJMP BACK

FIN: SJMP FIN ;ALL DONE.

;-----;TITLE: BAD CODING STYLES TO BLINK LEDs ;AUTHOR: ZEAL SHETH (WEL) ;------

ORG 00H LJMP MAIN

LED EQU PO

ORG 100H MAIN:

MOV LED,#00H BACK:MOV A,#55H MOV LED,A Repetition of bunch of code lines:
Can be converted to subroutine

MOV R1, #0FFH MOV R2, #0FFH

DELAY1:

NOP DJNZ R1, DELAY1 DJNZ R2, DELAY1

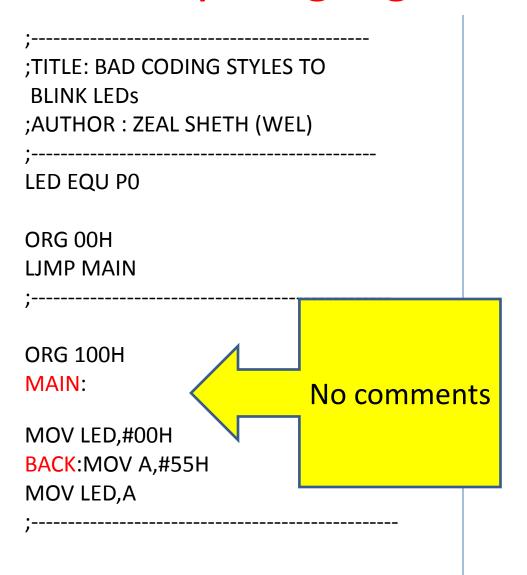
MOV A,#0AAH MOV LED,A

MOV R1, #0FFH MOV R2, #0FFH DELAY1:

NOP DJNZ R1, DELAY1 DJNZ R2, DELAY1

SJMP BACK

FIN: SJMP FIN ;ALL DONE.



MOV R1, #0FFH MOV R2, #0FFH

DELAY1:

NOP

DJNZ R1, DELAY1 DJNZ R2, DELAY1

MOV A,#0AAH MOV LED,A

MOV R1, #0FFH MOV R2, #0FFH DELAY1:

NOP

DJNZ R1, DELAY1 DJNZ R2, DELAY1

SJMP BACK

FIN: SJMP FIN ;ALL DONE.

- Main program is set of function (subroutine) calls
- Modular Code: Easy Debugging
- Subroutine: For Repeated bunch of code lines
- Proper Indentation
- Stack to prevent overwriting of register values
- Appropriate Comments

NOP DJNZ R1, DELAY1 ;TITLE: GOOD CODING STYLES TO BLINK LED DJNZ R2, DELAY1 ;AUTHOR: ZEAL SHETH (WEL) POP AR2; POP MUST BE IN :REVERSE ORDER OF PUSH POP AR1 LED EQU PO **POP PSW** ORG 00H RET LJMP MAIN **ORG 100H** ORG 50H MAIN: **DELAY:** MOV LED,#00H ; MAKE PO AS **;OUTPUT PORT PUSH PSW** MOV A,#55H PUSH AR1; STORE R1 (BANK (BACK: Modular ; ON THE STACK MOV LED, A **PUSH AR2** Code: Easy **LCALL DELAY** CPL A Debug SJMP BACK MOV R1, #0FFH MOV R2, #0FFH FIN: SJMP FIN **;ALL DONE.**

;TITLE: GOOD CODING STYLES TO BLINK LED ;AUTHOR: ZEAL SHETH (WEL) LED EQU PO ORG 00H LJMP MAIN ORG 50H **DELAY: PUSH PSW** PUSH AR1; STORE R1 (BANK 0) ; ON THE STACK Subroutine **PUSH AR2 DELAY** for MOV R1, #0FFH reusability

MOV R2, #0FFH

```
DFI AY1:
   NOP
    DJNZ R1, DELAY1
    DJNZ R2, DELAY1
   POP AR2; POP MUST BE IN
         :REVERSE ORDER OF PUSH
   POP AR1
   POP PSW
    RET
ORG 100H
MAIN:
      MOV LED,#00H ; MAKE PO AS
                    ;OUTPUT PORT
     MOV A,#55H
      BACK:
          MOV LED, A
          LCALL DELAY
          CPL A
           SJMP BACK
FIN: SJMP FIN
                  ;ALL DONE.
```

DFI AY1:

NOP DJNZ R1, DELAY1 ;TITLE: GOOD CODING STYLES TO BLINK LED DJNZ R2, DELAY1 ;AUTHOR: ZEAL SHETH (WEL) POP AR2; POP MUST BE IN :REVERSE ORDER OF PUSH POP AR1 LED EQU PO **POP PSW** ORG 00H RET LJMP MAIN **ORG 100H** ORG 50H MAIN: DFI AY: MOV LED,#00H ; MAKE PO AS **;OUTPUT PORT PUSH PSW MOV A,#55H** PUSH AR1; STORE R1 (BANK (BACK: ; ON THE STACK MOV LED, A **Proper PUSH AR2 LCALL DELAY Indentation** CPL A SJMP BACK MOV R1, #0FFH MOV R2, #0FFH FIN: SJMP FIN ;ALL DONE.

```
DFI AY1:
                                                      NOP
                                                      DJNZ R1, DELAY1
;TITLE: GOOD CODING STYLES TO BLINK LED
                                                      DJNZ R2, DELAY1
;AUTHOR: ZEAL SHETH (WEL)
                                                      POP AR2; POP MUST BE IN
                                                            :REVERSE ORDER OF PUSH
                                                      POP AR1
LED EQU PO
                                                      POP PSW
ORG 00H
                                                      RET
LJMP MAIN
                                                  ORG 100H
ORG 50H
                                                  MAIN:
DELAY:
                                                        MOV LED,#00H ; MAKE PO AS
                                                                      ;OUTPUT PORT
                               Push and Pop
   PUSH PSW
                                                        MOV A,#55H
   PUSH AR1; STORE R1 (BANK 0)
                                   to store
                                                        BACK:
            ; ON THE ST
                                                             MOV LED, A
                                   register
   PUSH AR2
                                                             LCALL DELAY
                               values so that
                                                             CPL A
                                                             SJMP BACK
                                they are not
   MOV R1, #0FFH
   MOV R2, #0FFH
                                overwritten
                                                  FIN: SJMP FIN
                                                                     ;ALL DONE.
```

```
;TITLE: GOOD CODING STYLES TO BLINK LED
;AUTHOR: ZEAL SHETH (WEL)
LED EQU PO
ORG 00H
LJMP MAIN
ORG 50H
DELAY:
   PUSH PSW
   PUSH AR1; STORE R1 (BANK 0)
            ; ON THE STACK
   PUSH AR2
                               Appropriate
                                 comments
   MOV R1, #0FFH
   MOV R2, #0FFH
```

```
DFI AY1:
   NOP
   DJNZ R1, DELAY1
   DJNZ R2, DELAY1
   POP AR2; POP MUST BE IN
         :REVERSE ORDER OF PUSH
   POP AR1
   POP PSW
   RET
ORG 100H
MAIN:
     MOV LED,#00H ; MAKE PO AS
                    ;OUTPUT PORT
     MOV A,#55H
     BACK:
          MOV LED, A
          LCALL DELAY
          CPL A
           SJMP BACK
FIN: SJMP FIN
                  ;ALL DONE.
```

Thank You