

## Lab 9: BIOS and DOS Interrupts

### Lab 9.2: Write program that get terminated when you will press T from your keyboard.

#### Mechanism to Conduct Lab:

Students and teacher communicate through Skype/Adobe Connect. Students will write code using Notepad or Programmer's Notepad and will share code and screen output.

Nasm: <https://vulms.vu.edu.pk/Courses/CS401/Downloads/AssmSoft.zip>

DosBOX: <http://sourceforge.net/projects/dosbox/files/dosbox/0.74-2/DOSBox0.74-2-win32-installer.exe/download>

Programmers Notepad: <https://github.com/simonsteele/pn/releases/download/v2.4.2/portable-pn2421440.zip>

```
; attempt to terminate program with T that hooks keyboard interrupt
[org 0x0100]

jmp start

; keyboard interrupt service routine
kbisr: push ax
      push es
      mov ax, 0xb800
      mov es, ax ; point es to video memory
      in al, 0x60 ; read a char from keyboard port
      cmp al, 0x2a ; is the key left shift
      jne nextcmp ; no, try next comparison
      mov byte [es:0], 'L' ; yes, print L at top left
      jmp nomatch ; leave interrupt routine
nextcmp: cmp al, 0x36 ; is the key right shift
      jne nomatch ; no, leave interrupt routine
      mov byte [es:0], 'R' ; yes, print R at top left
nomatch: mov al, 0x20
```

```
out 0x20, al ; send EOI to PIC

start: xor ax, ax

mov es, ax ; point es to IVT base

cli ; disable interrupts

mov word [es:9*4], kbisr ; store offset at n*4

mov [es:9*4+2], cs ; store segment at n*4+2

sti ; enable interrupts

l1: mov ah, 0 ; service 0 - get keystroke

int 0x16 ; call BIOS keyboard service

cmp al, 27 ; is the Esc key pressed

jne l1 ; if no, check for next key

mov ax, 0x4c00 ; terminate program

int 0x21
```