

```

#Chuong trinh:
#-----
#Data segment
    .data
#Cac dinh nghia bien
str_s:    .asciiz    "Dai hoc Bach Khoa TP.HCM"
int_n:    .word      0
#Cac cau nhac nhap du lieu
Nhac_kq:  .asciiz    "Chuoi da dao:\n\t"
#Code segment
    .text
    .globl    main
#-main-----
# Chuong trinh chinh main
main:
#Nhap (syscall)
#Xu ly
    # Lay chieu dai chuoi
    la    $a0,str_s
    jal   strlen
    sw    $v0,int_n
    # goi ham Reverse
    la    $a0,str_s
    lw    $a1,int_n
    jal   reverse
#Xuat ket qua (syscall)
    la    $a0,Nhac_kq
    addi  $v0,$zero,4
    syscall
    la    $a0,str_s
    addi  $v0,$zero,4
    syscall
#ket thuc chuong trinh (syscall)
Kthuc:    addi  $v0,$zero,10
    syscall
#-end main-----
#-----
# Chuong trinh con reverse: dao thu tu cac ky tu trong chuoi
# Input: a0=addr(s[]), a1=so ky tu n
# Output: none
# Reserved: none
#-----
reverse:
    # a0=addr(s[i]), a2=addr(s[n-1-i]), a1=n/2
    add   $a2,$a0,$a1
    subi  $a2,$a2,1      # a2 = a0 + (n-1)
    srl   $a1,$a1,1      # a1 = n/2
    # s0=s[i], s2=s[n-1-i], s1=i(=0)
    #for1 - init1
    add   $s1,$zero,$zero    # i=0
    #cond1
cond1:    beq   $s1,$a1,end_for1    # i=n/2-> ket thuc
    #body1
    lb    $s0,0($a0)

```

```

        lb    $s2,0($a2)
        sb    $s0,0($a2)    # doi cho ky tu
        sb    $s2,0($a0)
    #loop1
        addi  $s1,$s1,1      #i++
        addi  $a0,$a0,1      #bptr++
        subi  $a2,$a2,1      #eptr--
        j     cond1
    #end_for1
end_for1:
    jr      $ra
#-----
# Chuong trinh con strlen: lay chieu dai chuoi
# Input: a0=addr(s[])
# Output: v0=chieu dai chuoi
#-----
strlen:
    # a=addr(s[]), s0=s[i], s1=i(=0)
    addi  $s1,$zero,0
    #while1 (s[i]!='\0')
while1:
    lb    $s0,0($a0)
    beq   $s0,$zero,end_wh1
    #bodyw1
    addi  $s1,$s1,1
    addi  $a0,$a0,1
    j     while1
    #end_wh1
end_wh1:
    add   $v0,$s1,$zero
    jr    $ra
#ket thuc chuong trinh (syscall)
Kthuc:   addi $v0,$zero,10
        syscall
#-----

```