

```
.data
array: .space 40
minWords: .asciiz "\nThe minimum of the array is "
combWord: .asciiz "\nThe combination is "
promptInt: .asciiz "Enter an integer: "
promptLH: .asciiz "Enter an index(0-9): "
nL: .asciiz "\n"
```

```
.text
main: li $t0, 10
      la $t1, array
loadArray:
      blez $t0, doMin
      li $v0, 4
      la $a0, promptInt
      syscall
      li $v0, 5
      syscall
      sw $v0, 0($t1)
      addi $t0, $t0, -1
      addi $t1, $t1, 4
      b loadArray
doMin:
      li $v0, 4
      la $a0, promptLH
      syscall
      li $v0, 5
      syscall
      move $a1, $v0
      li $v0, 4
      la $a0, promptLH
      syscall
      li $v0, 5
      syscall
      move $a2, $v0
      li $v0, 4
      la $a0, minWords
      syscall
      la $a0, array
      jal Min
      move $t3, $v0
      li $v0, 1
      move $a0, $t3
      syscall
```

```

li $v0,4
la $a0,nL
syscall
#user input
li $v0,4
la $a0,promptInt
syscall
li $v0,5
syscall
move $t1,$v0
li $v0,4
la $a0,promptInt
syscall
li $v0,5
syscall
move $t2,$v0
li $v0,4
la $a0,combWord
syscall
move $a0,$t1
move $a1,$t2
jal Comb
move $t3,$v0
li $v0,1
move $a0,$t3
syscall
li $v0,4
la $a0,nL
syscall
li $v0,10 #exit
syscall

```

```

Comb:#a0 = n, a1 = r
    beq $a0,$a1,base #r == n
    beqz $a1,base#r == 0

```

```

recC:
    addiu $sp,$sp,-16 #save local variables
    sw $ra,0($sp) #save stack pointer
    sw $a0,4($sp) #save n
    sw $a1,8($sp) #save r
    #Comb(n-1,r)
    addi $a0,$a0,-1 #n-1
    jal Comb
    sw $v0,12($sp)

```

```

    #Comb(n-1,r-1)
    lw $a0,4($sp) #load n
    addi $a0,$a0,-1 #n-1
    lw $a1,8($sp) #load r
    addi $a1,$a1,-1 #r-1 is in a1
    jal Comb
    lw $t1,12($sp) #t1 = Comb(n-1,r)
    move $t2,$v0
    add $v0,$t2,$t1 #Comb(n,r) = Comb(n-1,r) + Comb(n-1,r-1)
    lw $ra,0($sp)
    addiu $sp,$sp,16 #return space
    jr $ra
base:li $v0,1
    jr $ra

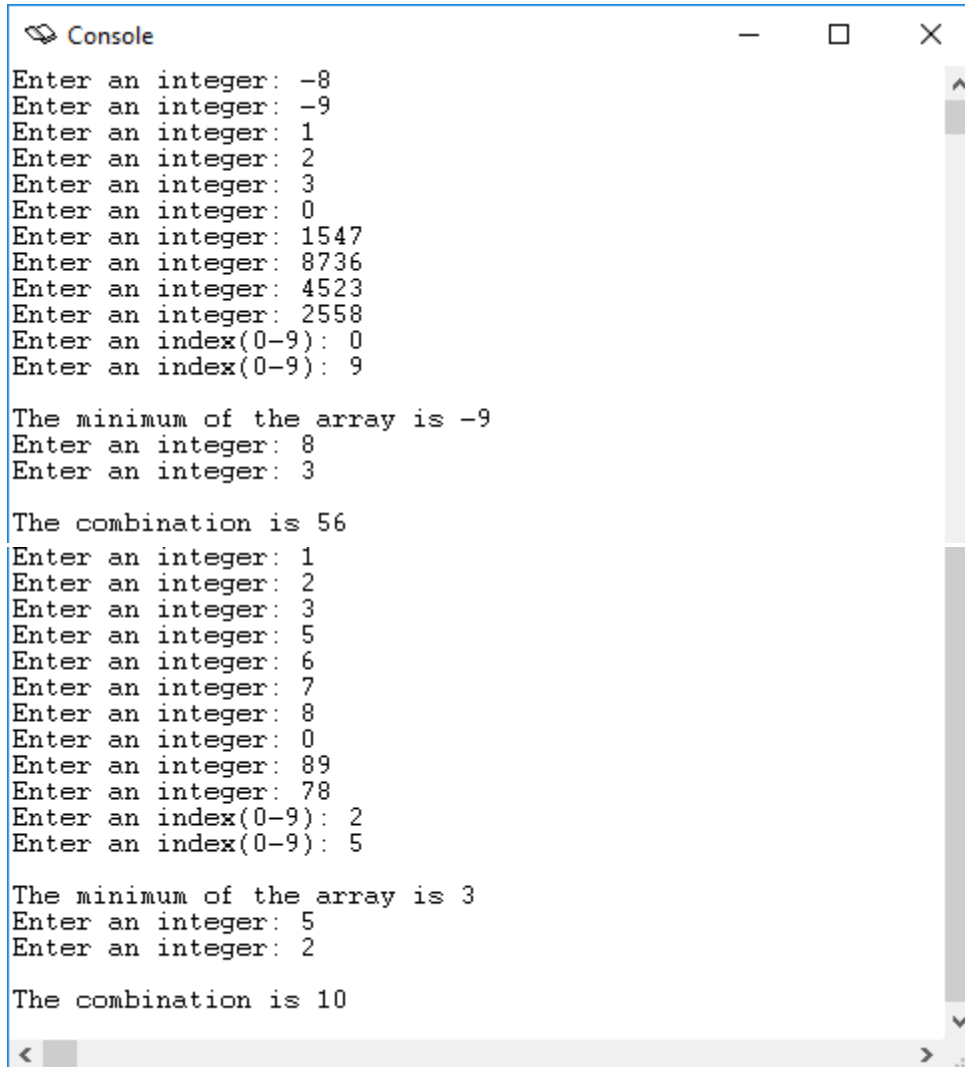
```

```

Min:#array address is in a0
    #low is in a1, high is in a2
    bne $a1,$a2,rec
    mul $t0,$a1,4
    add $t0,$t0,$a0
    lw $v0,0($t0)
    jr $ra #return
rec:add $t0,$a1,$a2#high + low #t0 is mid
    sra $t0,$t0,1 #divide by 2
    addiu $sp,$sp,-16 #save local variables
    sw $ra,0($sp) #save stack pointer
    sw $t0,4($sp) #save mid
    sw $a2,8($sp) #save high
    #min1 = Min(int[]A,low,mid)
    move $a2,$t0
    jal Min
    sw $v0,12($sp) #save min1
    #min2 = Min(int[]A,mid+1,high)
    lw $a1,4($sp) #mid is in a1
    addi $a1,$a1,1 #mid + 1 is in a1
    lw $a2,8($sp)
    jal Min
    move $t2,$v0 #t2 = min2
    lw $t1,12($sp)#get min1 from stack
    #if (min1>min2),return min2
    ble $t1,$t2,retMin1
    b ret #$v1 is already min2
retMin1:
    move $v0,$t1 #return min1

```

```
ret:lw $ra,0($sp)
      addiu $sp,$sp,16 #return space
      jr $ra
```

A screenshot of a terminal window titled "Console". The window contains the following text:

```
Enter an integer: -8
Enter an integer: -9
Enter an integer: 1
Enter an integer: 2
Enter an integer: 3
Enter an integer: 0
Enter an integer: 1547
Enter an integer: 8736
Enter an integer: 4523
Enter an integer: 2558
Enter an index(0-9): 0
Enter an index(0-9): 9

The minimum of the array is -9
Enter an integer: 8
Enter an integer: 3

The combination is 56
Enter an integer: 1
Enter an integer: 2
Enter an integer: 3
Enter an integer: 5
Enter an integer: 6
Enter an integer: 7
Enter an integer: 8
Enter an integer: 0
Enter an integer: 89
Enter an integer: 78
Enter an index(0-9): 2
Enter an index(0-9): 5

The minimum of the array is 3
Enter an integer: 5
Enter an integer: 2

The combination is 10
```

The console window has a standard title bar with minimize, maximize, and close buttons. It also features a vertical scrollbar on the right and a horizontal scrollbar at the bottom.