

SIC/XE WITH REAL COMPARISON

SUBMITTED BY,

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ROLL NO 67

CSE S5

SIC/XE

```
00000 4B2006          JSUB    FINDAREA
00003 4B2012          JSUB    FINDPERIMETER
00006 3F2FFD    halt      J      halt
```

```
00009 010001    FINDAREA    LDA     #1
0000C 23201B          MUL     BREADTH
0000F 23201B          MUL     LENGTH
00012 0F201B          STA     AREA
00015 4F0000          RSUB
```

```
00018 010000    FINDPERIMETER LDA     #0
0001B 1B200C          ADD     BREADTH
0001E 1B200C          ADD     LENGTH
00021 210002          MUL     #2
00024 0F200C          STA     PERIMETER
00027 4F0000          RSUB
```

REAL

```
.file    "apr.c"
.text
.globl   rect_area
.type    rect_area, @function
rect_area:
.LFB0:
.cfi_startproc
endbr64
pushq    %rbp
.cfi_def_cfa_offset 16
.cfi_offset 6, -16
movq     %rsp, %rbp
.cfi_def_cfa_register 6
movl     %edi, -20(%rbp)
movl     %esi, -24(%rbp)
movl     -20(%rbp), %eax
imull    -24(%rbp), %eax
movl     %eax, -4(%rbp)
popq     %rbp
.cfi_def_cfa 7, 8
ret
.cfi_endproc

.LFE0:
.size    rect_area, .-rect_area
.globl   rect_perimeter
.type    rect_perimeter, @function
rect_perimeter:
.LFB1:
.cfi_startproc
endbr64
pushq    %rbp
.cfi_def_cfa_offset 16
.cfi_offset 6, -16
movq     %rsp, %rbp
.cfi_def_cfa_register 6
movl     %edi, -20(%rbp)
movl     %esi, -24(%rbp)
movl     -20(%rbp), %edx
movl     -24(%rbp), %eax
addl     %edx, %eax
addl     %eax, %eax
movl     %eax, -4(%rbp)
popq     %rbp
.cfi_def_cfa 7, 8
ret
.cfi_endproc

.LFE1:
.size    rect_perimeter, .-rect_perimeter
.section .rodata
.align 8

.LC0:
.string  "\nArea of Rectangle =
%d\n\nPerimeter of Rectangle = %d"
.text
.globl   main
.type    main, @function
main:
.LFB2:
.cfi_startproc
endbr64
pushq    %rbp
.cfi_def_cfa_offset 16
.cfi_offset 6, -16
movq     %rsp, %rbp
.cfi_def_cfa_register 6
subq     $16, %rsp
movl     $10, -16(%rbp)
movl     $5, -12(%rbp)
movl     -12(%rbp), %edx
movl     -16(%rbp), %eax
movl     %edx, %esi
movl     %eax, %edi
call     rect_area
movl     %eax, -8(%rbp)
```

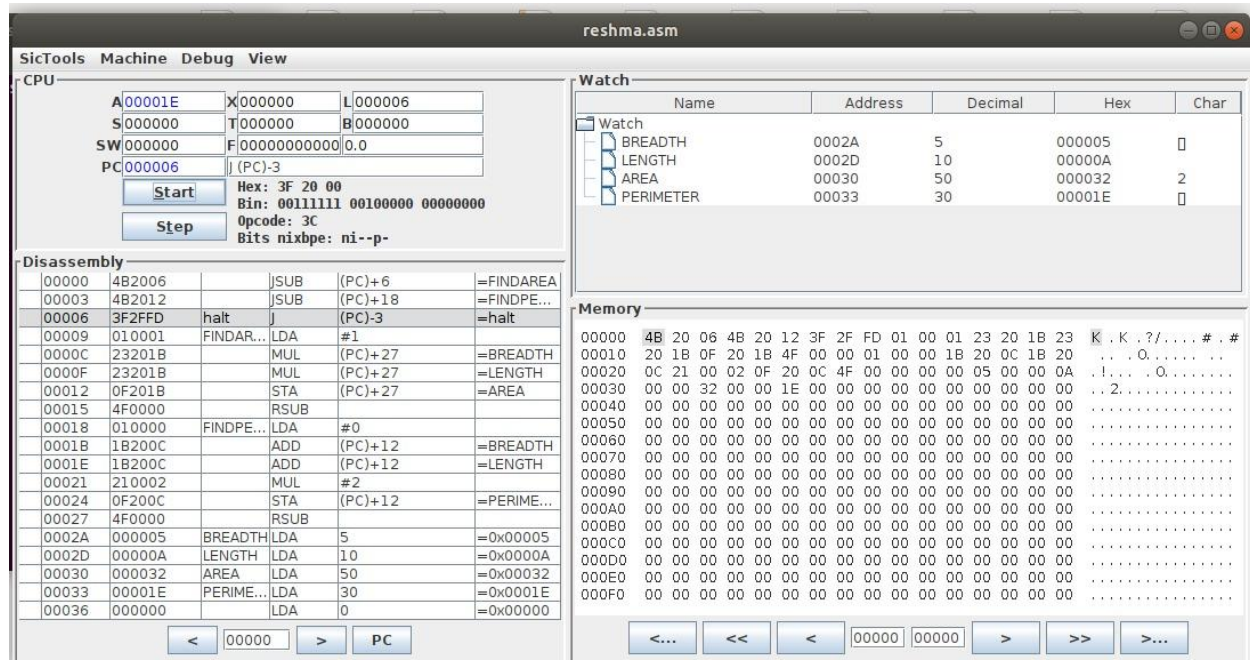
					<pre> movl -12(%rbp), %edx movl -16(%rbp), %eax movl %edx, %esi movl %eax, %edi call rect_perimeter movl %eax, -4(%rbp) movl -4(%rbp), %edx movl -8(%rbp), %eax movl %eax, %esi leaq .LC0(%rip), %rdi movl \$0, %eax call printf@PLT movl \$0, %eax leave .cfi_def_cfa 7, 8 ret .cfi_endproc .LFE2: .size main, .-main .ident "GCC: (Ubuntu 9.3.0-17ubuntu1~20.04) 9.3.0" .section .note.GNU-stack,"",@progbits .section .note.gnu.property,"a" .align 8 .long 1f - 0f .long 4f - 1f .long 5 0: .string "GNU" 1: .align 8 .long 0xc0000002 .long 3f - 2f 2: .long 0x3 3: .align 8 4: </pre>
0002A	000005	BREADTH	WORD	5	
0002D	00000A	LENGTH	WORD	10	
00030	000000	AREA	RESW	1	
00033	000000	PERIMETER	RESW	1	

COMPARISON

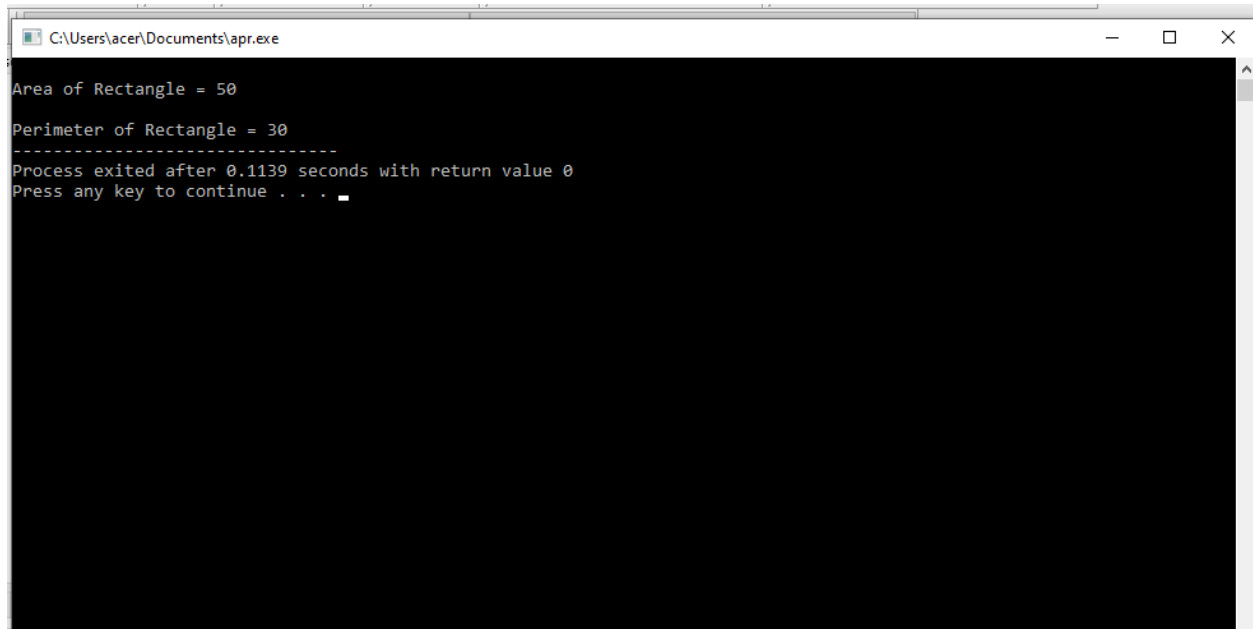
FEATURE	SIC/XE	SOURCE CODE
Starting of Block	START assembler directive is used	.cfi_startproc is used.it initializes some internaldata structures and emits architecture dependent initial CFI instructions.
Ending of Block	END assembler directive is used	.cfi_endproc is used to specify end of each code block
Function Block	JSUB keyword and subroutine label is used. RTSUB is used to return from the function to main program after itscomplete execution	Label are defined using LFB FUNC_BEGIN_LABEL LFE FUNC_END_LABEL
Size(Bytes)		

SCREENSHOTS

SIC/XE



HLL(C program)



A screenshot of a Windows command prompt window. The title bar shows the file path "C:\Users\acer\Documents\apr.exe" and standard window controls (minimize, maximize, close). The command prompt has a black background with white text. The output of the program is as follows:

```
Area of Rectangle = 50
Perimeter of Rectangle = 30
-----
Process exited after 0.1139 seconds with return value 0
Press any key to continue . . .
```