

NAME: DEEPAK SHITOLE
MIS NO: 642303019

SUBJECT: PPL
ASSIGNMENT NO:-02

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PROGRAM:

```
void function()
{
    char buff[5];
    char buff1[16];
}

int function1(){
    return 1;
}

int main()
{
    int a=1, b=5, c=6;
    function();
    function1();
    return 0;
}
```

OUTPUT:

i) objdump -f:

```
student@cc-91:~/om ppl/expt2$ objdump a-expt2.o -f

a-expt2.o:      file format elf64-x86-64
architecture: i386:x86-64, flags 0x00000011:
HAS_RELOC, HAS_SYMS
start address 0x0000000000000000

student@cc-91:~/om ppl/expt2$ |
```

ii) objdump -x

```
student@cc-91:~/om ppl/expt2$ objdump a-expt2.o -x

a-expt2.o:      file format elf64-x86-64
a-expt2.o
architecture: i386:x86-64, flags 0x00000011:
HAS_RELOC, HAS_SYMS
start address 0x0000000000000000

Sections:
Idx Name          Size      VMA           LMA           File off  Algn
 0 .text          0000007d  0000000000000000  0000000000000000  00000040  2**0
    CONTENTS, ALLOC, LOAD, RELOC, READONLY, CODE
 1 .data          00000000  0000000000000000  0000000000000000  000000bd  2**0
    CONTENTS, ALLOC, LOAD, DATA
 2 .bss           00000000  0000000000000000  0000000000000000  000000bd  2**0
    ALLOC
 3 .comment       0000002c  0000000000000000  0000000000000000  000000bd  2**0
    CONTENTS, READONLY
 4 .note.gnu-stack 00000000  0000000000000000  0000000000000000  000000e9  2**0
    CONTENTS, READONLY
 5 .note.gnu.property 00000020  0000000000000000  0000000000000000  000000f0  2**0
    CONTENTS, ALLOC, LOAD, READONLY, DATA
 6 .eh_frame      00000078  0000000000000000  0000000000000000  00000110  2**3
    CONTENTS, ALLOC, LOAD, RELOC, READONLY, DATA

SYMBOL TABLE:
0000000000000000 l   df *ABS*  0000000000000000 expt2.c
0000000000000000 l   d  .text  0000000000000000 .text
0000000000000000 g   F  .text  0000000000000032 function
0000000000000000 *UND*  0000000000000000 __stack_chk_fail
0000000000000032 g   F  .text  000000000000000f function1
0000000000000041 g   F  .text  000000000000003c main

RELOCATION RECORDS FOR [.text]:
OFFSET          TYPE          VALUE
000000000000002c R_X86_64_PLT32  __stack_chk_fail-0x0000000000000004
0000000000000068 R_X86_64_PLT32  function-0x0000000000000004
0000000000000072 R_X86_64_PLT32  function1-0x0000000000000004

RELOCATION RECORDS FOR [.eh_frame]:
OFFSET          TYPE          VALUE
0000000000000020 R_X86_64_PC32  .text
0000000000000040 R_X86_64_PC32  .text+0x0000000000000032
0000000000000060 R_X86_64_PC32  .text+0x0000000000000041

student@cc-91:~/om ppl/expt2$ |
```

iii) objdump --disassemble-all

```
student@cc-91:~/om ppl/expt2$ objdump a-expt2.o --disassemble-all
a-expt2.o:          file format elf64-x86-64

Disassembly of section .text:

0000000000000000 <function>:
 0:  f3 0f 1e fa          endbr64
 4:  55                   push    %rbp
 5:  48 89 e5             mov     %rsp,%rbp
 8:  48 83 ec 20          sub     $0x20,%rsp
 c:  64 48 8b 04 25 28 00 mov     %fs:0x28,%rax
13:  00 00
15:  48 89 45 f8          mov     %rax,-0x8(%rbp)
19:  31 c0                xor     %eax,%eax
1b:  90                   nop
1c:  48 8b 45 f8          mov     -0x8(%rbp),%rax
20:  64 48 2b 04 25 28 00 sub     %fs:0x28,%rax
27:  00 00
29:  74 05                je      30 <function+0x30>
2b:  e8 00 00 00 00      call    30 <function+0x30>
30:  c9                   leave
31:  c3                   ret

0000000000000032 <function1>:
32:  f3 0f 1e fa          endbr64
36:  55                   push    %rbp
37:  48 89 e5             mov     %rsp,%rbp
3a:  b8 01 00 00 00      mov     $0x1,%eax
3f:  5d                   pop     %rbp
40:  c3                   ret

0000000000000041 <main>:
41:  f3 0f 1e fa          endbr64
45:  55                   push    %rbp
46:  48 89 e5             mov     %rsp,%rbp
49:  48 83 ec 10          sub     $0x10,%rsp
4d:  c7 45 f4 01 00 00 00 movl     $0x1,-0xc(%rbp)
54:  c7 45 f8 05 00 00 00 movl     $0x5,-0x8(%rbp)
5b:  c7 45 fc 06 00 00 00 movl     $0x6,-0x4(%rbp)
62:  b8 00 00 00 00      mov     $0x0,%eax
67:  e8 00 00 00 00      call    6c <main+0x2b>
6c:  b8 00 00 00 00      mov     $0x0,%eax
71:  e8 00 00 00 00      call    76 <main+0x35>
76:  b8 00 00 00 00      mov     $0x0,%eax
7b:  c9                   leave
7c:  c3                   ret
```

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Disassembly of section .comment:

```
0000000000000000 <.comment>:
 0: 00 47 43      add    %al,0x43(%rdi)
 3: 43 3a 20      rex.XB cmp    (%r8),%spl
 6: 28 55 62      sub    %dl,0x62(%rbp)
 9: 75 6e         jne    79 <main+0x38>
 b: 74 75         je     82 <main+0x41>
 d: 20 31         and    %dh,(%rcx)
 f: 31 2e         xor    %ebp,(%rsi)
11: 34 2e         xor    $0x2e,%al
13: 30 2d 31 75 62 75  xor    %ch,0x75627531(%rip)      # 7562754a <main+0x75627509>
19: 6e           outsb  %ds:(%rsi),(%dx)
1a: 74 75         je     91 <main+0x50>
1c: 31 7e 32      xor    %edi,0x32(%rsi)
1f: 32 2e         xor    (%rsi),%ch
21: 30 34 29      xor    %dh,(%rcx,%rbp,1)
24: 20 31         and    %dh,(%rcx)
26: 31 2e         xor    %ebp,(%rsi)
28: 34 2e         xor    $0x2e,%al
2a: 30 00         xor    %al,(%rax)
```

Disassembly of section .note.gnu.property:

```
0000000000000000 <.note.gnu.property>:
 0: 04 00      add    $0x0,%al
 2: 00 00      add    %al,(%rax)
 4: 10 00      adc    %al,(%rax)
 6: 00 00      add    %al,(%rax)
 8: 05 00 00 00 47  add    $0x47000000,%eax
 d: 4e 55      rex.WRX push %rbp
 f: 00 02      add    %al,(%rdx)
11: 00 00      add    %al,(%rax)
13: c0 04 00 00    rolb   $0x0,(%rax,%rax,1)
17: 00 03      add    %al,(%rbx)
19: 00 00      add    %al,(%rax)
1b: 00 00      add    %al,(%rax)
1d: 00 00      add    %al,(%rax)
...
```


Disassembly of section .eh_frame:

0000000000000000 <.eh_frame>:

```
0: 14 00          adc     $0x0,%al
2: 00 00          add     %al,(%rax)
4: 00 00          add     %al,(%rax)
6: 00 00          add     %al,(%rax)
8: 01 7a 52      add     %edi,0x52(%rdx)
b: 00 01          add     %al,(%rcx)
d: 78 10          js      1f <.eh_frame+0x1f>
f: 01 1b          add     %ebx,(%rbx)
11: 0c 07          or      $0x7,%al
13: 08 90 01 00 00 1c or      %dl,0x1c000001(%rax)
19: 00 00          add     %al,(%rax)
1b: 00 1c 00      add     %bl,(%rax,%rax,1)
1e: 00 00          add     %al,(%rax)
20: 00 00          add     %al,(%rax)
22: 00 00          add     %al,(%rax)
24: 32 00          xor     (%rax),%al
26: 00 00          add     %al,(%rax)
28: 00 45 0e      add     %al,0xe(%rbp)
2b: 10 86 02 43 0d 06 adc     %al,0x60d4302(%rsi)
31: 69 0c 07 08 00 00 00 imul    $0x8,(%rdi,%rax,1),%ecx
38: 1c 00          sbb     $0x0,%al
3a: 00 00          add     %al,(%rax)
3c: 3c 00          cmp     $0x0,%al
3e: 00 00          add     %al,(%rax)
40: 00 00          add     %al,(%rax)
42: 00 00          add     %al,(%rax)
44: 0f 00 00      sldt    (%rax)
47: 00 00          add     %al,(%rax)
49: 45 0e          rex.RB (bad)
4b: 10 86 02 43 0d 06 adc     %al,0x60d4302(%rsi)
51: 46 0c 07      rex.RX or $0x7,%al
54: 08 00          or      %al,(%rax)
56: 00 00          add     %al,(%rax)
58: 1c 00          sbb     $0x0,%al
5a: 00 00          add     %al,(%rax)
5c: 5c           pop     %rsp
5d: 00 00          add     %al,(%rax)
5f: 00 00          add     %al,(%rax)
61: 00 00          add     %al,(%rax)
63: 00 3c 00      add     %bh,(%rax,%rax,1)
66: 00 00          add     %al,(%rax)
68: 00 45 0e      add     %al,0xe(%rbp)
6b: 10 86 02 43 0d 06 adc     %al,0x60d4302(%rsi)
71: 73 0c          jae     7f <main+0x3e>
73: 07           (bad)
74: 08 00          or      %al,(%rax)
```

...

student@cc-91:~/om ppl/expt2\$ |