Lab 1 – Prework

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**************PART 1**************

(A)

Case	a.out	TEXT	DATA	BSS
(1)	7236	1507	304	8
(2)	7240	1507	308	4
(3)	7236	1507	304	40032
(4)	47340	1710	40332	4
(5)	7316	1710	308	8
(6)	7328	1523	304	40068

1.

In terms of the above classification and the variables g, a, b, c, d,

Which variables are in DATA? DATA variables are any initialized global variable, or any initialized static local variable.
Which variables are in BSS? BSS variables are any uninitialized global variable, or any uninitialized static local variable.

2.

In terms of the TEXT, DATA, and BSS sections,

Which sections are in a.out, which section is NOT in a.out? TEXT, and DATA are in a.out and BSS is NOT in a.out.
WHY? This is because a.out is only made up of the header, code (text), and data. So BSS is not involved in a.out.

(B)

Using cc – m32 -static t.c

Case	a.out	TEXT	DATA	BSS
(1)	657628	581882	11264	3344
(2)	657628	581882	11264	3344
(3)	657628	581882	11264	43344

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(4)	697660	581930	51296	3344
(5)	657628	581930	11264	3344
(6)	657720	581898	11264	43376

WHAT DO YOU SEE? I notice that the a.out file size is much bigger in each of the t.c files when they are statically linked

WHY? This happens because when static linking you use a static library, which means the linker includes all needed library function code into a.out. This makes the a.out file self-contained which makes it much larger than an a.out file that was dynamically linked.

**************PART 2***************

enter main
&argc=ffed1620 argv=ffed16b4 env=ffed16c8
&a=ffed15dc &b=ffed15e0 &c=ffed15e4
argc=4
argv[0]=./a.out argv[1]=one argv[2]=two argv[3]=three
enter A
&d=ffed1590 &e=ffed1594 &f=ffed1598
enter B
&g=ffed1560 &h=ffed1564 &i=ffed1568
enter C
&u=ffed1528 &v=ffed152c &w=ffed1530 &i=ffed1534 &p=ffed1538
FP=ffed1548
Stack Frame FP Value = ffed1548
Stack Frame FP Value = ffed1578
Stack Frame FP Value = ffed15a8
Stack Frame FP Value = ffed1608
Stack Frame FP Value = 0
ffed1528 a ← **This is variable u | u = 10**
ffed152c b ← **This is variable v | v = 11**
ffed1530 c ← **This is variable w | w = 12**
ffed1534 3 ← **This is variable i | i = 3**
ffed1538 ffed1538 ← **This is variable p**
ffed153c e399e900
ffed1540 ffed1620
ffed1544 5662ffcc
ffed1548 ffed1578 ← **Stack Frame FP *FP**
ffed154c 5662e81b
ffed1550 7
ffed1554 8
ffed1558 ffed1564
ffed155c ffed1568
ffed1560 7 ← **This is variable g | g = 7**
ffed1564 8 ← **This is variable h | h = 8**

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ffed1568	9	← **This is variable i | i = 9**
ffed156c	e399e900	
ffed1570	ffed1620	
ffed1574	5662ffcc	
ffed1578	ffed15a8	← **Stack Frame FP *FP**
ffed157c	5662e780	
ffed1580	4	
ffed1584	5	
ffed1588	ffed1594	
ffed158c	ffed1598	
ffed1590	4	← **This is variable d | d = 4**
ffed1594	5	← **This is variable e | e = 5**
ffed1598	6	← **This is variable f | f = 6**
ffed159c	e399e900	
ffed15a0	ffed1620	
ffed15a4	5662ffcc	
ffed15a8	ffed1608	← **Stack Frame FP *FP**
ffed15ac	5662e6db	
ffed15b0	1	
ffed15b4	2	
ffed15b8	ffed32f0	
ffed15bc	ffed15e4	
ffed15c0	9	
ffed15c4	ffed32e0	
ffed15c8	ffed16c8	
ffed15cc	ffed16b4	
ffed15d0	f7fb9000	
ffed15d4	f7fb9000	
ffed15d8	0	
ffed15dc	1	← **This is variable a | a = 1**
ffed15e0	2	← **This is variable b | b = 2**
ffed15e4	3	← **This is variable c | c = 3**
ffed15e8	4	
ffed15ec	e399e900	
ffed15f0	4	
ffed15f4	ffed16b4	
ffed15f8	ffed16c8	
ffed15fc	ffed1620	
ffed1600	0	
ffed1604	f7fb9000	
ffed1608	0	← **Stack Frame FP *FP**
ffed160c	f7dfce91	
ffed1610	f7fb9000	
ffed1614	f7fb9000	
ffed1618	0	
ffed161c	f7dfce91	
ffed1620	4	← **This is argc. argc = 1**

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```
ffed1624    ffed16b4
ffed1628    ffed16c8
ffed162c    ffed1644
ffed1630    4
ffed1634    ffed16b4
ffed1638    f7fb9000
ffed163c    f7fde77a
ffed1640    ffed16b0
ffed1644    0
ffed1648    f7fb9000
ffed164c    0
ffed1650    0
ffed1654    b8135b86
ffed1658    dda3bd96
ffed165c    0
ffed1660    0
ffed1664    0
ffed1668    40
ffed166c    f7ff6024
ffed1670    0
ffed1674    0
ffed1678    f7fde889
ffed167c    5662ffcc
ffed1680    4
ffed1684    5662e4a0
ffed1688    0
ffed168c    5662e4d1
ffed1690    5662e5dd
ffed1694    4
ffed1698    ffed16b4
ffed169c    5662e9b0
ffed16a0    5662ea10
ffed16a4    f7fde9d0
ffed16a8    ffed16ac
ffed16ac    f7ff6940
ffed16b0    4
ffed16b4    ffed32e0    ← This is argv
ffed16b8    ffed32e8
ffed16bc    ffed32ec
ffed16c0    ffed32f0
ffed16c4    0
ffed16c8    ffed32f6    ← This is env
ffed16cc    ffed38e2
ffed16d0    ffed38f5
ffed16d4    ffed3905
ffed16d8    ffed3927
ffed16dc    ffed393f
```

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ffed16e0 ffed394c
ffed16e4 ffed3964
ffed16e8 ffed3987
ffed16ec ffed39a6
ffed16f0 ffed39c3
ffed16f4 ffed39d4
ffed16f8 ffed3a05
ffed16fc ffed3a1c
ffed1700 ffed3a31
ffed1704 ffed3a72
ffed1708 ffed3a82
ffed170c ffed3a96
ffed1710 ffed3a9e
ffed1714 ffed3ab2
ffed1718 ffed3fbe
ffed171c ffed3fc6
ffed1720 ffed3fe6
ffed1724 0
exit B
exit A
exit main