

1.

Part A

```
[sraj28@general4 ~]$ mkdir CSE220Ass1
[sraj28@general4 ~]$ cd CSE220Ass1
[sraj28@general4 CSE220Ass1]$ vi add.c
[sraj28@general4 CSE220Ass1]$ gcc add.c -o add
[sraj28@general4 CSE220Ass1]$ ./add
c = 8
[sraj28@general4 CSE220Ass1]$
```

Part B

```
[sraj28@general4 CSE220Ass1]$ vi add.c
[sraj28@general4 CSE220Ass1]$ gcc.add.c -o partb_subtract
-bash: gcc.add.c: command not found
[sraj28@general4 CSE220Ass1]$ gcc add.c -o partb_subtract
[sraj28@general4 CSE220Ass1]$ ./partb_subtract
c = -2
[sraj28@general4 CSE220Ass1]$
```

Part C

```
[sraj28@general4 CSE220Ass1]$ gcc -S add.c
[sraj28@general4 CSE220Ass1]$ more add.s
```

```
.file      "add.c"
.text
.section   .rodata
.LC0:
.string    "c = %d\n"
.text
.globl     main
.type      main, @function
main:
.LFB0:
.cfi_startproc
pushq     %rbp
.cfi_def_cfa_offset 16
.cfi_offset 6, -16
movq      %rsp, %rbp
.cfi_def_cfa_register 6
subq      $16, %rsp
movl      $3, -4(%rbp)
movl      $5, -8(%rbp)
movl      -4(%rbp), %eax
subl      -8(%rbp), %eax
movl      %eax, -12(%rbp)
movl      -12(%rbp), %eax
movl      %eax, %esi
movl      $.LC0, %edi
movl      $0, %eax
call      printf
movl      $0, %eax
leave
.cfi_def_cfa 7, 8
ret
.cfi_endproc
.LFE0:
.size      main, -main
```

```
.ident "GCC: (GNU) 11.4.1 20230605 (Red Hat 11.4.1-2)"
.section .note.GNU-stack,"",@progbits
[sraj28@general4 CSE220Ass1]$
[sraj28@general4 CSE220Ass1]$
```

The green highlight is where the subtraction happened for C at assembly level. The value of C is stored in the register %eax.

2.

PART A

```
[sraj28@general5 ~]$ ps -p$$
  PID TTY          TIME CMD
1224687 pts/6    00:00:00 bash
[sraj28@general5 ~]$
```

PART B

```
[sraj28@general5 ~]$ vi script.sh
[sraj28@general5 ~]$ bash script.sh
Hello World
Here are your files:
Backup CSE220Ass1 cse220.c script.sh
[sraj28@general5 ~]$
```

PART C

```
[sraj28@general5 ~]$ chmod +x script.sh
[sraj28@general5 ~]$ ./script.sh
Hello World
Here are your files:
Backup CSE220Ass1 cse220.c script.sh
[sraj28@general5 ~]$
```

3.

PART A.

```
mkdir A1
touch A1/f1.txt A1/f2.txt A1/f3.txt
mkdir A1/A1sub
touch A1/A1sub/f4.txt A1/A1sub/f5.txt
ls -lR A1
ls -lR A1 > allthat
ls -l A1/* | grep '[1-4]\.txt'
rm -r A1
rm allthat
```