CSS-553 Assignment-2 Outputs

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A2 part a.)

```
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ ps -e --forest | grep -A 10 A2
    7397 pts/3    00:00:00 |   |    \_ A2
    7398 pts/3    00:00:00 |   |        \_ A2
    7399 pts/3    00:00:00 |   |        \_ A2
    7400 pts/3    00:00:00 |   |        \_ A2
    7401 pts/3    00:00:00 |   |        \_ A2
    7404 pts/4    00:00:00 |   \_ bash
    7426 pts/4    00:00:00 |       \_ ps
    7427 pts/4    00:00:00 |       \_ grep
    3356 ?        00:00:00 \_ snap
    1560 ?        00:00:00 gnome-keyring-d
    2388 ?        00:00:01 fwupd
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$
```

```
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ gcc -o A2 A2.c
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ ./A2
Enter the number of child processes: 4
Parent: PID = 7397, PPID = 7339
Child 1: PID = 7398, PPID = 7397
Child 2: PID = 7399, PPID = 7397
Child 4: PID = 7401, PPID = 7397
Child 3: PID = 7400, PPID = 7397
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$
```

```
Open ∨  ⌐                              log.txt                              Save  ≡  –  ◻  x
                              ~/Desktop/OS Lab/Assignment2

                A2.c                          x                  log.txt                      x

 1 Wed Aug 21 10:10:08 2024 - Parent: PID = 7156, PPID = 7034
 2 Wed Aug 21 10:10:08 2024 - Child: PID = 7161, PPID = 7156
 3 Wed Aug 21 10:10:08 2024 - Child: PID = 7160, PPID = 7156
 4 Wed Aug 21 10:10:08 2024 - Child: PID = 7162, PPID = 7156
 5 Wed Aug 21 10:10:08 2024 - Child: PID = 7163, PPID = 7156
 6 Wed Aug 21 10:22:55 2024 - Parent: PID = 7358, PPID = 7339
 7 Wed Aug 21 10:22:55 2024 - Child: PID = 7360, PPID = 7358
 8 Wed Aug 21 10:22:55 2024 - Child: PID = 7361, PPID = 7358
 9 Wed Aug 21 10:22:55 2024 - Child: PID = 7359, PPID = 7358
10 Wed Aug 21 10:22:55 2024 - Child: PID = 7362, PPID = 7358
11 Wed Aug 21 10:22:55 2024 - Child: PID = 7363, PPID = 7358
12 Wed Aug 21 10:26:20 2024 - Parent: PID = 7397, PPID = 7339
13 Wed Aug 21 10:26:20 2024 - Child: PID = 7398, PPID = 7397
14 Wed Aug 21 10:26:20 2024 - Child: PID = 7399, PPID = 7397
15 Wed Aug 21 10:26:20 2024 - Child: PID = 7401, PPID = 7397
16 Wed Aug 21 10:26:20 2024 - Child: PID = 7400, PPID = 7397
```

A2 part b.)

```
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ gcc -o A22 A22.c
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ ./A22
Enter the number of processes: 4
Child 1: PID = 8613, PPID = 8612
Child 2: PID = 8668, PPID = 8613
Child 3: PID = 8713, PPID = 8668
Child 4: PID = 8729, PPID = 8713
Last Child 4: PID = 8729, PPID = 8713
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$
```

```
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ ps -e -o pid,args --forest|grep A22
  8612 |   |   \_ ./A22
  8613 |   |       \_ ./A22
  8667 |       \_ grep --color=auto A22
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ ps -e -o pid,args --forest|grep A22
  8612 |   |   \_ ./A22
  8613 |   |       \_ ./A22
  8668 |   |           \_ ./A22
  8712 |       \_ grep --color=auto A22
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ ps -e -o pid,args --forest|grep A22
  8612 |   |   \_ ./A22
  8613 |   |       \_ ./A22
  8668 |   |           \_ ./A22
  8713 |   |               \_ ./A22
  8729 |   |                   \_ ./A22
  8741 |       \_ grep --color=auto A22
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ ps -e -o pid,args --forest|grep A22
  8786 |       \_ grep --color=auto A22
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$
```

log2.txt
~/Desktop/OS Lab/Assignment2

Open ⌄ ⊞

```
 1 Wed Aug 21 10:42:40 2024 - Child: PID = 7903, PPID = 7902
 2 Wed Aug 21 10:43:40 2024 - Child: PID = 7928, PPID = 7903
 3 Wed Aug 21 10:44:40 2024 - Child: PID = 7946, PPID = 7928
 4 Wed Aug 21 10:45:40 2024 - Child: PID = 7968, PPID = 7946
 5 Wed Aug 21 10:46:40 2024 - Child: PID = 7982, PPID = 7968
 6 Wed Aug 21 10:47:40 2024 - Last Child: PID = 7982, PPID = 7968
 7 Wed Aug 21 11:02:29 2024 - Child: PID = 8613, PPID = 8612
 8 Wed Aug 21 11:03:29 2024 - Child: PID = 8668, PPID = 8613
 9 Wed Aug 21 11:04:29 2024 - Child: PID = 8713, PPID = 8668
10 Wed Aug 21 11:05:29 2024 - Child: PID = 8729, PPID = 8713
11 Wed Aug 21 11:06:29 2024 - Last Child: PID = 8729, PPID = 8713
12 Wed Aug 21 11:27:06 2024 - Child: PID = 9585, PPID = 9584
13 Wed Aug 21 11:27:36 2024 - Child: PID = 9601, PPID = 9585
14 Wed Aug 21 11:28:06 2024 - Child: PID = 9617, PPID = 9601
15 Wed Aug 21 11:28:36 2024 - Child: PID = 9632, PPID = 9617
16 Wed Aug 21 11:29:06 2024 - Child: PID = 9673, PPID = 9632
17 Wed Aug 21 11:29:36 2024 - Last Child: PID = 9673, PPID = 9632
```

A3.)

```
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ gcc -o A3 A3.c -lm
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ ./A3
Enter the value of N (upper bound): 100
Enter the number of child processes (M): 2
Total execution time: 0.0007 seconds
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$
```

A4.)

```
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ gcc -o A4 A4.c
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ ./A4
Enter the depth of the binary tree: 5
PID: 9085, PPID: 9062
PID: 9086, PPID: 9085
PID: 9087, PPID: 9085
PID: 9112, PPID: 9086
PID: 9113, PPID: 9087
PID: 9110, PPID: 9086
PID: 9111, PPID: 9087
PID: 9131, PPID: 9112
PID: 9136, PPID: 9111
PID: 9132, PPID: 9110
PID: 9134, PPID: 9110
PID: 9129, PPID: 9112
PID: 9135, PPID: 9111
PID: 9133, PPID: 9113
PID: 9130, PPID: 9113
PID: 9156, PPID: 9132
PID: 9157, PPID: 9129
PID: 9155, PPID: 9132
PID: 9161, PPID: 9134
PID: 9162, PPID: 9134
PID: 9163, PPID: 9135
PID: 9164, PPID: 9135
PID: 9165, PPID: 9133
PID: 9166, PPID: 9133
PID: 9168, PPID: 9130
PID: 9167, PPID: 9130
PID: 9158, PPID: 9129
PID: 9153, PPID: 9131
PID: 9154, PPID: 9131
PID: 9159, PPID: 9136
PID: 9160, PPID: 9136
PID: 9189, PPID: 9156
```

```
PID: 9159, PPID: 9136
PID: 9160, PPID: 9136
PID: 9189, PPID: 9156
PID: 9193, PPID: 9155
PID: 9194, PPID: 9155
PID: 9192, PPID: 9157
PID: 9190, PPID: 9156
PID: 9191, PPID: 9157
PID: 9195, PPID: 9161
PID: 9196, PPID: 9161
PID: 9197, PPID: 9162
PID: 9198, PPID: 9162
PID: 9201, PPID: 9166
PID: 9199, PPID: 9163
PID: 9200, PPID: 9163
PID: 9202, PPID: 9166
PID: 9203, PPID: 9165
PID: 9205, PPID: 9164
PID: 9204, PPID: 9165
PID: 9206, PPID: 9164
PID: 9210, PPID: 9168
PID: 9212, PPID: 9158
PID: 9216, PPID: 9153
PID: 9217, PPID: 9160
PID: 9219, PPID: 9159
PID: 9215, PPID: 9160
PID: 9220, PPID: 9159
PID: 9214, PPID: 9154
PID: 9213, PPID: 9154
PID: 9207, PPID: 9167
PID: 9208, PPID: 9167
PID: 9211, PPID: 9158
PID: 9209, PPID: 9168
PID: 9218, PPID: 9153
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$
```

```
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ ps -e -o pid,args --forest|grep A4
  8930 |  |    \_ gedit A4.c
  9085 |  |    \_ ./A4
  9086 |  |        \_ ./A4
  9087 |  |        \_ ./A4
  9109 |       \_ grep --color=auto A4
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ ps -e -o pid,args --forest|grep A4
  8930 |  |    \_ gedit A4.c
  9085 |  |    \_ ./A4
  9086 |  |        \_ ./A4
  9110 |  |        |   \_ ./A4
  9112 |  |        |   \_ ./A4
  9087 |  |        \_ ./A4
  9111 |  |            \_ ./A4
  9113 |  |            \_ ./A4
  9127 |       \_ grep --color=auto A4
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ ps -e -o pid,args --forest|grep A4
  8930 |  |    \_ gedit A4.c
  9085 |  |    \_ ./A4
  9086 |  |        \_ ./A4
  9110 |  |        |   \_ ./A4
  9132 |  |        |   |   \_ ./A4
  9134 |  |        |   |   \_ ./A4
  9112 |  |        |   \_ ./A4
  9129 |  |        |       \_ ./A4
  9131 |  |        |       \_ ./A4
  9087 |  |        \_ ./A4
  9111 |  |            \_ ./A4
  9135 |  |            |   \_ ./A4
  9136 |  |            |   \_ ./A4
  9113 |  |            \_ ./A4
  9130 |  |                \_ ./A4
  9133 |  |                \_ ./A4
  9151 |       \_ grep --color=auto A4
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ ps -e -o pid,args --forest|grep A4

aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$ ps -e -o pid,args --forest|grep A4
  8930 |  |    \_ gedit A4.c
  9239 |       \_ grep --color=auto A4
aniruddha@aniruddha:~/Desktop/OS Lab/Assignment2$
```

Thanks

For

Reviewing