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CSCI4404

## Assignment 1

Question 1:

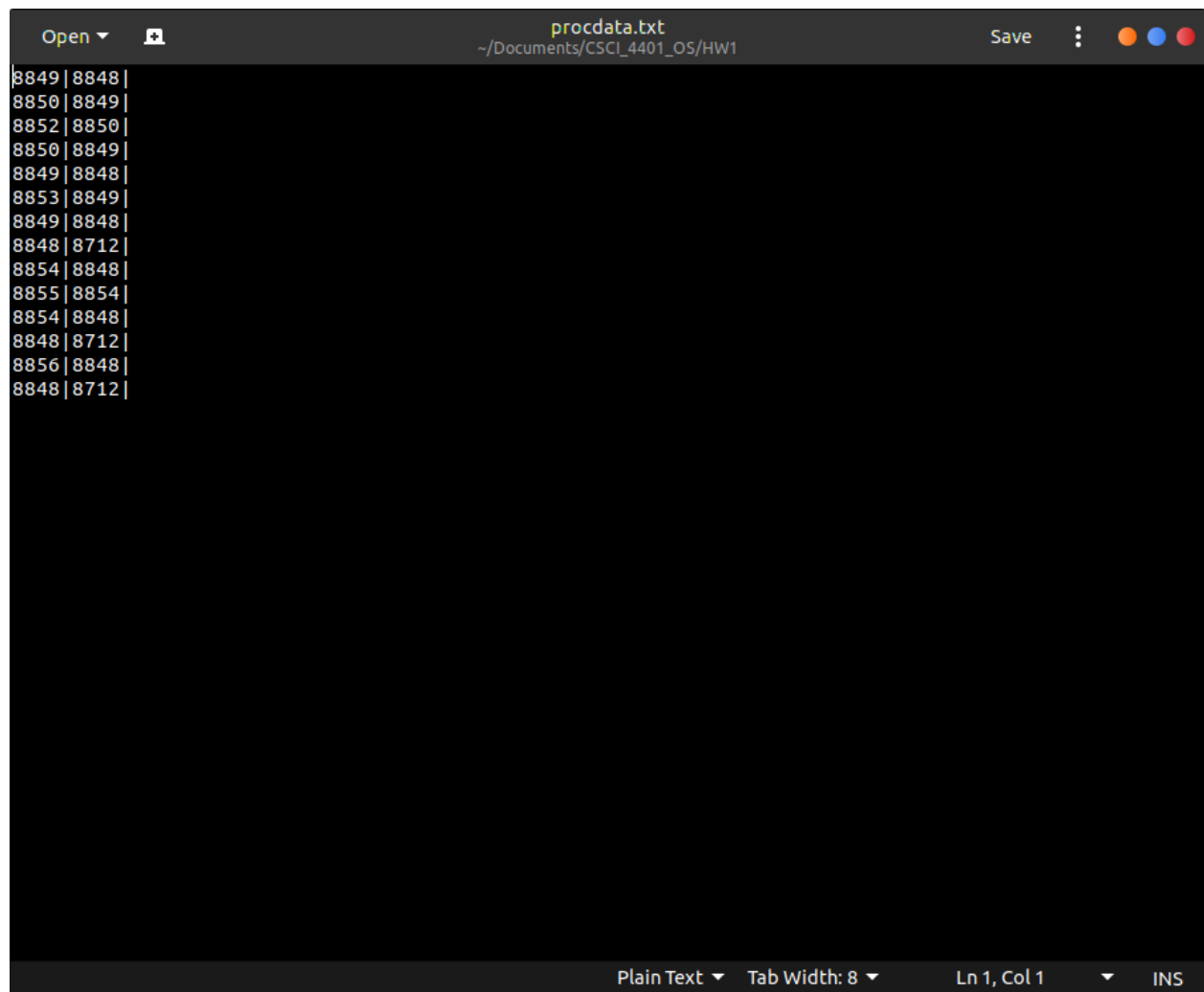
```
curl http://api.icndb.com/jokes/random/ | jq .value.joke | cowsay -f dragon-and-cow | lolcat
```

[illegible]

Question 2 (Files: Task1Q2.c and parsengraphQ234.py):

For  $n = 3$ :

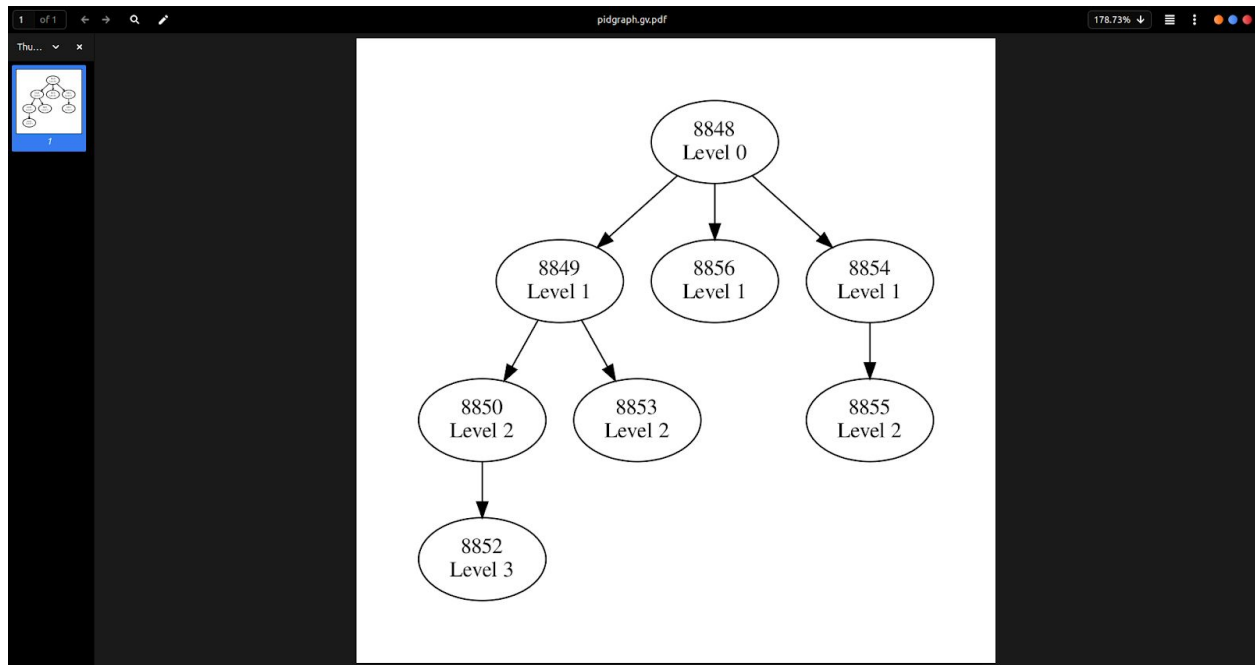
Output file:



The image shows a text editor window with a dark theme. The title bar at the top indicates the file is named "procddata.txt" and is located at the path "~/Documents/CSCI\_4401\_OS/HW1". The editor contains a list of 15 lines of text, each consisting of two numbers separated by a vertical bar. The status bar at the bottom shows "Plain Text", "Tab Width: 8", "Ln 1, Col 1", and "INS".

```
8849 | 8848 |
8850 | 8849 |
8852 | 8850 |
8850 | 8849 |
8849 | 8848 |
8853 | 8849 |
8849 | 8848 |
8848 | 8712 |
8854 | 8848 |
8855 | 8854 |
8854 | 8848 |
8848 | 8712 |
8856 | 8848 |
8848 | 8712 |
```

Output graph:

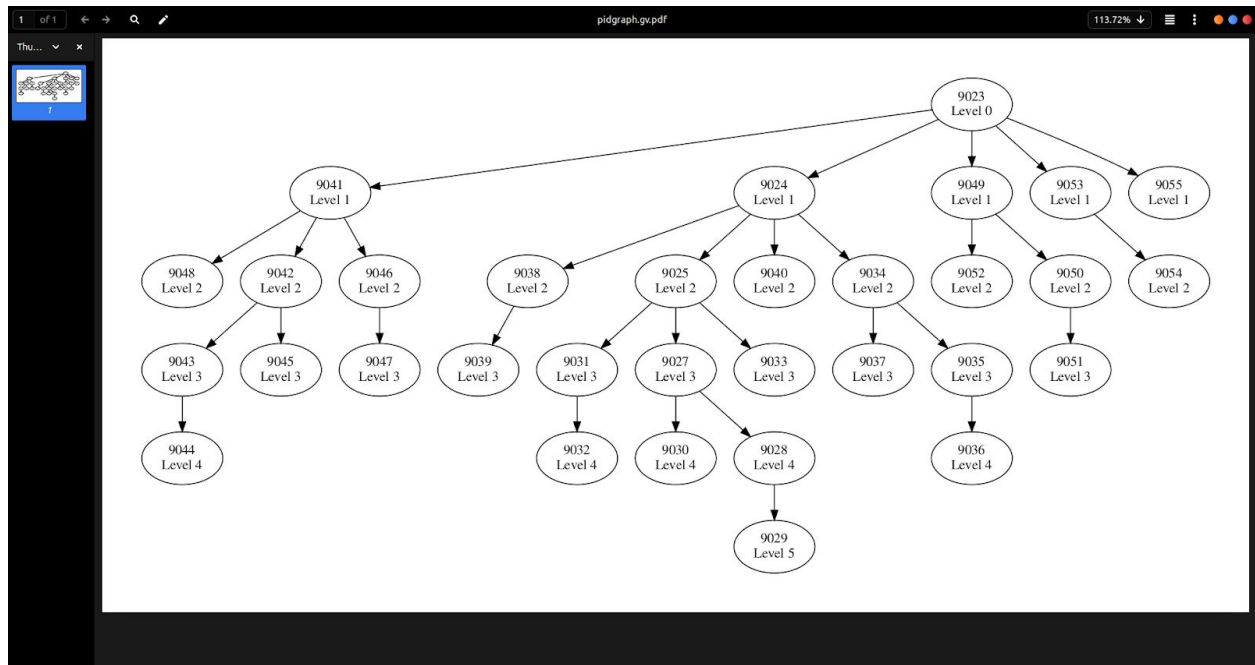


For  $n = 5$ :

Output file:

```
Open ▾ ⓘ procdata.txt ~/Documents/CSCI_4401_OS/HW1 Save ⋮ ●●●
9024|9023|
9025|9024|
9027|9025|
9028|9027|
9029|9028|
9028|9027|
9027|9025|
9030|9027|
9027|9025|
9025|9024|
9031|9025|
9032|9031|
9031|9025|
9025|9024|
9033|9025|
9025|9024|
9024|9023|
9034|9024|
9035|9034|
9036|9035|
9035|9034|
9034|9024|
9037|9034|
9034|9024|
9024|9023|
9038|9024|
9039|9038|
9038|9024|
9024|9023|
9040|9024|
9024|9023|
9023|8712|
9041|9023|
9042|9041|
9043|9042|
9044|9043|
9043|9042|
9042|9041|
9045|9042|
9042|9041|
9041|9023|
9046|9041|
9047|9046|
9046|9041|
9041|9023|
9048|9041|
9041|9023|
9023|8712|
9049|9023|
9050|9049|
9051|9050|
9050|9049|
9049|9023|
Plain Text ▾ Tab Width: 8 ▾ Ln 1, Col 1 ▾ INS
```

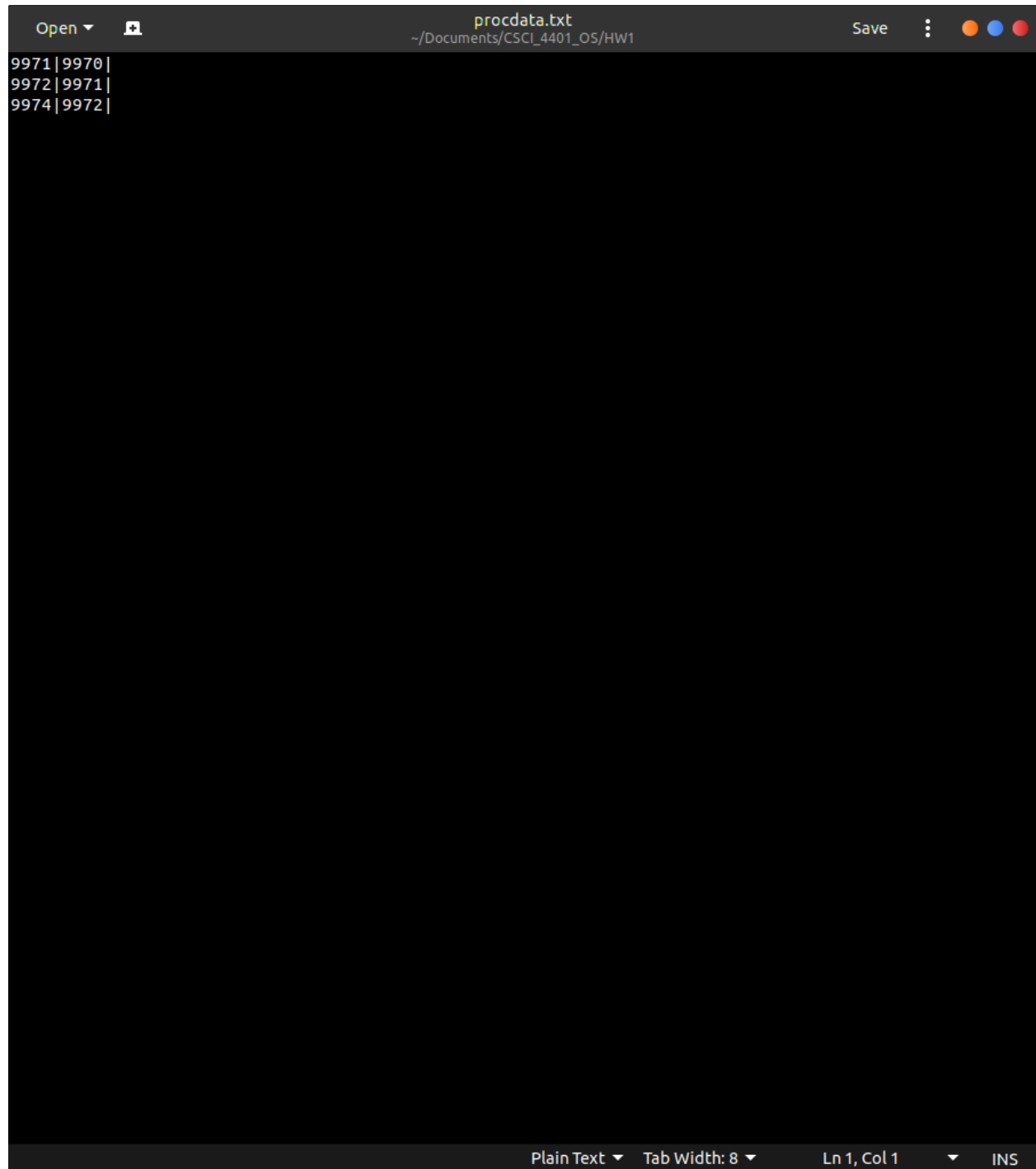
Output graph:



Question 3 (Files: task1\_waitpidQ3.c and parsengraphQ234.py):

For  $n = 3$ :

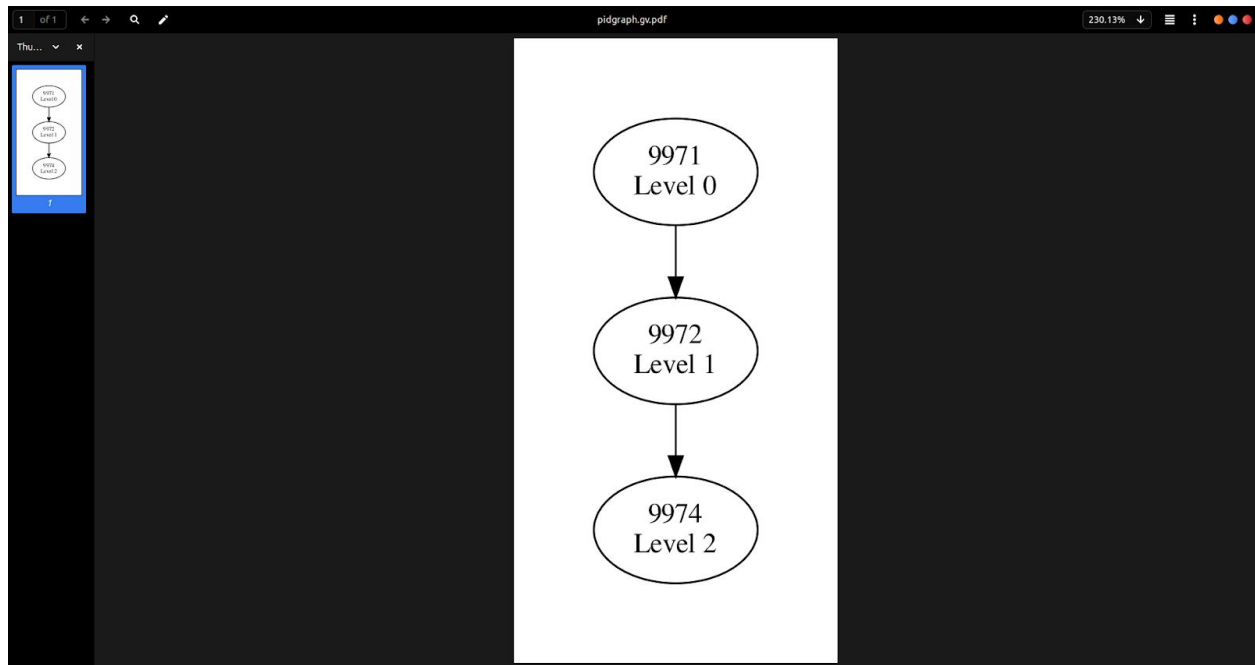
Output file:



The image shows a text editor window with a dark theme. The title bar at the top displays the filename "procdata.txt" and the path "~/Documents/CSCI\_4401\_OS/HW1". The menu bar includes "Open", "Save", and a vertical ellipsis icon. The editor area contains three lines of text, each with a vertical cursor at the end: "9971|9970|", "9972|9971|", and "9974|9972|". The status bar at the bottom shows "Plain Text", "Tab Width: 8", "Ln 1, Col 1", and "INS".

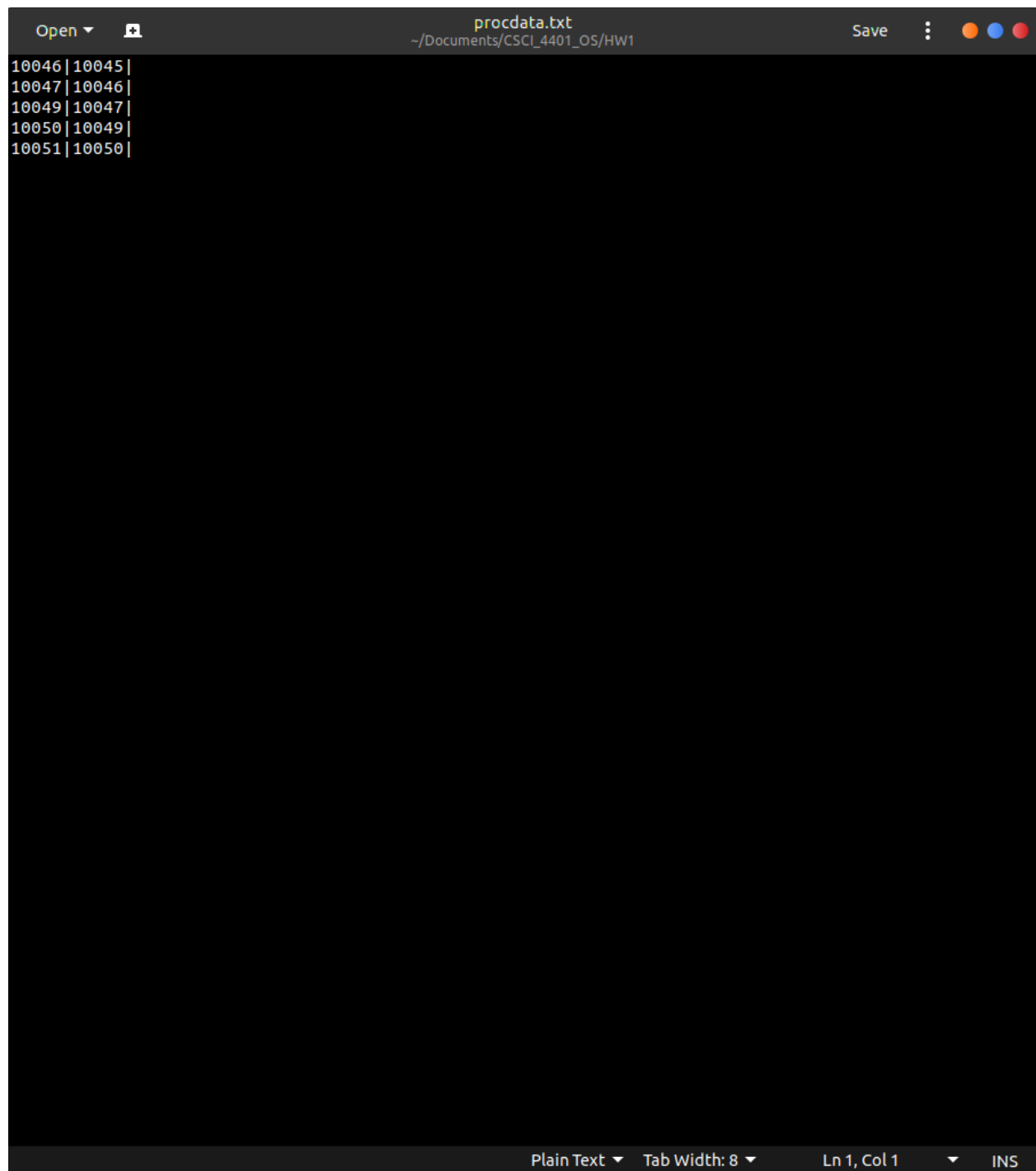
```
9971|9970|
9972|9971|
9974|9972|
```

Output graph:



For  $n = 5$ :

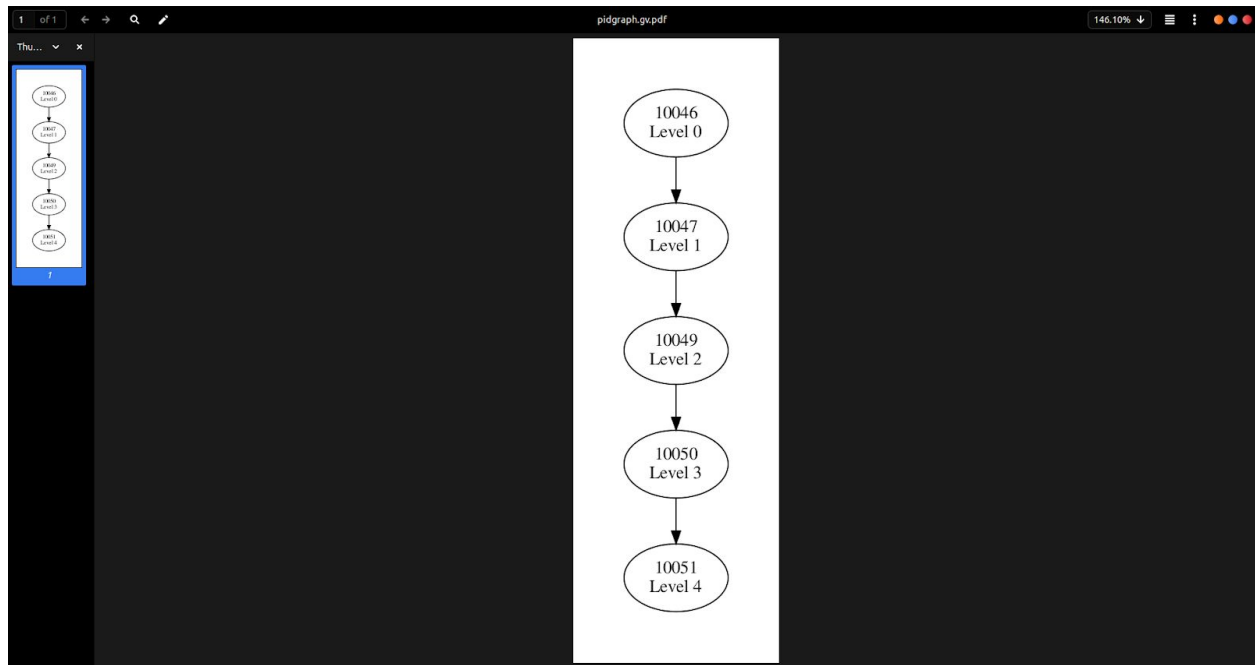
Output file:



```
10046|10045|
10047|10046|
10049|10047|
10050|10049|
10051|10050|
```

Output graph:





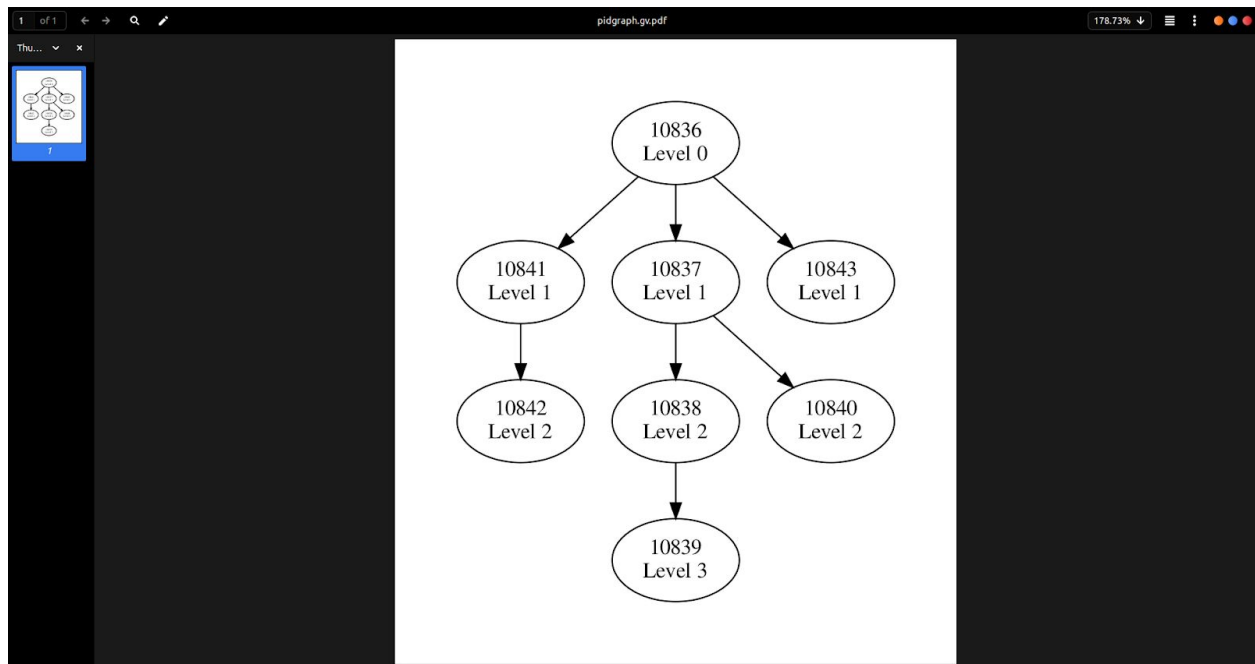
Question 4 (Files: task1\_levelQ4.c and parsengraphQ234.py):

For  $n = 3$ :

Output file:

```
luna@luna-Blade: ~/Documents/CSCI_4401_OS/HW1
File Edit View Search Terminal Help
luna@luna-Blade:~/Documents/CSCI_4401_OS/HW1$ ./task1_level 3
I am process 10836, top of the tree.
I am process 10837, child of process 10836, I am at a depth of: 1
I am process 10838, child of process 10837, I am at a depth of: 2
I am process 10839, child of process 10838, I am at a depth of: 3
I am process 10838, child of process 10837, I am at a depth of: 2
I am process 10837, child of process 10836, I am at a depth of: 1
I am process 10840, child of process 10837, I am at a depth of: 2
I am process 10837, child of process 10836, I am at a depth of: 1
I am process 10836, child of process 8989, I am at a depth of: 0
I am process 10841, child of process 10836, I am at a depth of: 1
I am process 10842, child of process 10841, I am at a depth of: 2
I am process 10841, child of process 10836, I am at a depth of: 1
I am process 10836, child of process 8989, I am at a depth of: 0
I am process 10843, child of process 10836, I am at a depth of: 1
I am process 10836, child of process 8989, I am at a depth of: 0
```

Output graph:



For  $n = 5$ :

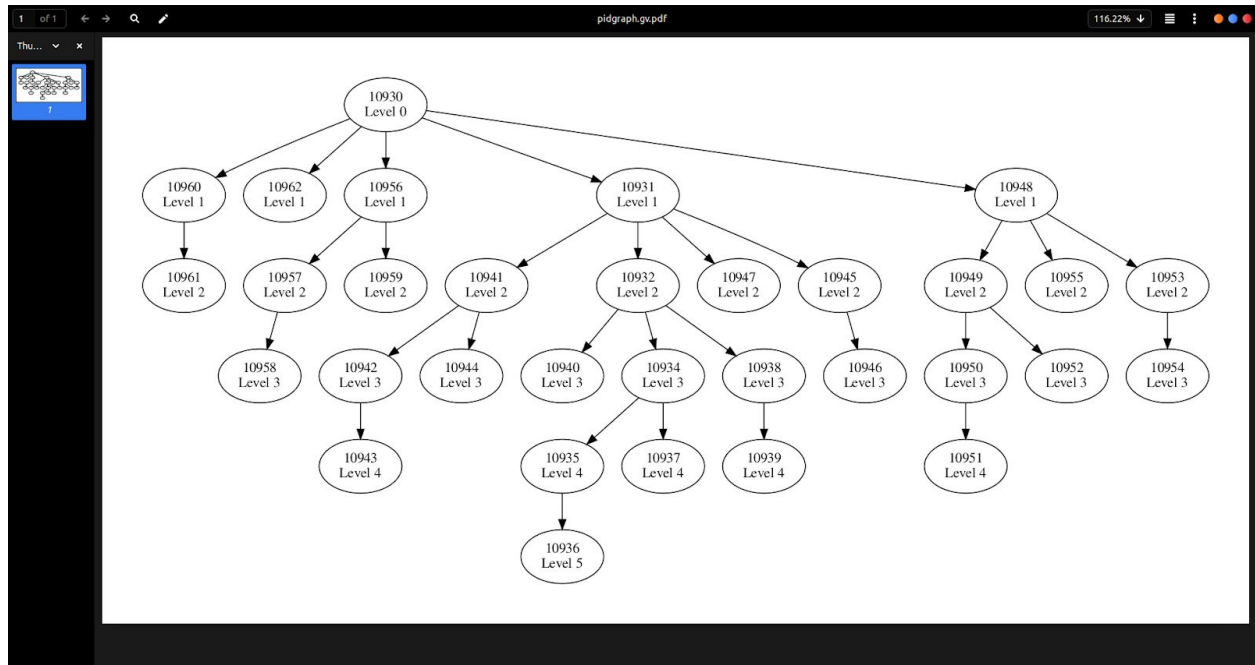
Output file:

File Edit View Search Terminal Help

```
I am process 10937, child of process 10934, I am at a depth of: 4
I am process 10934, child of process 10932, I am at a depth of: 3
I am process 10932, child of process 10931, I am at a depth of: 2
I am process 10938, child of process 10932, I am at a depth of: 3
I am process 10939, child of process 10938, I am at a depth of: 4
I am process 10938, child of process 10932, I am at a depth of: 3
I am process 10932, child of process 10931, I am at a depth of: 2
I am process 10940, child of process 10932, I am at a depth of: 3
I am process 10932, child of process 10931, I am at a depth of: 2
I am process 10931, child of process 10930, I am at a depth of: 1
I am process 10941, child of process 10931, I am at a depth of: 2
I am process 10942, child of process 10941, I am at a depth of: 3
I am process 10943, child of process 10942, I am at a depth of: 4
I am process 10942, child of process 10941, I am at a depth of: 3
I am process 10941, child of process 10931, I am at a depth of: 2
I am process 10944, child of process 10941, I am at a depth of: 3
I am process 10941, child of process 10931, I am at a depth of: 2
I am process 10931, child of process 10930, I am at a depth of: 1
I am process 10945, child of process 10931, I am at a depth of: 2
I am process 10946, child of process 10945, I am at a depth of: 3
I am process 10945, child of process 10931, I am at a depth of: 2
I am process 10931, child of process 10930, I am at a depth of: 1
I am process 10947, child of process 10931, I am at a depth of: 2
I am process 10931, child of process 10930, I am at a depth of: 1
I am process 10930, child of process 8989, I am at a depth of: 0
I am process 10948, child of process 10930, I am at a depth of: 1
I am process 10949, child of process 10948, I am at a depth of: 2
I am process 10950, child of process 10949, I am at a depth of: 3
I am process 10951, child of process 10950, I am at a depth of: 4
I am process 10950, child of process 10949, I am at a depth of: 3
I am process 10949, child of process 10948, I am at a depth of: 2
I am process 10952, child of process 10949, I am at a depth of: 3
I am process 10949, child of process 10948, I am at a depth of: 2
I am process 10948, child of process 10930, I am at a depth of: 1
I am process 10953, child of process 10948, I am at a depth of: 2
I am process 10954, child of process 10953, I am at a depth of: 3
I am process 10953, child of process 10948, I am at a depth of: 2
I am process 10948, child of process 10930, I am at a depth of: 1
I am process 10955, child of process 10948, I am at a depth of: 2
I am process 10948, child of process 10930, I am at a depth of: 1
I am process 10930, child of process 8989, I am at a depth of: 0
I am process 10956, child of process 10930, I am at a depth of: 1
I am process 10957, child of process 10956, I am at a depth of: 2
I am process 10958, child of process 10957, I am at a depth of: 3
I am process 10957, child of process 10956, I am at a depth of: 2
I am process 10956, child of process 10930, I am at a depth of: 1
I am process 10959, child of process 10956, I am at a depth of: 2
I am process 10956, child of process 10930, I am at a depth of: 1
I am process 10930, child of process 8989, I am at a depth of: 0
I am process 10960, child of process 10930, I am at a depth of: 1
I am process 10961, child of process 10960, I am at a depth of: 2
I am process 10960, child of process 10930, I am at a depth of: 1
I am process 10930, child of process 8989, I am at a depth of: 0
I am process 10962, child of process 10930, I am at a depth of: 1
I am process 10930, child of process 8989, I am at a depth of: 0
```

luna@luna-Blade: ~/Documents/CSCI\_4401\_OS/HW1\$

Output graph:



Question 5:

A: `fork()` wasn't detected in strace because calling the system call directly was deprecated in version 2.3.3 for a wrapper in glibc called `fork()` that actually calls `clone()`

B: The author saw `clone()` in strace.

C: the code written by the author invoked a wrapper in the glibc library.

D:

