

CSS 430

Prof: Yang Peng

Assignment 3a

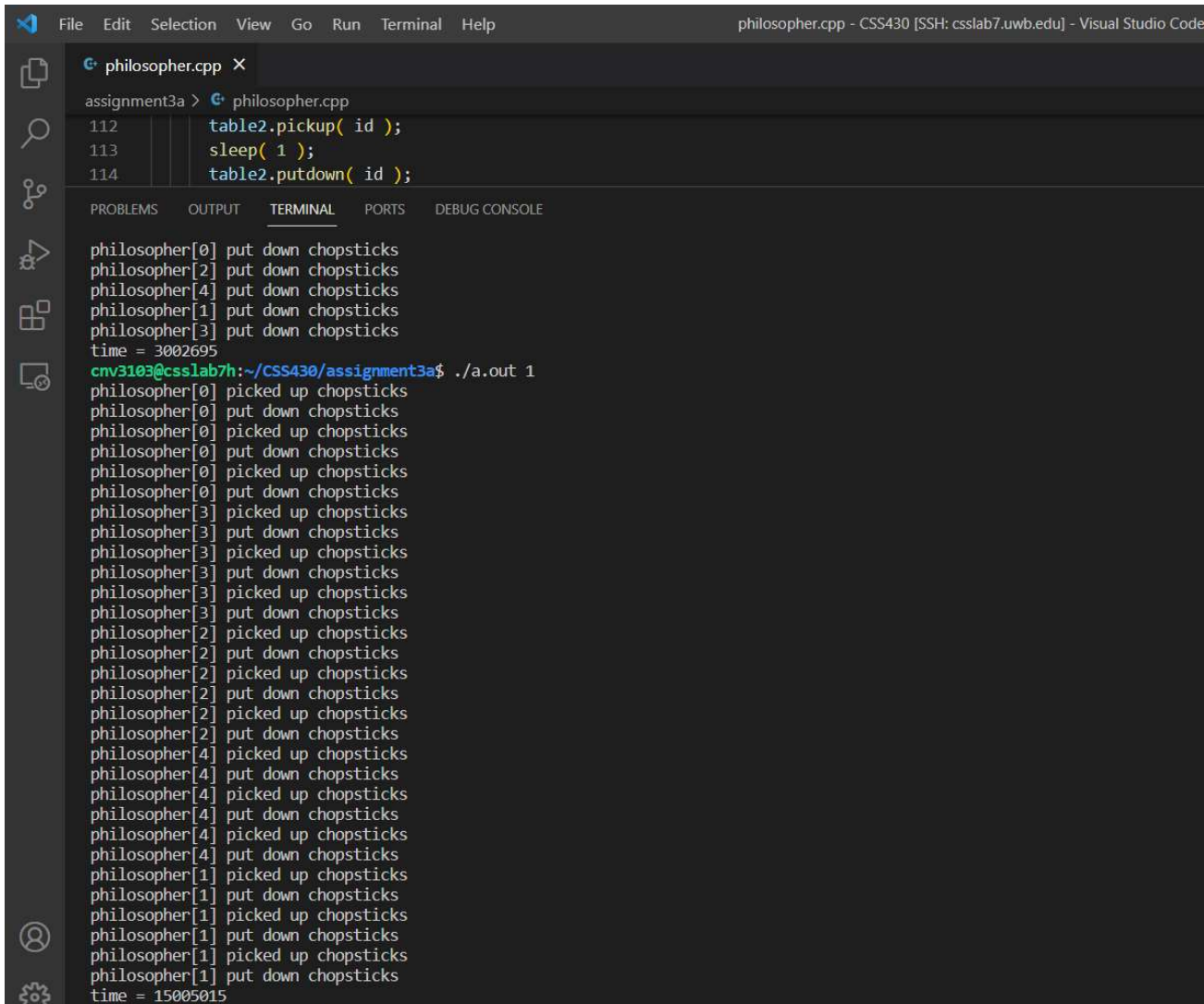
Coder: Nguyen Vi Cao

Assignment 3a Purpose:

This assignment solves the dining philosophers problem, using the pthread library. Exercise how to use pthread_mutex_init lock/unlock and pthread_cond_init/wait/signal to implement a monitor

Below are the two screenshot of the output:

1. ./a.out 1 (for table 1) which will show 1 thread at a time



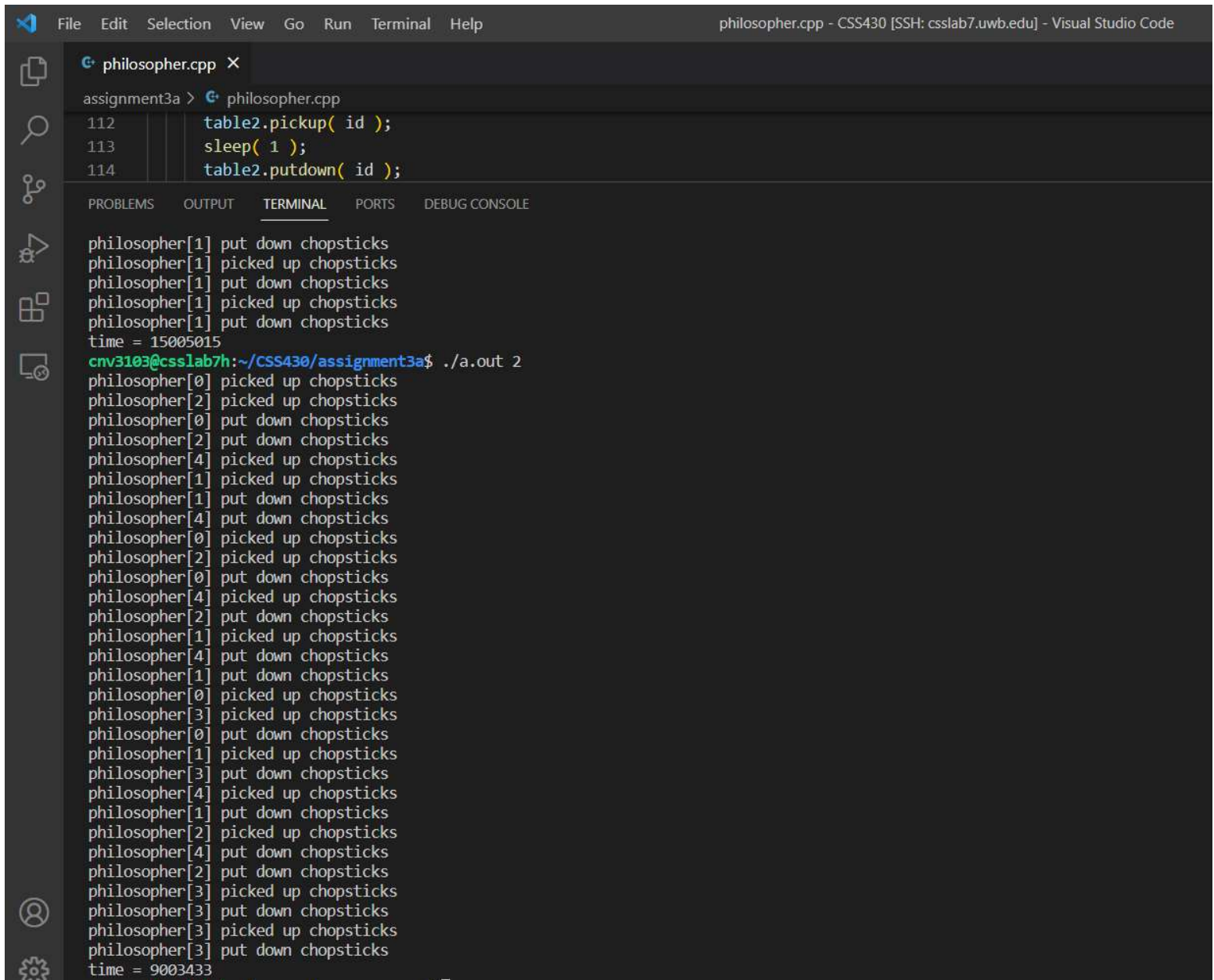
The screenshot shows the Visual Studio Code editor with the file `philosopher.cpp` open. The code in the editor is as follows:

```
112     table2.pickup( id );
113     sleep( 1 );
114     table2.putdown( id );
```

The terminal window at the bottom shows the output of the program. It starts with the command `./a.out 1` being executed. The output shows the sequence of actions for philosopher 0, including picking up and putting down chopsticks, and sleeping. The output is as follows:

```
philosopher[0] put down chopsticks
philosopher[2] put down chopsticks
philosopher[4] put down chopsticks
philosopher[1] put down chopsticks
philosopher[3] put down chopsticks
time = 3002695
cny3103@csslab7h:~/CSS430/assignment3a$ ./a.out 1
philosopher[0] picked up chopsticks
philosopher[0] put down chopsticks
philosopher[0] picked up chopsticks
philosopher[0] put down chopsticks
philosopher[0] picked up chopsticks
philosopher[0] put down chopsticks
philosopher[3] picked up chopsticks
philosopher[3] put down chopsticks
philosopher[3] picked up chopsticks
philosopher[3] put down chopsticks
philosopher[3] picked up chopsticks
philosopher[3] put down chopsticks
philosopher[2] picked up chopsticks
philosopher[2] put down chopsticks
philosopher[2] picked up chopsticks
philosopher[2] put down chopsticks
philosopher[2] picked up chopsticks
philosopher[2] put down chopsticks
philosopher[4] picked up chopsticks
philosopher[4] put down chopsticks
philosopher[4] picked up chopsticks
philosopher[4] put down chopsticks
philosopher[4] picked up chopsticks
philosopher[4] put down chopsticks
philosopher[1] picked up chopsticks
philosopher[1] put down chopsticks
philosopher[1] picked up chopsticks
philosopher[1] put down chopsticks
philosopher[1] picked up chopsticks
philosopher[1] put down chopsticks
time = 15005015
```

2. ./a.out 2 (for table 2) which will show 2 threads at a time



```
File Edit Selection View Go Run Terminal Help
philosopher.cpp - CSS430 [SSH: csslab7.uwb.edu] - Visual Studio Code

assignment3a > philosopher.cpp
112 table2.pickup( id );
113 sleep( 1 );
114 table2.putdown( id );

PROBLEMS OUTPUT TERMINAL PORTS DEBUG CONSOLE

philosopher[1] put down chopsticks
philosopher[1] picked up chopsticks
philosopher[1] put down chopsticks
philosopher[1] picked up chopsticks
philosopher[1] put down chopsticks
time = 15005015
cnv3103@csslab7h:~/CSS430/assignment3a$ ./a.out 2
philosopher[0] picked up chopsticks
philosopher[2] picked up chopsticks
philosopher[0] put down chopsticks
philosopher[2] put down chopsticks
philosopher[4] picked up chopsticks
philosopher[1] picked up chopsticks
philosopher[1] put down chopsticks
philosopher[4] put down chopsticks
philosopher[0] picked up chopsticks
philosopher[2] picked up chopsticks
philosopher[0] put down chopsticks
philosopher[4] picked up chopsticks
philosopher[2] put down chopsticks
philosopher[1] picked up chopsticks
philosopher[4] put down chopsticks
philosopher[1] put down chopsticks
philosopher[0] picked up chopsticks
philosopher[3] picked up chopsticks
philosopher[0] put down chopsticks
philosopher[1] picked up chopsticks
philosopher[3] put down chopsticks
philosopher[4] picked up chopsticks
philosopher[1] put down chopsticks
philosopher[2] picked up chopsticks
philosopher[4] put down chopsticks
philosopher[2] put down chopsticks
philosopher[3] picked up chopsticks
philosopher[3] put down chopsticks
philosopher[3] picked up chopsticks
philosopher[3] put down chopsticks
time = 9003433
```