NOTE: THIS ASSIGNMENT WAS MADE ON A LUBUNTU LIVE OFF OF AN SD CARD ON MY HANDHELD, SO MICROSOFT OFFICE WAS NOT AVAILABLE AND THE MACHINE HAD SCALING ISSUES WITH LIBRE OFFICE. SORRY FOR THE AWFUL ASPECT RATIO.

Program0.py

```
# SOURCES
# https://computinglearner.com/how-to-create-a-menu-for-a-python-console-application/

from logging import root
import os
from tkinter import Tk
from tkinter.filedialog import askdirectory

#os.system("MY COMMAND HERE")
menu_options = {
    1: 'i. List jobs.',
    2: 'ii. Set jobs directory.',
    3: 'iii. Compile and run a specific program.',
    4: 'iv. Compile and run all jobs in a specific directory.',
    5: 'v. Shutdown.',
    6: 'vi. List program options.',
    7: 'vii. help.'
```

```
}



def printJobs(jobs):
    if isinstance(jobs, str):
        print(jobs + "\n")
    else:
        for job in jobs:
            print (str(jobs.index(job)+1) + " -- " + job + "\n")

def findCPPJobs(rootDir):
    list = os.listdir(rootDir)
    iterator = 0;
    while iterator < len(list):
        file = list[iterator]
        fileExt = os.path.splitext(file)[1]
        #print("file: " + file + " extension: " + fileExt)
        if fileExt != ".cpp":
            list.remove(file)
            iterator = iterator - 1
        else:
            # Removes extension from job files
            list[iterator] = os.path.splitext(file)[0]
        iterator = iterator + 1
    if len(list) == 0:
        return "No jobs Available"
    else:
        return list
```

```
def printMenu():
    for key in menu_options.keys():
        print (key, '--', menu_options[key] )

def option1(rootDir):
    jobs = findCPPJobs(rootDir)
    printJobs(jobs)
    if jobs == "No jobs Available":
        return []
    return jobs

def option2():
    Tk().withdraw()
    path = askdirectory(title = 'Select Folder')
    Tk().update()
    print("Selected: " + path)
    os.chdir(path)
    return path

def option3(rootDir,jobs):
    while(True):
        jobs = option1(rootDir)
        option = ''
        if len(jobs) == 0:
            # No Jobs Available
            break
        try:
```

```
            option = int(input('Which job would you like to run?'))
        except:
            print('Wrong input. Please enter a number ...')

        if option < len(jobs):
            os.system("g++ " + """ + rootDir + "/" + jobs[option-1] + ".cpp' -o " + jobs[option-
1] )
            os.system("./" + jobs[option-1])
            break
        else:
            print("Invalid option. Please enter a number between 1 and "
            + str(len(jobs)) + ".")

def option4():
    tempDir = option2()
    jobs = option1(tempDir)
    if not isinstance(jobs, str):
        for job in jobs:
            os.system("g++ " + """ + tempDir + "/" + job + ".cpp' -o " + job )
            os.system("./" + job)



if __name__ == '__main__':

    rootDir = "/home/lubuntu/Desktop/CMPS ASSIGNMENT/"
    jobs = []

    while(True):
        printMenu()
```

```
option = ''

try:
    option = int(input('Make a Selection: '))
except:
    print('Wrong input. Please enter a number ...')

if option == 1:
    jobs = option1(rootDir)

elif option == 2:
    rootDir = option2()

elif option == 3:
    option3(rootDir,jobs)

elif option == 4:
    option4()

elif option == 5:
    print('Goodbye!')
    exit()

elif option == 6:
    printMenu()

elif option == 7:
    print("Only God can help you now \n")
```

```
        else:
            print('Invalid option. Please enter a number between 1 and 7.')
```

Sums.cpp

```
#include <iostream>
using namespace std;
#include <chrono>
#include <thread>

int main () {
   int sum = 0;
   for(int counter = 0; counter <= 10; counter++){
      sum = sum + counter;
      printf("sum = %d \n", sum);
      std::this_thread::sleep_for(std::chrono::milliseconds(200));
   }
}
```

Pound.cpp

```
#include <iostream>
```

```
using namespace std;
#include <chrono>
#include <thread>

int main () {
   for(int counter = 0; counter < 100; counter++){
      printf("# \n");
      std::this_thread::sleep_for(std::chrono::milliseconds(200));
   }
}
```

Factorial.cpp

```
#include <iostream>
using namespace std;
#include <chrono>
#include <thread>
#include <string>

int main () {
   int factorial = 10;
   for(int counter = 1; counter <= 9; counter++){
      factorial = factorial*(10 - counter);
      printf(" factorial = %d \n", factorial);
      std::this_thread::sleep_for(std::chrono::milliseconds(200));
   }
}
```

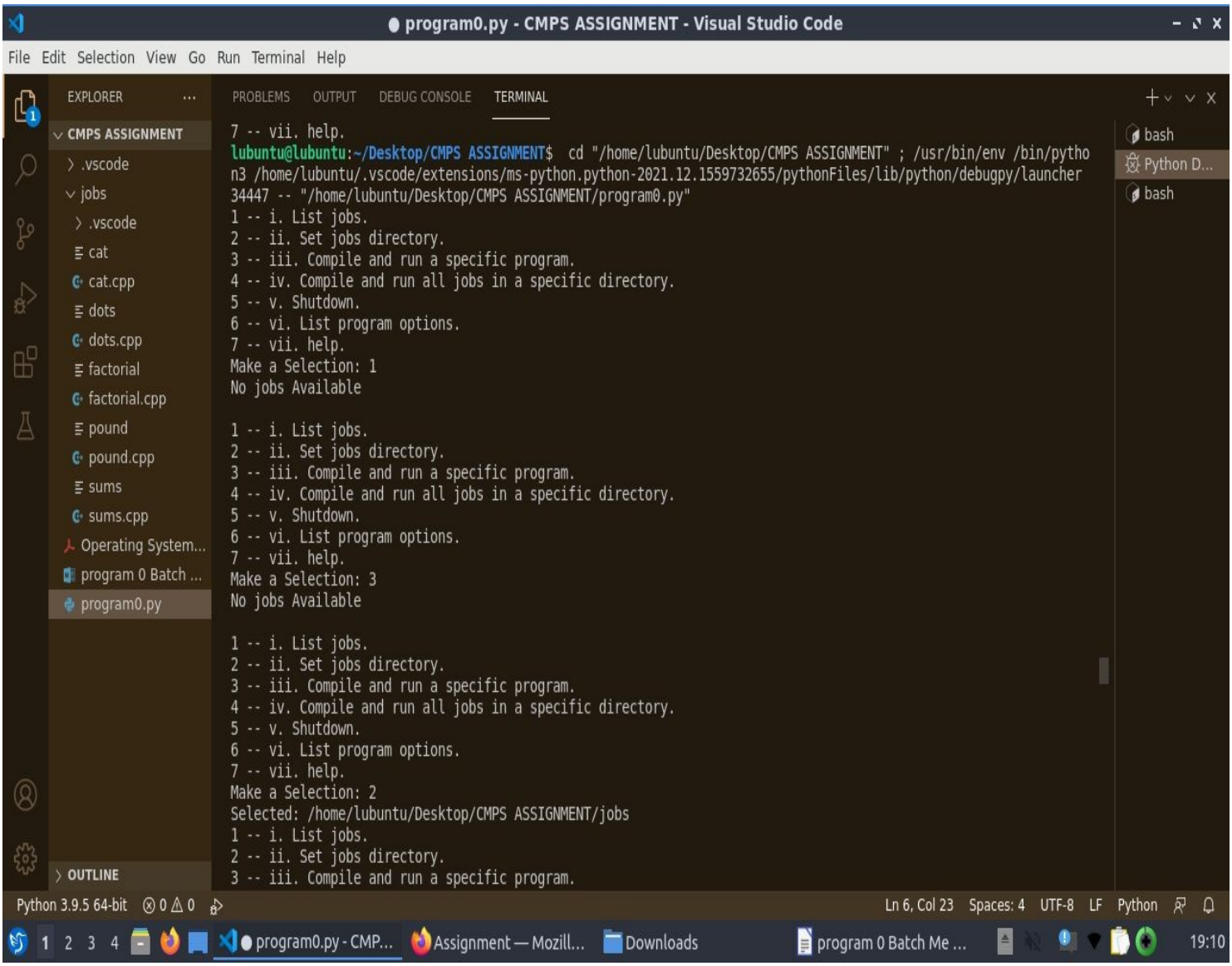
Dots.cpp

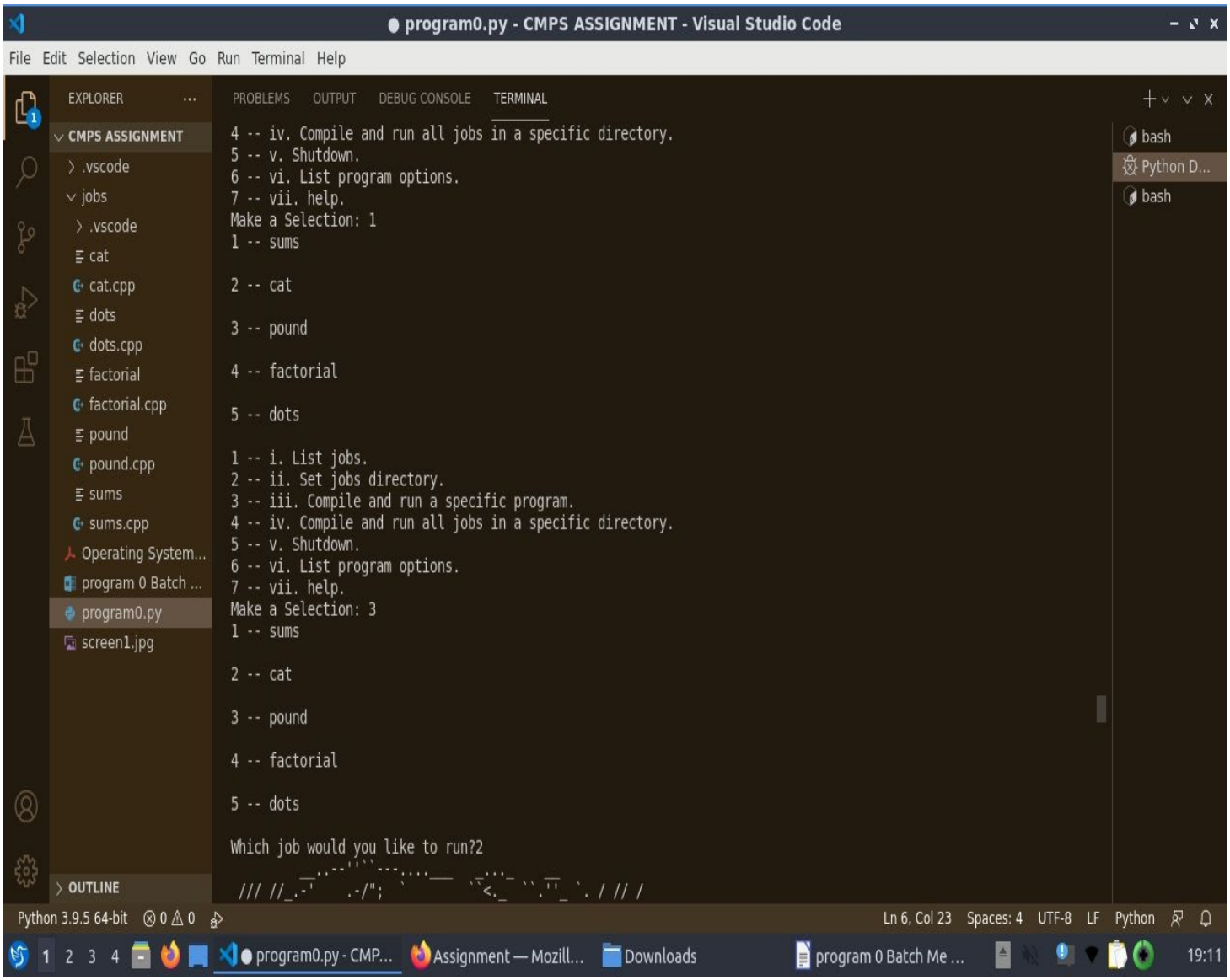
```
#include <iostream>
using namespace std;
#include <chrono>
#include <thread>

int main () {
   for(int dotCounter = 0; dotCounter <= 49; dotCounter++){
      printf(".\n");
      std::this_thread::sleep_for(std::chrono::milliseconds(200));
   }
}
```

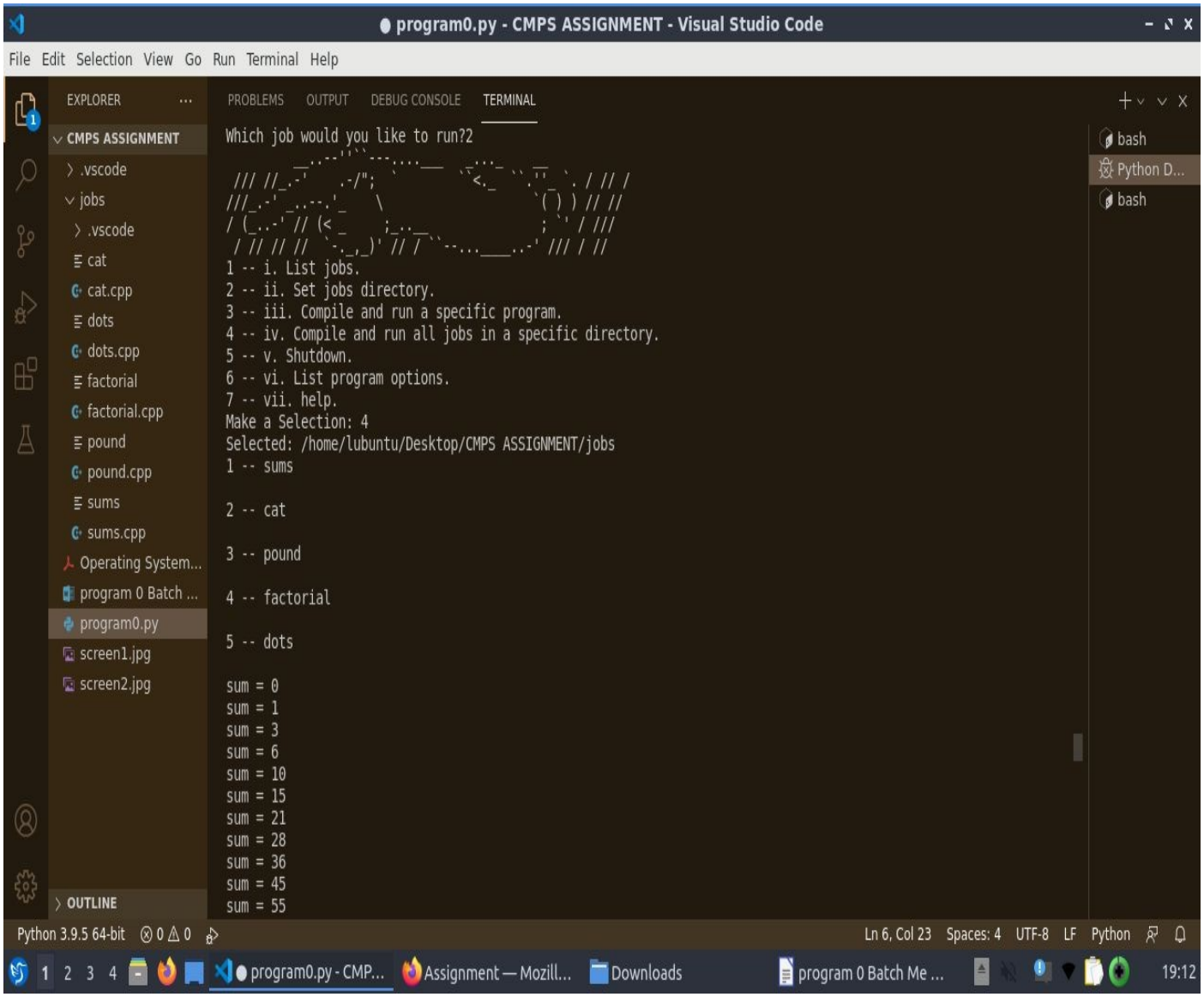
Cat.cpp

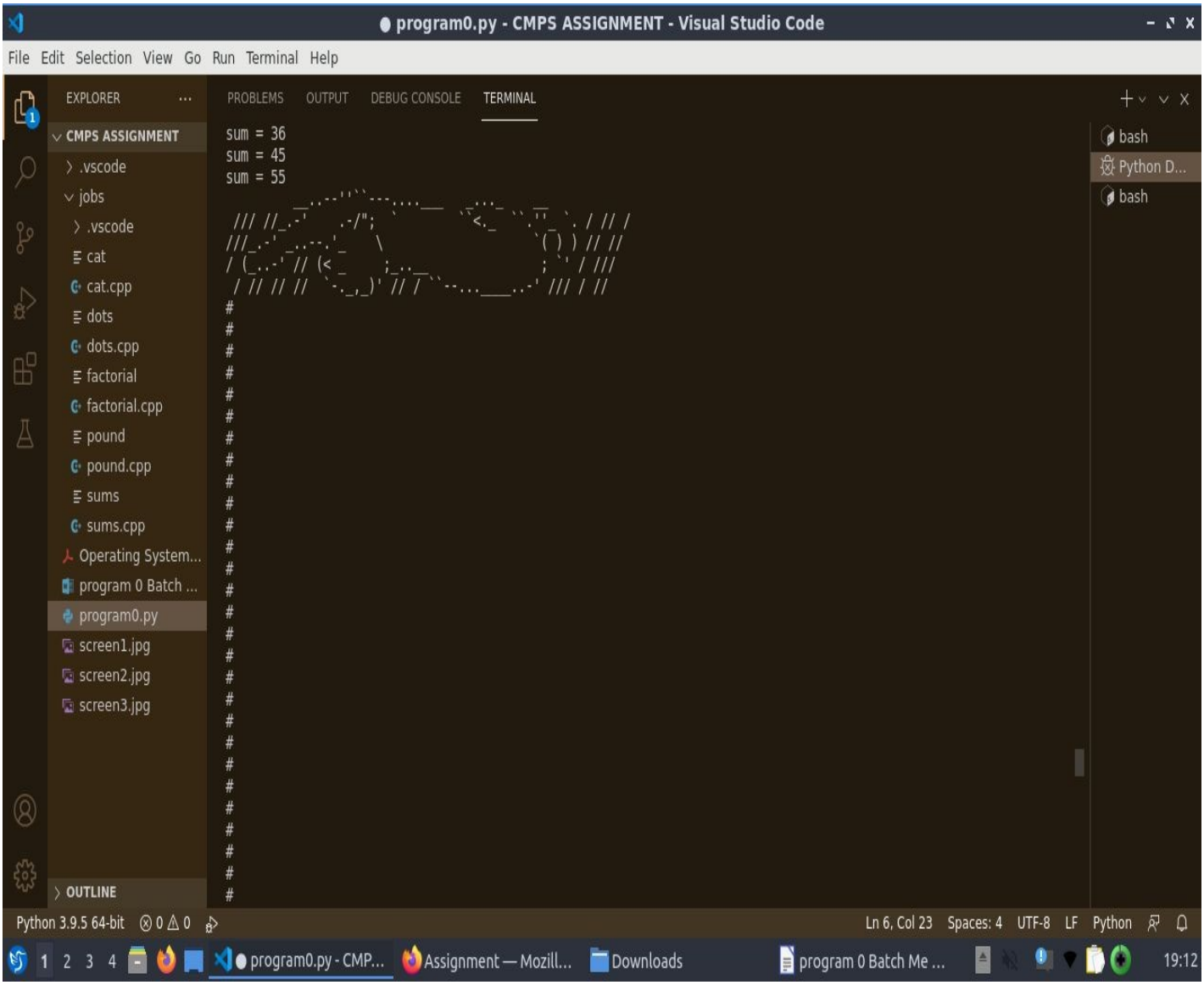
```
#include <iostream>
using namespace std;
#include <chrono>
#include <thread>

int main () {
  int x = 200;
  printf("         __..--"``---....___   _..._    __\n");
  std::this_thread::sleep_for(std::chrono::milliseconds(x));
  printf(" /// //_.-'    .-/\";  `        ``<._  ``."_ `. / // /\n");
  std::this_thread::sleep_for(std::chrono::milliseconds(x));
  printf("///_.-' _..--.'_    \\                    `( ) ) // //\n");
  std::this_thread::sleep_for(std::chrono::milliseconds(x));
  printf("/ (_..-' // (< _     ;_..__               ; `' / ///\n");
  std::this_thread::sleep_for(std::chrono::milliseconds(x));
```

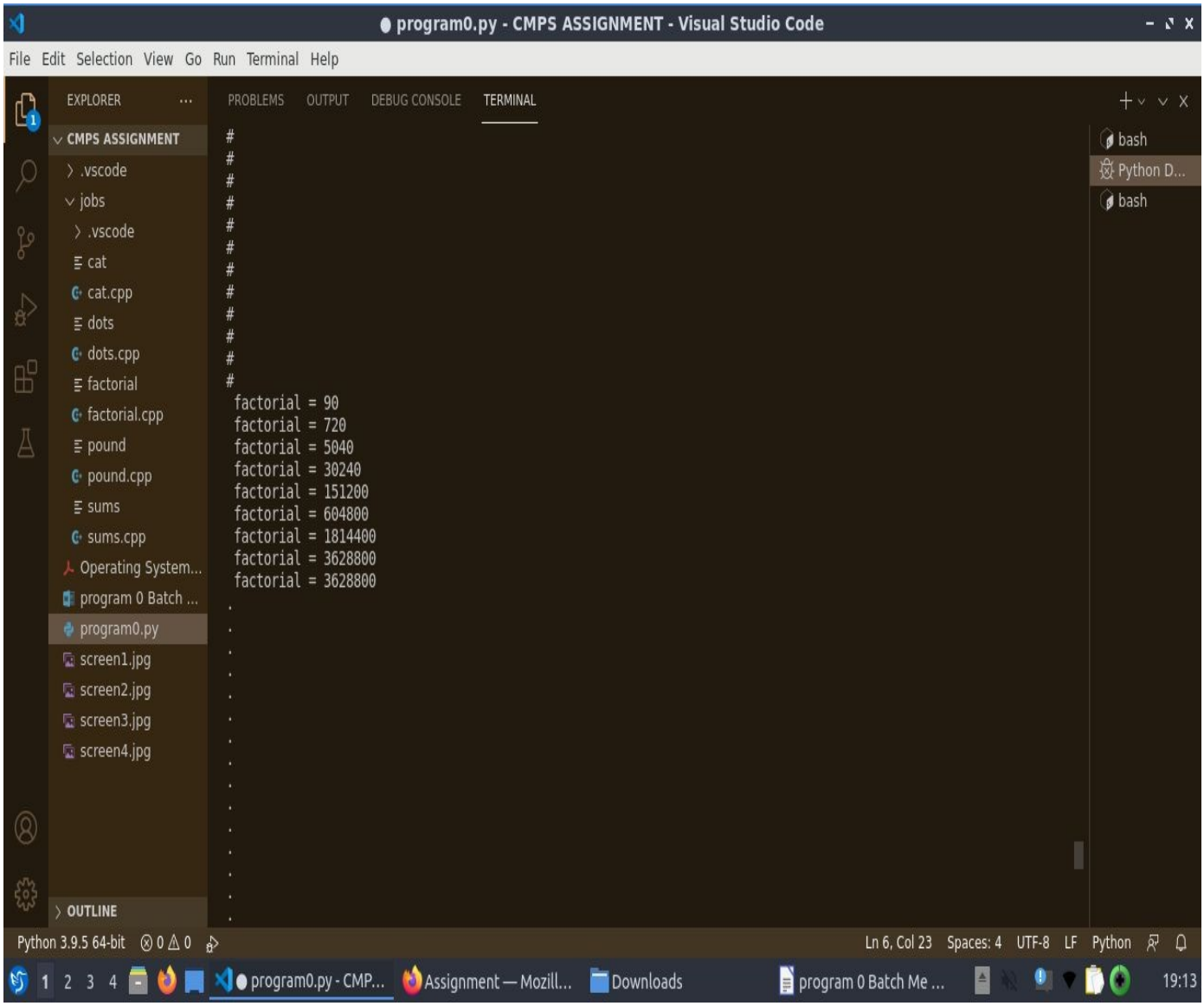
```
  printf(" / // // //  `-._,_)' // / ``--..._____..-' /// / //\n");
  std::this_thread::sleep_for(std::chrono::milliseconds(x));
}
```

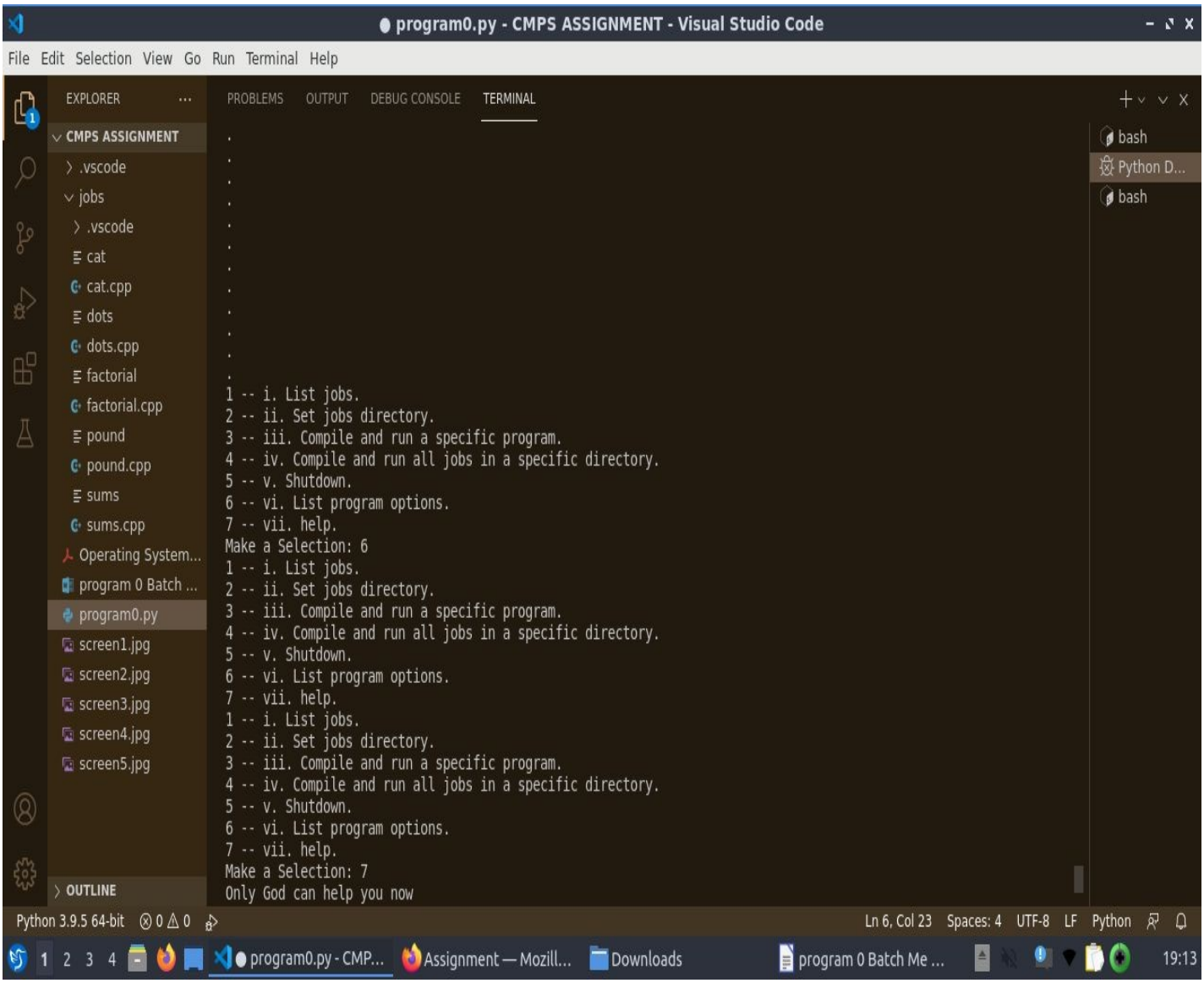

program0.py - CMPS ASSIGNMENT - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER
CMPS ASSIGNMENT
.vscode
jobs
.vscode
cat
cat.cpp
dots
dots.cpp
factorial
factorial.cpp
pound
pound.cpp
sums
sums.cpp
Operating System...
program 0 Batch ...
program0.py
OUTLINE
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
7 -- vii. help.
lubuntu@lubuntu:~/Desktop/CMPS ASSIGNMENT$ cd "/home/lubuntu/Desktop/CMPS ASSIGNMENT" ; /usr/bin/env /bin/python3 /home/lubuntu/.vscode/extensions/ms-python.python-2021.12.1559732655/pythonFiles/lib/python/debugpy/launcher 34447 -- "/home/lubuntu/Desktop/CMPS ASSIGNMENT/program0.py"
1 -- i. List jobs.
2 -- ii. Set jobs directory.
3 -- iii. Compile and run a specific program.
4 -- iv. Compile and run all jobs in a specific directory.
5 -- v. Shutdown.
6 -- vi. List program options.
7 -- vii. help.
Make a Selection: 1
No jobs Available
1 -- i. List jobs.
2 -- ii. Set jobs directory.
3 -- iii. Compile and run a specific program.
4 -- iv. Compile and run all jobs in a specific directory.
5 -- v. Shutdown.
6 -- vi. List program options.
7 -- vii. help.
Make a Selection: 3
No jobs Available
1 -- i. List jobs.
2 -- ii. Set jobs directory.
3 -- iii. Compile and run a specific program.
4 -- iv. Compile and run all jobs in a specific directory.
5 -- v. Shutdown.
6 -- vi. List program options.
7 -- vii. help.
Make a Selection: 2
Selected: /home/lubuntu/Desktop/CMPS ASSIGNMENT/jobs
1 -- i. List jobs.
2 -- ii. Set jobs directory.
3 -- iii. Compile and run a specific program.
bash
Python D...
bash
Python 3.9.5 64-bit
Ln 6, Col 23 Spaces: 4 UTF-8 LF Python
program0.py - CMP...
Assignment — Mozill...
Downloads
program 0 Batch Me ...
19:10

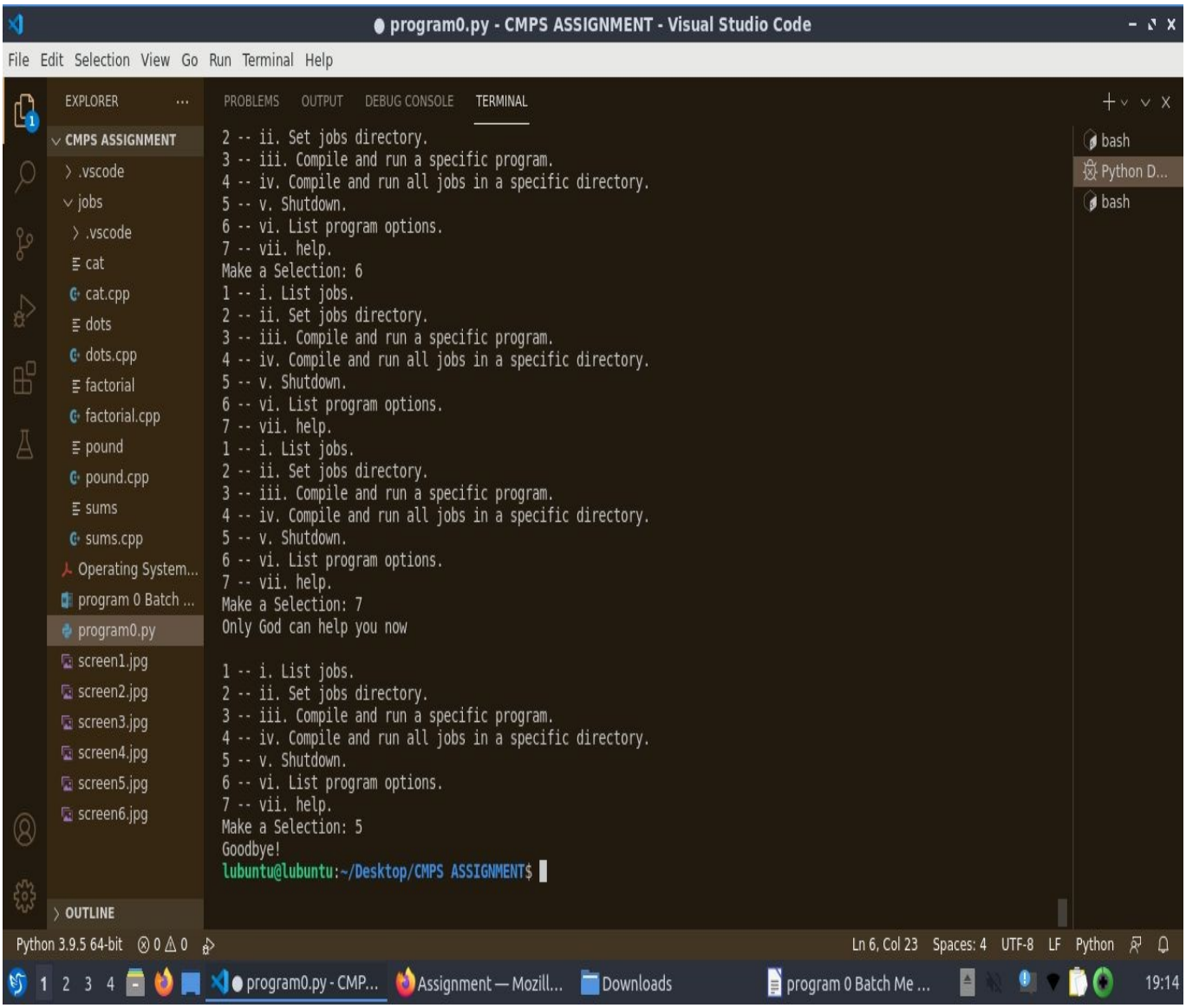

program0.py - CMPS ASSIGNMENT - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER
CMPS ASSIGNMENT
.vscode
jobs
.vscode
cat
cat.cpp
dots
dots.cpp
factorial
factorial.cpp
pound
pound.cpp
sums
sums.cpp
Operating System...
program 0 Batch ...
program0.py
screen1.jpg
OUTLINE
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
4 -- iv. Compile and run all jobs in a specific directory.
5 -- v. Shutdown.
6 -- vi. List program options.
7 -- vii. help.
Make a Selection: 1
1 -- sums
2 -- cat
3 -- pound
4 -- factorial
5 -- dots
1 -- i. List jobs.
2 -- ii. Set jobs directory.
3 -- iii. Compile and run a specific program.
4 -- iv. Compile and run all jobs in a specific directory.
5 -- v. Shutdown.
6 -- vi. List program options.
7 -- vii. help.
Make a Selection: 3
1 -- sums
2 -- cat
3 -- pound
4 -- factorial
5 -- dots
Which job would you like to run?2
bash
Python D...
bash
Python 3.9.5 64-bit
Ln 6, Col 23 Spaces: 4 UTF-8 LF Python
program0.py - CMP...
Assignment — Mozill...
Downloads
program 0 Batch Me ...
19:11


program0.py - CMPS ASSIGNMENT - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER
CMPS ASSIGNMENT
.vscode
jobs
.vscode
cat
cat.cpp
dots
dots.cpp
factorial
factorial.cpp
pound
pound.cpp
sums
sums.cpp
Operating System...
program 0 Batch ...
program0.py
screen1.jpg
screen2.jpg
OUTLINE
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
bash
Python D...
bash
Which job would you like to run?2
1 -- i. List jobs.
2 -- ii. Set jobs directory.
3 -- iii. Compile and run a specific program.
4 -- iv. Compile and run all jobs in a specific directory.
5 -- v. Shutdown.
6 -- vi. List program options.
7 -- vii. help.
Make a Selection: 4
Selected: /home/lubuntu/Desktop/CMPS ASSIGNMENT/jobs
1 -- sums
2 -- cat
3 -- pound
4 -- factorial
5 -- dots
sum = 0
sum = 1
sum = 3
sum = 6
sum = 10
sum = 15
sum = 21
sum = 28
sum = 36
sum = 45
sum = 55
Python 3.9.5 64-bit
Ln 6, Col 23 Spaces: 4 UTF-8 LF Python
program0.py - CMP...
Assignment — Mozill...
Downloads
program 0 Batch Me ...
19:12


program0.py - CMPS ASSIGNMENT - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER
CMPS ASSIGNMENT
.vscode
jobs
.vscode
cat
cat.cpp
dots
dots.cpp
factorial
factorial.cpp
pound
pound.cpp
sums
sums.cpp
Operating System...
program 0 Batch ...
program0.py
screen1.jpg
screen2.jpg
screen3.jpg
OUTLINE
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
sum = 36
sum = 45
sum = 55
bash
Python D...
bash
Python 3.9.5 64-bit
Ln 6, Col 23 Spaces: 4 UTF-8 LF Python
program0.py - CMP...
Assignment — Mozill...
Downloads
program 0 Batch Me ...
19:12


program0.py - CMPS ASSIGNMENT - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER
CMPS ASSIGNMENT
.vscode
jobs
.vscode
cat
cat.cpp
dots
dots.cpp
factorial
factorial.cpp
pound
pound.cpp
sums
sums.cpp
Operating System...
program 0 Batch ...
program0.py
screen1.jpg
screen2.jpg
screen3.jpg
screen4.jpg
OUTLINE
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
bash
Python D...
bash
factorial = 90
factorial = 720
factorial = 5040
factorial = 30240
factorial = 151200
factorial = 604800
factorial = 1814400
factorial = 3628800
factorial = 3628800
Python 3.9.5 64-bit
Ln 6, Col 23
Spaces: 4
UTF-8
LF
Python
program0.py - CMP...
Assignment — Mozill...
Downloads
program 0 Batch Me ...
19:13


program0.py - CMPS ASSIGNMENT - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER
CMPS ASSIGNMENT
.vscode
jobs
.vscode
cat
cat.cpp
dots
dots.cpp
factorial
factorial.cpp
pound
pound.cpp
sums
sums.cpp
Operating System...
program 0 Batch ...
program0.py
screen1.jpg
screen2.jpg
screen3.jpg
screen4.jpg
screen5.jpg
OUTLINE
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
bash
Python D...
bash
1 -- i. List jobs.
2 -- ii. Set jobs directory.
3 -- iii. Compile and run a specific program.
4 -- iv. Compile and run all jobs in a specific directory.
5 -- v. Shutdown.
6 -- vi. List program options.
7 -- vii. help.
Make a Selection: 6
1 -- i. List jobs.
2 -- ii. Set jobs directory.
3 -- iii. Compile and run a specific program.
4 -- iv. Compile and run all jobs in a specific directory.
5 -- v. Shutdown.
6 -- vi. List program options.
7 -- vii. help.
1 -- i. List jobs.
2 -- ii. Set jobs directory.
3 -- iii. Compile and run a specific program.
4 -- iv. Compile and run all jobs in a specific directory.
5 -- v. Shutdown.
6 -- vi. List program options.
7 -- vii. help.
Make a Selection: 7
Only God can help you now
Python 3.9.5 64-bit
Ln 6, Col 23 Spaces: 4 UTF-8 LF Python
1 2 3 4
program0.py - CMP...
Assignment — Mozill...
Downloads
program 0 Batch Me ...
19:13


program0.py - CMPS ASSIGNMENT - Visual Studio Code
File Edit Selection View Go Run Terminal Help
EXPLORER
CMPS ASSIGNMENT
.vscode
jobs
.vscode
cat
cat.cpp
dots
dots.cpp
factorial
factorial.cpp
pound
pound.cpp
sums
sums.cpp
Operating System...
program 0 Batch ...
program0.py
screen1.jpg
screen2.jpg
screen3.jpg
screen4.jpg
screen5.jpg
screen6.jpg
OUTLINE
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
2 -- ii. Set jobs directory.
3 -- iii. Compile and run a specific program.
4 -- iv. Compile and run all jobs in a specific directory.
5 -- v. Shutdown.
6 -- vi. List program options.
7 -- vii. help.
Make a Selection: 6
1 -- i. List jobs.
2 -- ii. Set jobs directory.
3 -- iii. Compile and run a specific program.
4 -- iv. Compile and run all jobs in a specific directory.
5 -- v. Shutdown.
6 -- vi. List program options.
7 -- vii. help.
1 -- i. List jobs.
2 -- ii. Set jobs directory.
3 -- iii. Compile and run a specific program.
4 -- iv. Compile and run all jobs in a specific directory.
5 -- v. Shutdown.
6 -- vi. List program options.
7 -- vii. help.
Make a Selection: 7
Only God can help you now
1 -- i. List jobs.
2 -- ii. Set jobs directory.
3 -- iii. Compile and run a specific program.
4 -- iv. Compile and run all jobs in a specific directory.
5 -- v. Shutdown.
6 -- vi. List program options.
7 -- vii. help.
Make a Selection: 5
Goodbye!
lubuntu@lubuntu:~/Desktop/CMPS ASSIGNMENT$
bash
Python D...
bash
Python 3.9.5 64-bit
Ln 6, Col 23 Spaces: 4 UTF-8 LF Python
program0.py - CMP...
Assignment — Mozill...
Downloads
program 0 Batch Me ...
19:14