

Task 2:

Code:

```
import os
print("-"*100)
#-----1)Create directories-----
user = str(input("Please enter directory to create...\t"))    #users chose which directory for
file.                                                         #check if file not yet
if user not in os.listdir('.'):                                #check if file not yet
    created.
    os.mkdir('./{}'.format(user))                             #if its new create
it.
else:
    print("\n\t**DIRECTORY ALREADY CREATED**\n")
print(os.listdir('.'))    #show the names of files/dir in
cwd.
#-----2)Copy existing file to new directory-----
import shutil
check = True    #only works for files in cwd.
while check:    #check if file in
    cwd.
    userfile2copy = input("Please enter file to be copied...\t")    #file to be
moved.
    if userfile2copy in os.listdir('.'):
        check = False    #no need to stay in while
loop.
        destinationDir = input("Please enter file destination directory...\t")    #where to
put it.
        currentDir = os.getcwd()    #get
current PATH.

        newPath = shutil.copy(userfile2copy,currentDir+'/'+destinationDir)
        print("\nNew Path >> ",newPath)    #display new path.
    else:
        print("\n\t**ERROR FILE NOT IN THIS CWD**\n")
#-----3)Read the file-----
with open(currentDir+'/'+destinationDir+'/'+userfile2copy,'r') as textfile:
    print("--File Contents--\n",textfile.read())    #display file contents

print("-"*100)
```

Output:

```
Activities Terminal
Open Task2.py Task3.py Task4.py testScript.sh
Task2.py
#-----1)Create directories-----
user = str(input("Please enter directory to create...\t")) #users chose which directory for file.
if user not in os.listdir('.'): #check if file not yet created.
    os.mkdir('./{}'.format(user)) #if its new create it.
else:
    print("\n**DIRECTORY ALREADY CREATED**\n")
print(os.listdir('.')) #show the names of files/dir in cwd.
#-----2)Copy existing file to new directory-----
import shutil
check = True #only works for files in cwd.
while check: #check if file in cwd.
    userfile2copy = input("Please enter file to be copied...\t") #file to be moved.
    if userfile2copy in os.listdir('.'):
        check = False #no need to stay in while loop.
        destinationDir = input("Please enter file destination directory...\t") #where to put it.
        currentDir = os.getcwd() #get current PATH.
        newPath = shutil.copy(userfile2copy,currentDir+'/'+destinationDir) #display new path.
        print("\nNew Path >> ",newPath)
    else:
        print("\n**ERROR FILE NOT IN THIS CWD**\n")
#-----3)Read the file-----
with open(currentDir+'/'+destinationDir+'/'+userfile2copy,'r') as textfile:
    print("--File Contents--\n",textfile.read()) #display file contents
print("--*100")

#Print(os.getcwd()) #/home/nathancrowley/College/Year2/OS 2/Assignments/Lab4_Assignment
#Print(os.listdir('.')) #['Task2.py']
#Print("USER: ",user)
#Print(os.listdir('.')) #['Task2.py','dirs']
#os.chdir('./dirs')
#Print(os.getcwd()) #/home/nathancrowley/College/Year2/OS 2/Assignments/Lab4_Assignment/dirs

Python Tab Width: 8 Ln 31, Col 1 INS

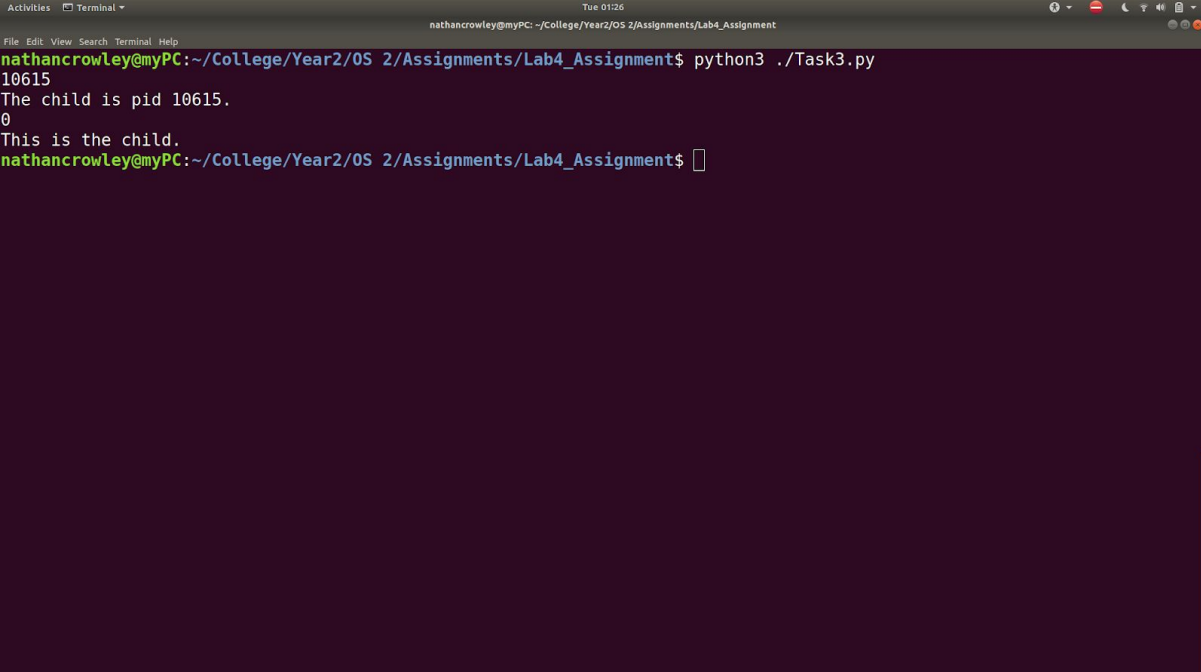
nathancrowley@myPC: ~/College/Year2/OS 2/Assignments/Lab4_Assignment
nathancrowley@myPC:~/College/Year2/OS 2/Assignments/Lab4_Assignment$ python3 ./Task
Task2.py Task3.py Task4.py
nathancrowley@myPC:~/College/Year2/OS 2/Assignments/Lab4_Assignment$ python3 ./Task2.py
Please enter directory to create... Task2Dir
Please enter file to be copied... file2read.txt
Please enter file destination directory... Task2Dir
New Path >> /home/nathancrowley/College/Year2/OS 2/Assignments/Lab4_Assignment/Task2Dir/file2read.txt
--File Contents--
this file to be read....
nathancrowley@myPC:~/College/Year2/OS 2/Assignments/Lab4_Assignment$
```

Task 3:

(i)Code:

```
import os
pid = os.fork()
print(pid)
if pid == 0:          #is the child
    print("This is the child.")
elif pid > 0:         #is parent
    print("The child is pid {}".format(pid))
else:
    print("An error occurred.")
```

Output:

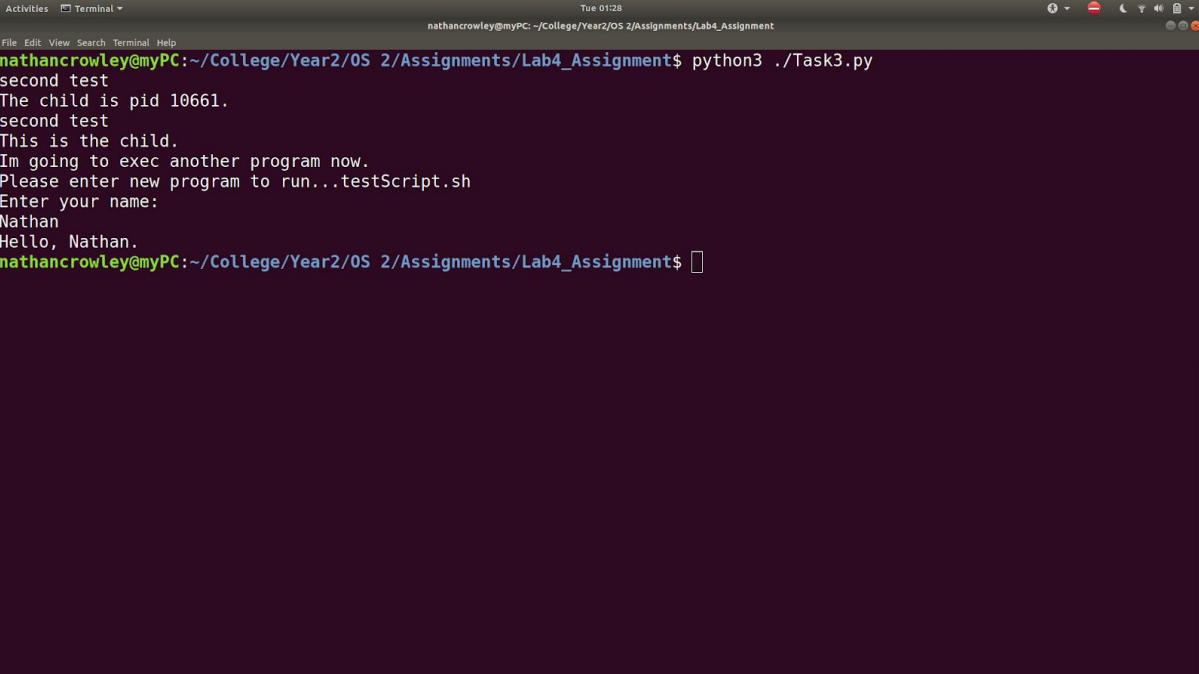


```
Activities Terminal
nathancrowley@myPC: ~/College/Year2/OS 2/Assignments/Lab4_Assignment
nathancrowley@myPC:~/College/Year2/OS 2/Assignments/Lab4_Assignment$ python3 ./Task3.py
10615
The child is pid 10615.
0
This is the child.
nathancrowley@myPC:~/College/Year2/OS 2/Assignments/Lab4_Assignment$
```

(ii)Code:

```
import os,sys
pid = os.fork()
#fork and exec together
print("second test")
if pid == 0:          #this is child
    print("This is the child.")
    print("Im going to exec another program now.")
    newprogram = input("Please enter new program to run...")
    fullpath = os.getcwd()+"/"+newprogram
#os.getcwd()-/home/nathancrowley/College/Year2/OS 2/
    Assignments/Lab4_Assignment
    os.execl(fullpath,fullpath,'NULL')    #insert new program here
else:
    print("The child is pid {}".format(pid))
    os.wait()
```

Output:



The screenshot shows a terminal window with the following output:

```
nathancrowley@myPC: ~/College/Year2/OS 2/Assignments/Lab4_Assignment$ python3 ./Task3.py
second test
The child is pid 10661.
second test
This is the child.
Im going to exec another program now.
Please enter new program to run...testScript.sh
Enter your name:
Nathan
Hello, Nathan.
nathancrowley@myPC: ~/College/Year2/OS 2/Assignments/Lab4_Assignment$
```

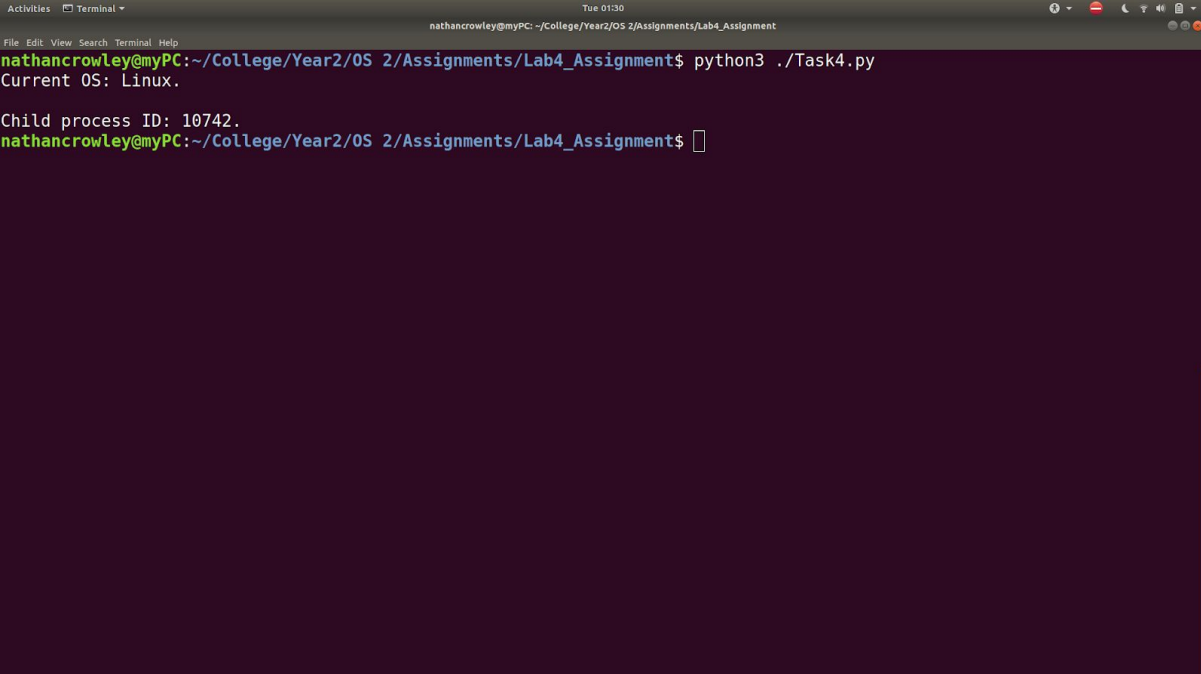
Task 4:

Code:

```
import platform
import os
usersOS = platform.system()
print("Current OS: {}".format(usersOS))
if usersOS == 'Linux':
    #use fork()
    pid = os.fork()
    if pid > 0:          #successful
        if pid == 0:
            print("This is the child.")
            print("Child process ID: {}".format(pid))
    elif pid < 0:        #failuer
        print("\n\t**ERROR: fork() RETURNED NEGATIVE**\n")

elif usersOS == 'Windows':
    #use spwan()
```

Output:



```
Activities Terminal
Tue 01:30
nathancrowley@myPC: ~/College/Year2/OS 2/Assignments/Lab4_Assignment
File Edit View Search Terminal Help
nathancrowley@myPC:~/College/Year2/OS 2/Assignments/Lab4_Assignment$ python3 ./Task4.py
Current OS: Linux.
Child process ID: 10742.
nathancrowley@myPC:~/College/Year2/OS 2/Assignments/Lab4_Assignment$
```