ASSIGNMENT REPORT 1: PROCESS AND THREAD IMPLEMENTATION

CENG2034, OPERATING SYSTEMS

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Github Page

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1 Introduction

In this project, we will first create a child process with syscall. Then we will print the PIDs of it. Then we will download the files of the URL links provided with the child processes that we created

2 Assignments

2.1 IMPORT

```
import os
import requests
from hashlib import md5
import uuid
```

Note

In this section, the necessary modules to be used in the system are imported.

2.2 Search Dublicated Files

```
photoName = []
photoHash = []

def hshCode(photo):
    with open(photo, "rb") as p:
        photoHash = md5(p.read()).hexdigest()
    return photoHash


def dltDuplicates():
    duplicates = []
    index = 0

    for i in photoHash:
        if i not in duplicates:
            duplicates.append(i)
        else:
            name = photoName[index]
            path = os.path.join(os.getcwd(), name)
            os.remove(path)
        index = index +1
    print("Duplicates are deleted...")
```

Note

We created two hashes on behalf of photoName and photoHash. Then we drop the pictures from the links into photoHash with the help of a function. We create a function called dltDuplicates and delete the duplicate files out of it.

2.3 Child Processes and PID value

```
def childProcess():
    child = os.fork()
    if(child>0):
        print("Parent process is ", os.getpid())
        os.wait()

    else:
        print("Child process is ", os.getpid())
```

Note

In this section, we create a childProcess function and get the PIDs of each file.

2.4 Dowload Files

```
def downloadFile(url, file_name = None):
    r = requests.get(url, allow_redirects= True)
    file = file_name if file_name else str(uuid.uuid4())
    open(file, 'wb').write(r.content)

    photoName.append(file)
    photoHash.append(hshCode(file))
```

Note

We download the url links provided with the childprocesses we created.

2.5 Dowload Urls

```
def downloadUrl():
    child = os.fork()
    if(child>0):
        print("Parent process is ", os.getpid())
        os.wait()

    elif(child==0):
        print("Child process is ", os.getpid())

        url = ["http://wiki.netseclab.mu.edu.tr/images/thumb/f/f7/MSKU-BlockchainResearchGroup.jpeg/300px-MSKU-BlockchainResearchGroup.jpeg",
               "https://upload.wikimedia.org/wikipedia/tr/9/98/Mu%C4%9Fla_S%C4%B1tk%C4%B1_Ko%C3%A7man_%C3%9Cniversitesi_logo.png",
               "https://upload.wikimedia.org/wikipedia/commons/thumb/c/c3/Hawai%27i.jpg/1024px-Hawai%27i.jpg",
               "http://wiki.netseclab.mu.edu.tr/images/thumb/f/f7/MSKU-BlockchainResearchGroup.jpeg/300px-MSKU-BlockchainResearchGroup.jpeg",
               "https://upload.wikimedia.org/wikipedia/commons/thumb/c/c3/Hawai%27i.jpg/1024px-Hawai%27i.jpg" ]



        for i in url:
            downloadFile(i)

        print("All files are downloaded...")
        print(photoName)
        dltDuplicates()
```

Note

It takes the url links given into the child process and downloads. Then we print these files.

3 Conclusion

We took the links of url files given in this project and put them in a childprocess. Then we downloaded these files. We delete the duplicate files from the files we downloaded. We use the ”os.wait” command to get rid of the orphan process situation mentioned in question 3.