

Cloud Computing (Mini – Project)

Step 1 : Install Hadoop and JDK first

Step 2 : Create a python project as “Main.py” by including below code

```
import ctypes

# Define the Hadoop HDFS directory to use
HADOOP_DIR = "/mydata"

# Define the function to run a Hadoop HDFS command with administrative privileges

def run_hadoop_cmd(command):
    # Use the 'runas' command to run the command with administrative privileges
    commands = u'/k hdfs dfs {}'.format(command)
    ret_code = ctypes.windll.shell32.ShellExecutew(
        None,
        u"runas",
        u"cmd.exe",
        commands,
        None,
        1
    )
    return ret_code;

# Define the function to upload a file to Hadoop HDFS

def upload_file(local_path, hadoop_path):
    result = run_hadoop_cmd(
        "-put {} {}".format(local_path, HADOOP_DIR + hadoop_path))
    print(result)

# Define the function to download a file from Hadoop HDFS

def download_file(hadoop_path, local_path):
    result = run_hadoop_cmd("-get {} {}".format(HADOOP_DIR + hadoop_path,
        local_path))
    print(result)

# Define the function to delete a file from Hadoop HDFS
```

```

def delete_file(hadoop_path):
    result = run_hadoop_cmd("-rm {}".format(HADOOP_DIR + hadoop_path))
    print(result)

# Define the function to list files in Hadoop HDFS

def list_files():
    output = run_hadoop_cmd("-ls {}".format(HADOOP_DIR))
    return output

# Main program
if __name__ == "__main__":
    while True:
        # Print menu options
        print("Select an option:")
        print("1. Upload a file to Hadoop HDFS")
        print("2. Download a file from Hadoop HDFS")
        print("3. Delete a file from Hadoop HDFS")
        print("4. List files in Hadoop HDFS")
        print("5. Quit")

        # Get user input
        choice = input("Enter a number: ")

        # Process user choice
        if choice == "1":
            local_path = input("Enter local file path: ")
            hadoop_path = input("Enter Hadoop HDFS file path: ")
            upload_file(local_path, hadoop_path)
        elif choice == "2":
            hadoop_path = input("Enter Hadoop HDFS file path: ")
            local_path = input("Enter local file path: ")
            download_file(hadoop_path, local_path)
        elif choice == "3":
            hadoop_path = input("Enter Hadoop HDFS file path: ")
            delete_file(hadoop_path)
        elif choice == "4":
            files = list_files()
            print(files)
        elif choice == "5":
            break
        else:
            print("Invalid choice. Please enter a number between 1 and 5.")

```

Output Of Program :

```
Select an option:
1. Upload a file to Hadoop HDFS
2. Download a file from Hadoop HDFS
3. Delete a file from Hadoop HDFS
4. List files in Hadoop HDFS
5. Quit
Enter a number: 1
Enter local file path: C:\file.txt
Enter Hadoop HDFS file path: /file.txt
```

Step 3 : If we enter 1 option then file will be uploaded to Hadoop by using following commands shown in below picture.

The screenshot displays a Windows 10 desktop environment. The taskbar at the bottom shows the date as 29-04-2023 and the time as 17:47. Two command prompt windows are open.

The primary command prompt window, titled "C:\Windows\System32\cmd.exe", shows the execution of a Python script located at "C:\hadoop-3.1.3\data>python main.py". The script prompts the user to "Select an option:" and lists five choices:

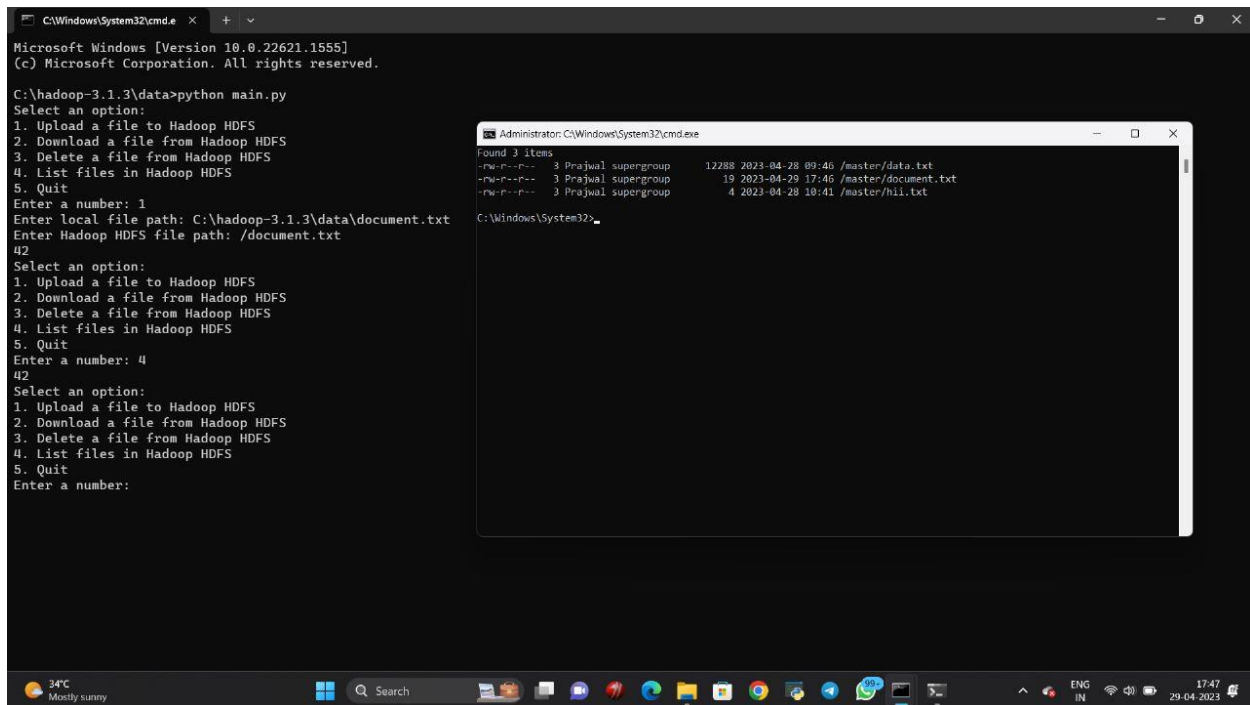
1. Upload a file to Hadoop HDFS
2. Download a file from Hadoop HDFS
3. Delete a file from Hadoop HDFS
4. List files in Hadoop HDFS
5. Quit

 The user has entered "1". The script then prompts for the "Enter local file path:", where "C:\hadoop-3.1.3\data\document.txt" has been entered. Next, it prompts for the "Enter Hadoop HDFS file path:", where "/document.txt" has been entered. The user has then entered "42", which is not a valid option number. The script again prompts to "Select an option:" with the same five choices.

A second, smaller command prompt window titled "Administrator: C:\Windows\System32\cmd.exe" is open in the background. It displays a log message:


```
2023-04-29 17:46:55,244 INFO sasl.SaslDataTransferClient: SASL encryption trust check: localhostTrusted = false, remoteTrusted = false
```

Step 4 : For showing uploaded file we can choose option 4 which list all files uploaded to the Hadoop

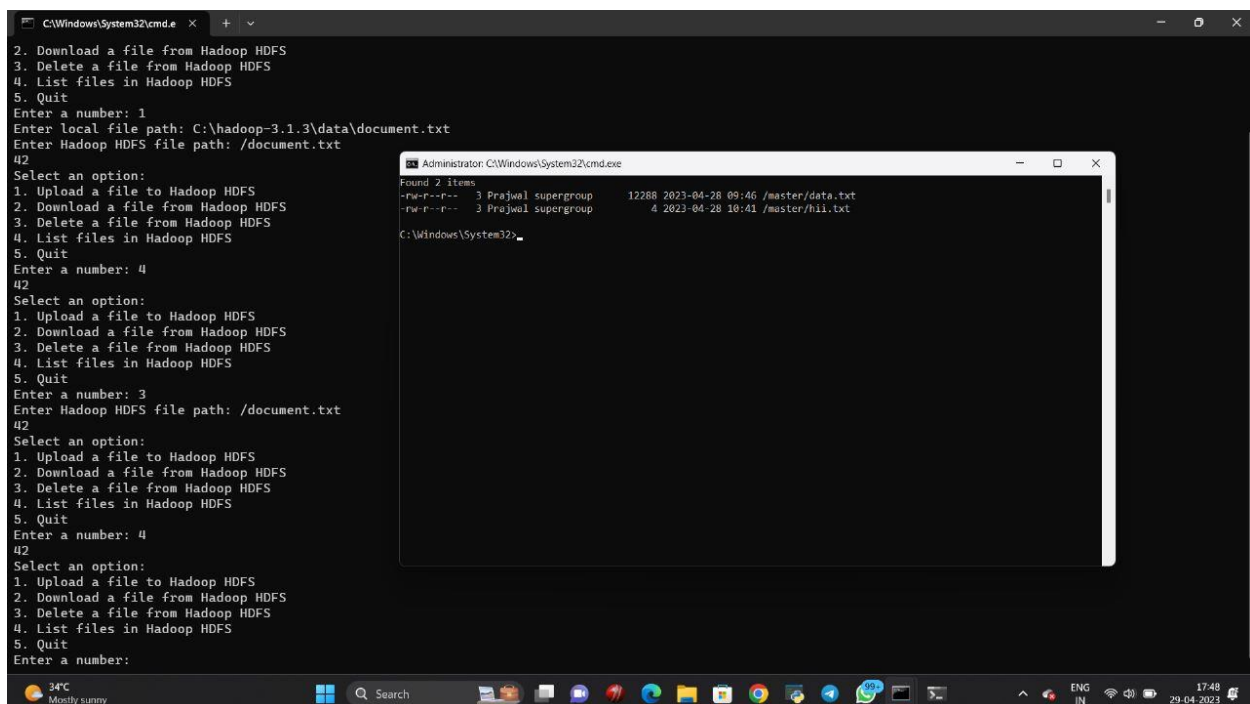


```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.22621.1555]
(c) Microsoft Corporation. All rights reserved.

C:\hadoop-3.1.3\data>python main.py
Select an option:
1. Upload a file to Hadoop HDFS
2. Download a file from Hadoop HDFS
3. Delete a file from Hadoop HDFS
4. List files in Hadoop HDFS
5. Quit
Enter a number: 1
Enter local file path: C:\hadoop-3.1.3\data\document.txt
Enter Hadoop HDFS file path: /document.txt
42
Select an option:
1. Upload a file to Hadoop HDFS
2. Download a file from Hadoop HDFS
3. Delete a file from Hadoop HDFS
4. List files in Hadoop HDFS
5. Quit
Enter a number: 4
42
Select an option:
1. Upload a file to Hadoop HDFS
2. Download a file from Hadoop HDFS
3. Delete a file from Hadoop HDFS
4. List files in Hadoop HDFS
5. Quit
Enter a number:
```

```
Administrator: C:\Windows\System32\cmd.exe
Found 3 items
-rw-r--r-- 3 Prajwal supergroup 12288 2023-04-28 09:46 /master/data.txt
-rw-r--r-- 3 Prajwal supergroup 19 2023-04-29 17:46 /master/document.txt
-rw-r--r-- 3 Prajwal supergroup 4 2023-04-28 10:41 /master/hii.txt
C:\Windows\System32>
```

Step 5 : Option 3 is for deleting files uploaded to the Hadoop



```
C:\Windows\System32\cmd.exe
2. Download a file from Hadoop HDFS
3. Delete a file from Hadoop HDFS
4. List files in Hadoop HDFS
5. Quit
Enter a number: 1
Enter local file path: C:\hadoop-3.1.3\data\document.txt
Enter Hadoop HDFS file path: /document.txt
42
Select an option:
1. Upload a file to Hadoop HDFS
2. Download a file from Hadoop HDFS
3. Delete a file from Hadoop HDFS
4. List files in Hadoop HDFS
5. Quit
Enter a number: 4
42
Select an option:
1. Upload a file to Hadoop HDFS
2. Download a file from Hadoop HDFS
3. Delete a file from Hadoop HDFS
4. List files in Hadoop HDFS
5. Quit
Enter a number: 3
Enter Hadoop HDFS file path: /document.txt
42
Select an option:
1. Upload a file to Hadoop HDFS
2. Download a file from Hadoop HDFS
3. Delete a file from Hadoop HDFS
4. List files in Hadoop HDFS
5. Quit
Enter a number: 4
42
Select an option:
1. Upload a file to Hadoop HDFS
2. Download a file from Hadoop HDFS
3. Delete a file from Hadoop HDFS
4. List files in Hadoop HDFS
5. Quit
Enter a number:
```

```
Administrator: C:\Windows\System32\cmd.exe
Found 2 items
-rw-r--r-- 3 Prajwal supergroup 12288 2023-04-28 09:46 /master/data.txt
-rw-r--r-- 3 Prajwal supergroup 4 2023-04-28 10:41 /master/hii.txt
C:\Windows\System32>
```