```
/**
 * @Author: Shivam Patel
 * @Andrew_ID: shpatel
 * @Course: 95-771 Data Structures and Algorithms for Information
Processing
 * @Assignment_Number: Project 1 - Part 3
 */
```

Output – smallFile.txt

Screenshot

```
"C:\Program Files\Eclipse Adoptium\jdk-17.0.4.101-hotspot\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.2.1\lib\idea_rt.
Enter location of the file of which you wish to find the root: F:\\Shivam\\CMU Material\\A - CMU Study Material\\Semester 3\\S1 - Data Structures
Total Lines = 22
merkleRootFound = A4E10610B30C40CA608058C521AD3D9EEC42C1892688903984580C56D3CF8A7D

Process finished with exit code 0
```

Actual Output

Enter location of the file of which you wish to find the root: F:\\Shivam\\CMU Material\\A - CMU Study Material\\Semester 3\\S1 - Data Structures and Algorithms for Information Processing\\Assignments\\HW1\\MerkleTree-Project\\smallFile.txt

Total Lines = 22

merkleRootFound = A4E10610B30C40CA608058C521AD3D9EEC42C1892688903984580C56D3CF8A7D

Output – CrimeLatLonXY.csv

Screenshot

```
"C:\Program Files\Eclipse Adoptium\jdk-17.0.4.101-hotspot\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.2.1\lib\idea_rt
Enter location of the file of which you wish to find the root: F:\\Shivam\\CMU Material\\A - CMU Study Material\\Semester 3\\S1 - Data Structures
Total Lines = 27219
merkleRootFound = A5A74A770E0C3922362202DAD62A97655F8652064CCCBE7D3EA2B588C7E07B58

Process finished with exit code 0
```

Actual Output

Enter location of the file of which you wish to find the root: F:\\Shivam\\CMU Material\\A - CMU Study Material\\Semester 3\\S1 - Data Structures and Algorithms for Information Processing\\Assignments\\HW1\\MerkleTree-Project\\CrimeLatLonXY.csv

Total Lines = 27219

merkleRootFound = A5A74A770E0C3922362202DAD62A97655F8652064CCCBE7D3EA2B588C7E07B58

Output – CrimeLatLonXY1990_Size2.csv

Screenshot

```
"C:\Program Files\Eclipse Adoptium\jdk-17.0.4.101-hotspot\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.2.1\lib\idea_rt.
Enter location of the file of which you wish to find the root: F:\Shivam\CMU Material\A - CMU Study Material\Semester 3\S1 - Data Structures
Total Lines = 3
merkleRootFound = DDD49991D04273A7300EF24CFAD21E2706C145001483D161D53937D90F76C001

Process finished with exit code 0
```

Actual Output

Enter location of the file of which you wish to find the root: F:\\Shivam\\CMU Material\\A - CMU Study Material\\Semester 3\\S1 - Data Structures and Algorithms for Information Processing\\Assignments\\HW1\\MerkleTree-Project\\CrimeLatLonXY1990_Size2.csv

Total Lines = 3

merkleRootFound = DDD49991D04273A7300EF24CFAD21E2706C145001483D161D53937D90F76C001

Output – CrimeLatLonXY1990_Size3.csv

Screenshot

```
"C:\Program Files\Eclipse Adoptium\jdk-17.0.4.101-hotspot\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.2.1\lib\idea_rt.
Enter location of the file of which you wish to find the root: F:\Shivam\CMU Material\A - CMU Study Material\Semester 3\S1 - Data Structures
Total Lines = 4
merkleRootFound = 313A2AD830ED85B5203C8C2A9895ADFA521CD4ABB74B83C25DA2C6A47AE08818

Process finished with exit code 0
```

Actual Output

Enter location of the file of which you wish to find the root: F:\\Shivam\\CMU Material\\A - CMU Study Material\\Semester 3\\S1 - Data Structures and Algorithms for Information Processing\\Assignments\\HW1\\MerkleTree-Project\\CrimeLatLonXY1990_Size3.csv

Total Lines = 4

merkleRootFound = 313A2AD830ED85B5203C8C2A9895ADFA521CD4ABB74B83C25DA2C6A47AE08818

```
Results:
1. smallFile.txt
   Merkle Root:
A4E10610B30C40CA608058C521AD3D9EEC42C1892688903984580C56D3CF8A7D

2. CrimeLatLonXY.csv
   Merkle Root:
A5A74A770E0C3922362202DAD62A97655F8652064CCCBE7D3EA2B588C7E07B58

3. CrimeLatLonXY1990_Size2.csv
   Merkle Root:
DDD49991D04273A7300EF24CFAD21E2706C145001483D161D53937D90F76C001

4. CrimeLatLonXY1990_Size3.csv
   Merkle Root:
313A2AD830ED85B5203C8C2A9895ADFA521CD4ABB74B83C25DA2C6A47AE08818

Hence, the file CrimeLatLonXY.csv has the required Merkle Root, i.e.,
A5A74A770E0C3922362202DAD62A97655F8652064CCCBE7D3EA2B588C7E07B58
```