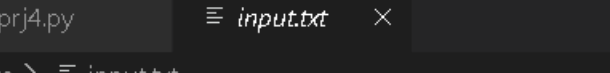


Project 4 Report

Muhib Khan

Run: ***python .\src\prj4.py <difficulty i>***

input.txt



The screenshot shows a Jupyter Notebook interface. At the top, there is a file explorer bar with two tabs: 'prj4.py' (active) and 'input.txt'. Below the file explorer, the 'data' directory is expanded, showing a file named 'input.txt'. The main area of the notebook displays a code cell with the following content:


```
1 m14056283
```

target.txt

[illegible]

16

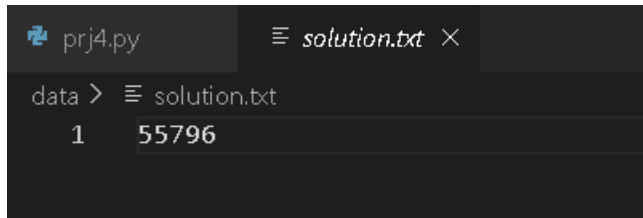
```
PS C:\Users\muhib\OneDrive - University of Cincinnati\Desktop\Fall 2023\Data Security\pow_m14056283> python .\src\prj4.py 16
Solution Nonce: 55796
Solution: 55796
Valid Solution: 1
Runtime: 0.1794438362121582
```



The screenshot shows a Jupyter Notebook interface. At the top, there is a file explorer bar with two tabs: 'prj4.py' and 'solution.txt'. The 'solution.txt' tab is active, showing its contents in a code cell. The code cell contains a single line of Python code: `data > solution.txt`. Below the code cell, the output is displayed as a single line: `1 55796`.

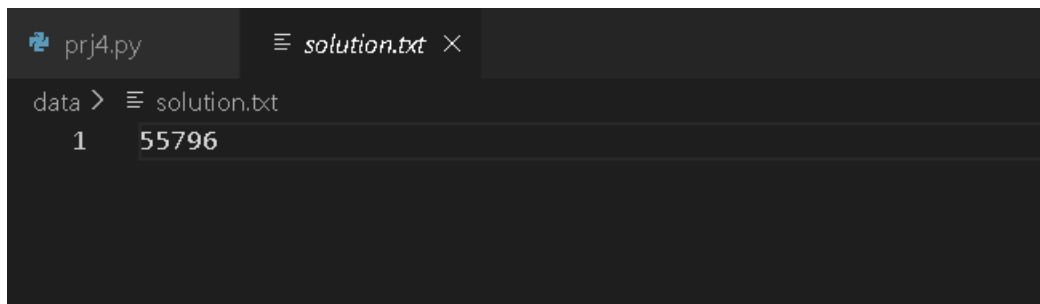
17

```
PS C:\Users\muhib\OneDrive - University of Cincinnati\Desktop\Fall 2023\Data Security\pow_m14056283> python .\src\prj4.py 17
Solution Nonce: 55796
Solution: 55796
Valid Solution: 1
Runtime: 0.23552680015563965
```



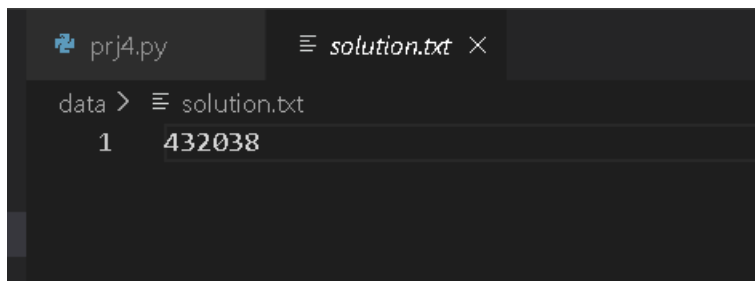
18

```
PS C:\Users\muhib\OneDrive - University of Cincinnati\Desktop\Fall 2023\Data Security\pow_m14056283> python .\src\prj4.py 18
Solution Nonce: 55796
Solution: 55796
Valid Solution: 1
```



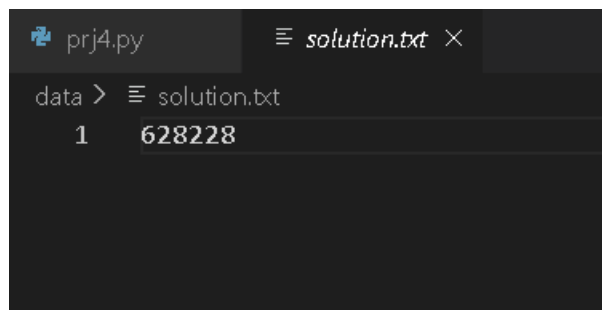
19

```
Runtime: 0.10050199809222050
PS C:\Users\muhib\OneDrive - University of Cincinnati\Desktop\Fall 2023\Data Security\pow_m14056283> python .\src\prj4.py 19
Solution Nonce: 432038
Solution: 432038
Valid Solution: 1
Runtime: 1.4462132453918457
```



20

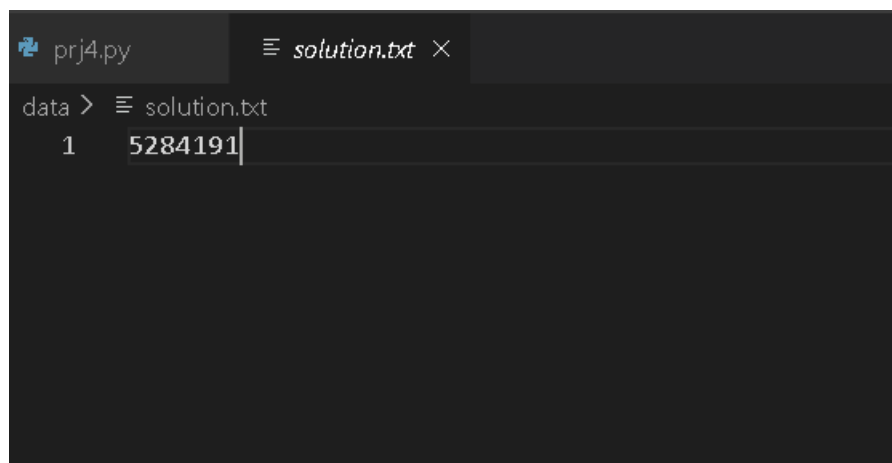
```
PS C:\Users\muhib\OneDrive - University of Cincinnati\Desktop\Fall 2023\Data Security\pow_m14056283> python .\src\prj4.py 20
Solution Nonce: 628228
Solution: 628228
Valid Solution: 1
Runtime: 2.0758235454559326
```



```
prj4.py  solution.txt X
data >  solution.txt
1      628228
```

21

```
PS C:\Users\muhib\OneDrive - University of Cincinnati\Desktop\Fall 2023\Data Security\pow_m14056283> python .\src\prj4.py 21
Solution Nonce: 5284191
Solution: 5284191
Valid Solution: 1
Runtime: 17.054751873016357
```



```
prj4.py  solution.txt X
data >  solution.txt
1      5284191
```

22

```
PS C:\Users\muhib\OneDrive - University of Cincinnati\Desktop\Fall 2023\Data Security\pow_m14056283> python .\src\prj4.py 22
Solution Nonce: 7048796
Solution: 7048796
Valid Solution: 1
Runtime: 23.59480357170105
```

```
prj4.py  solution.txt X
data >  solution.txt
1      7048796
```

23

```
PS C:\Users\muhib\OneDrive - University of Cincinnati\Desktop\Fall 2023\Data Security\pow_m14056283> python .\src\prj4.py 23
Solution Nonce: 13890264
Solution: 13890264
Valid Solution: 1
Runtime: 43.72111988067627
```

```
prj4.py  solution.txt X
data >  solution.txt
1      13890264
```

24

```
PS C:\Users\muhib\OneDrive - University of Cincinnati\Desktop\Fall 2023\Data Security\pow_m14056283> python .\src\prj4.py 24
Solution Nonce: 13890264
Solution: 13890264
Valid Solution: 1
Runtime: 43.63257312774658
```

```
prj4.py  solution.txt X
data >  solution.txt
1      13890264
```

Difficulty vs Runtime

