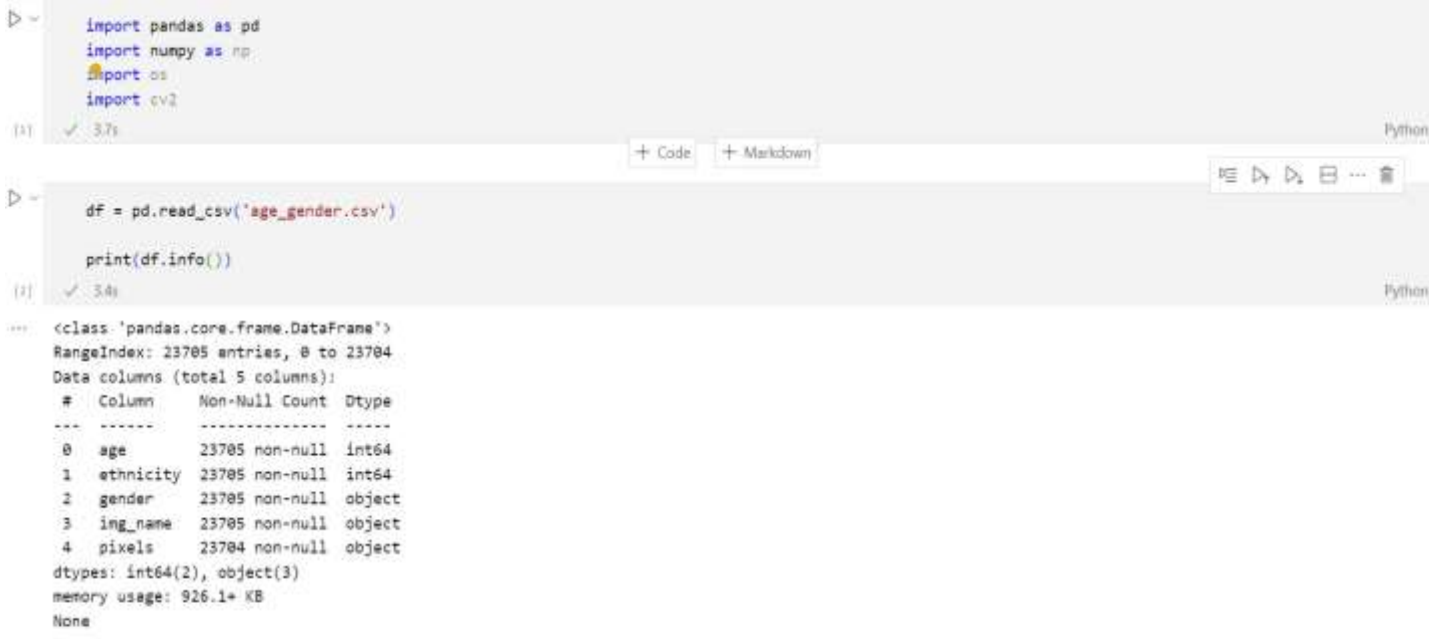
Name: Zahid Nawaz

REG No: FA20-BSE-021

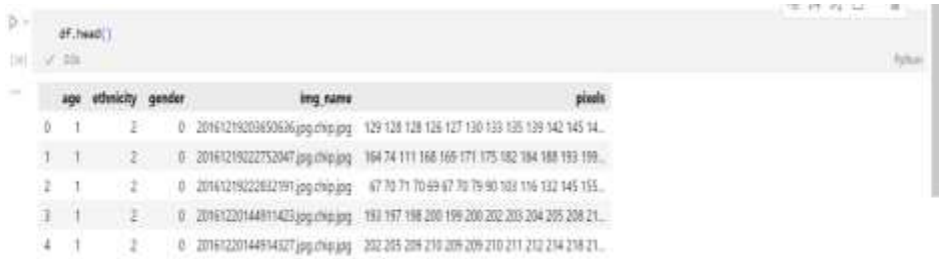
Project: Gender and Age detection



```
import pandas as pd
import numpy as np
import os
import cv2
```

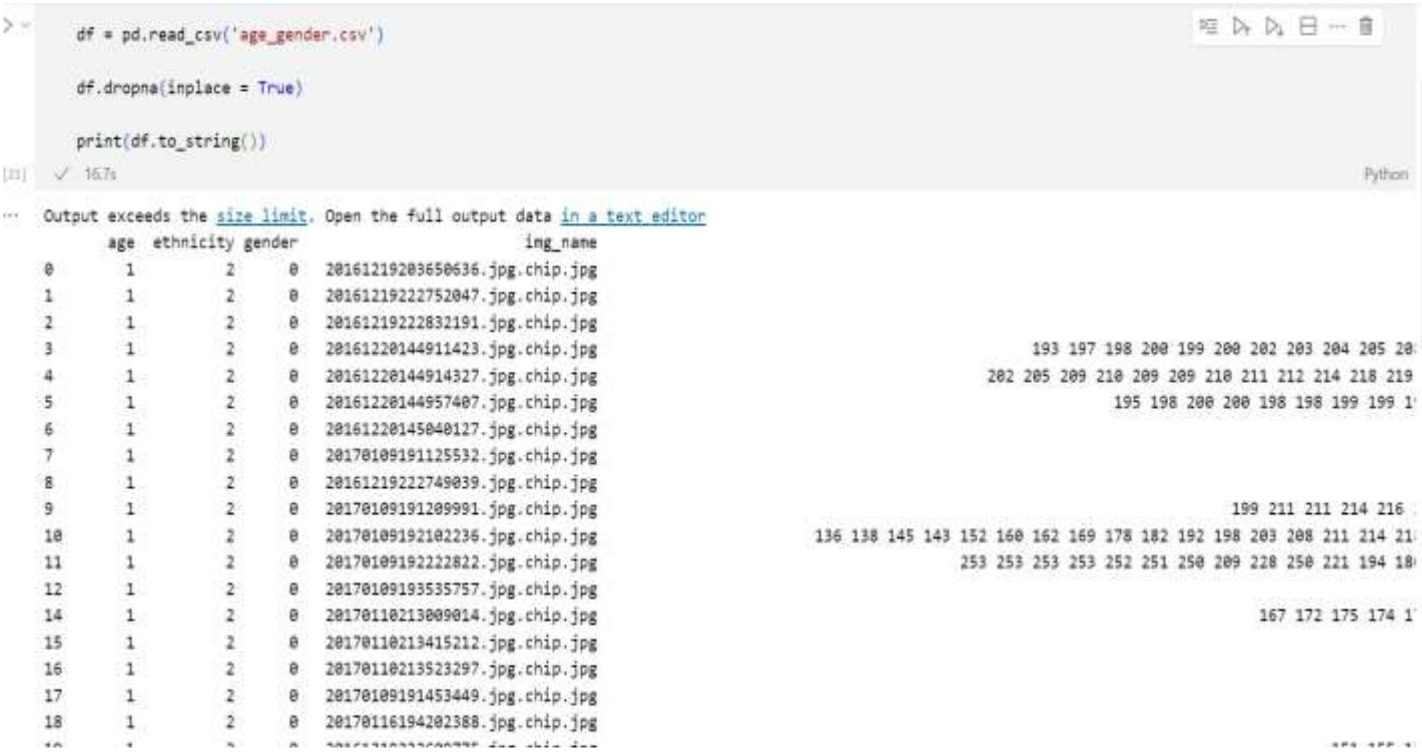
```
df = pd.read_csv('age_gender.csv')

print(df.info())
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 23705 entries, 0 to 23704
Data columns (total 5 columns):
 #   Column     Non-Null Count  Dtype
---  ------     --------------  -----
 0   age        23705 non-null  int64
 1   ethnicity  23705 non-null  int64
 2   gender     23705 non-null  object
 3   img_name   23705 non-null  object
 4   pixels     23704 non-null  object
dtypes: int64(2), object(3)
memory usage: 926.1+ KB
None
```



```
df.head()
```

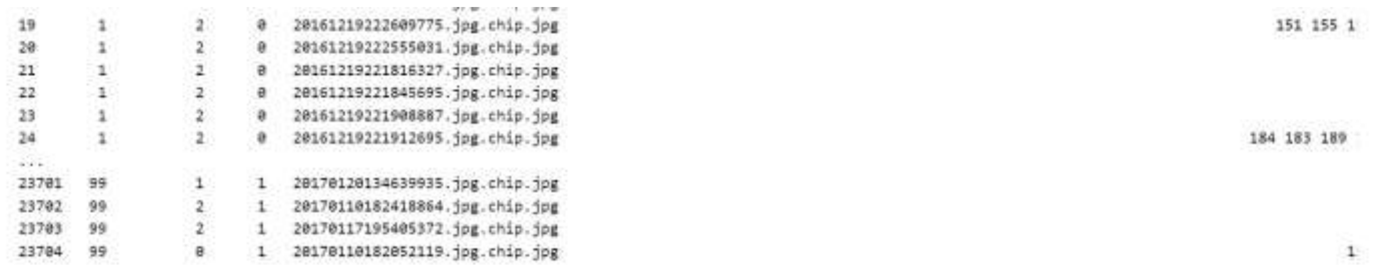
	age	ethnicity	gender	img_name	pixels
0	1	2	0	20161219203650636.jpg.chip.jpg	129 128 128 126 127 130 133 135 139 142 145 14...
1	1	2	0	20161219222752047.jpg.chip.jpg	164 74 111 168 169 171 175 182 184 188 193 199...
2	1	2	0	20161219222832191.jpg.chip.jpg	67 70 71 70 69 67 70 79 90 103 116 132 145 155...
3	1	2	0	20161220144911423.jpg.chip.jpg	193 197 198 200 199 200 202 203 204 205 208 21...
4	1	2	0	20161220144914327.jpg.chip.jpg	202 205 209 210 209 209 210 211 212 214 218 21...



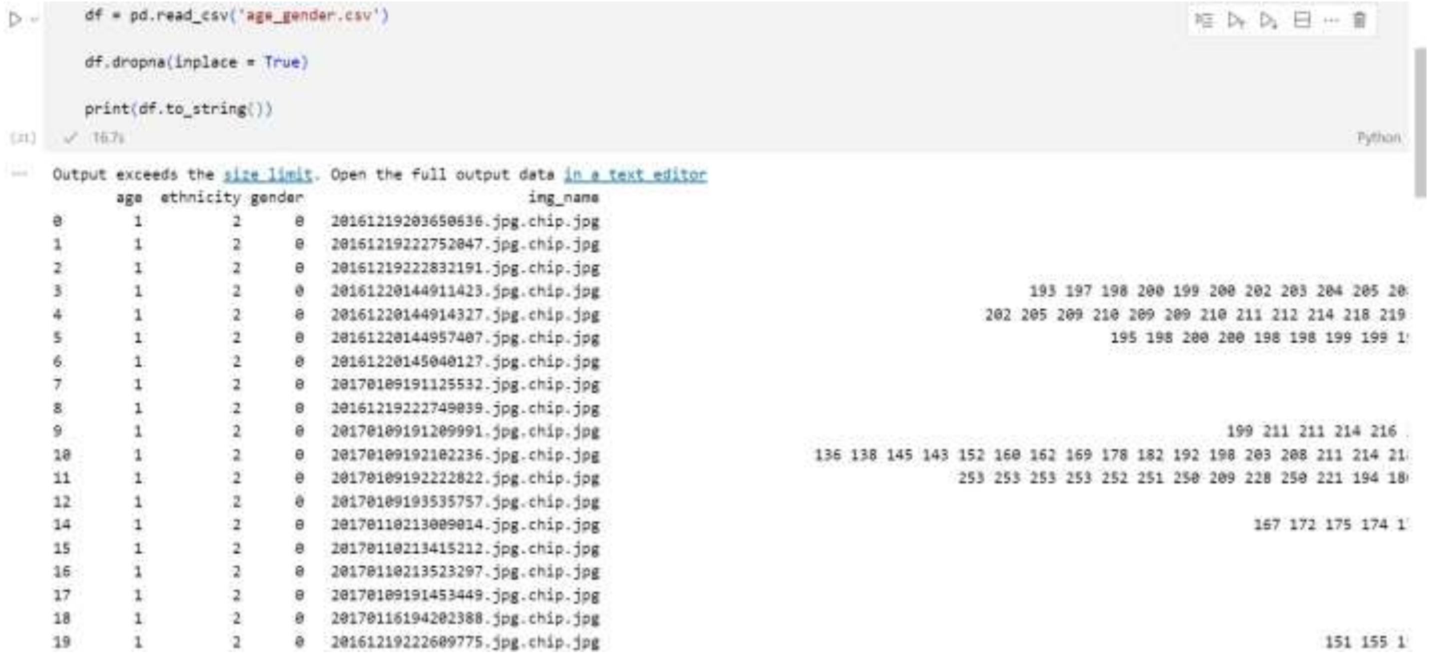
```
df = pd.read_csv('age_gender.csv')

df.dropna(inplace = True)

print(df.to_string())
```

[21] ✓ 16.7s Python

```
Output exceeds the size limit. Open the full output data in a text editor
       age  ethnicity gender                         img_name
0        1          2      0   20161219203650636.jpg.chip.jpg
1        1          2      0   20161219222752047.jpg.chip.jpg
2        1          2      0   20161219222832191.jpg.chip.jpg
3        1          2      0   20161220144911423.jpg.chip.jpg                                               193 197 198 200 199 200 202 203 204 205 20
4        1          2      0   20161220144914327.jpg.chip.jpg                                           202 205 209 210 209 209 210 211 212 214 218 219
5        1          2      0   20161220144957407.jpg.chip.jpg                                                        195 198 200 200 198 198 199 199 1
6        1          2      0   20161220145040127.jpg.chip.jpg
7        1          2      0   20170109191125532.jpg.chip.jpg
8        1          2      0   20161219222749039.jpg.chip.jpg
9        1          2      0   20170109191209991.jpg.chip.jpg                                                                    199 211 211 214 216
10       1          2      0   20170109192102236.jpg.chip.jpg                    136 138 145 143 152 160 162 169 178 182 192 198 203 208 211 214 21
11       1          2      0   20170109192222822.jpg.chip.jpg                                        253 253 253 253 252 251 250 209 228 250 221 194 18
12       1          2      0   20170109193535757.jpg.chip.jpg
14       1          2      0   20170110213009014.jpg.chip.jpg                                                                        167 172 175 174 1
15       1          2      0   20170110213415212.jpg.chip.jpg
16       1          2      0   20170110213523297.jpg.chip.jpg
17       1          2      0   20170109191453449.jpg.chip.jpg
18       1          2      0   20170116194202388.jpg.chip.jpg
```



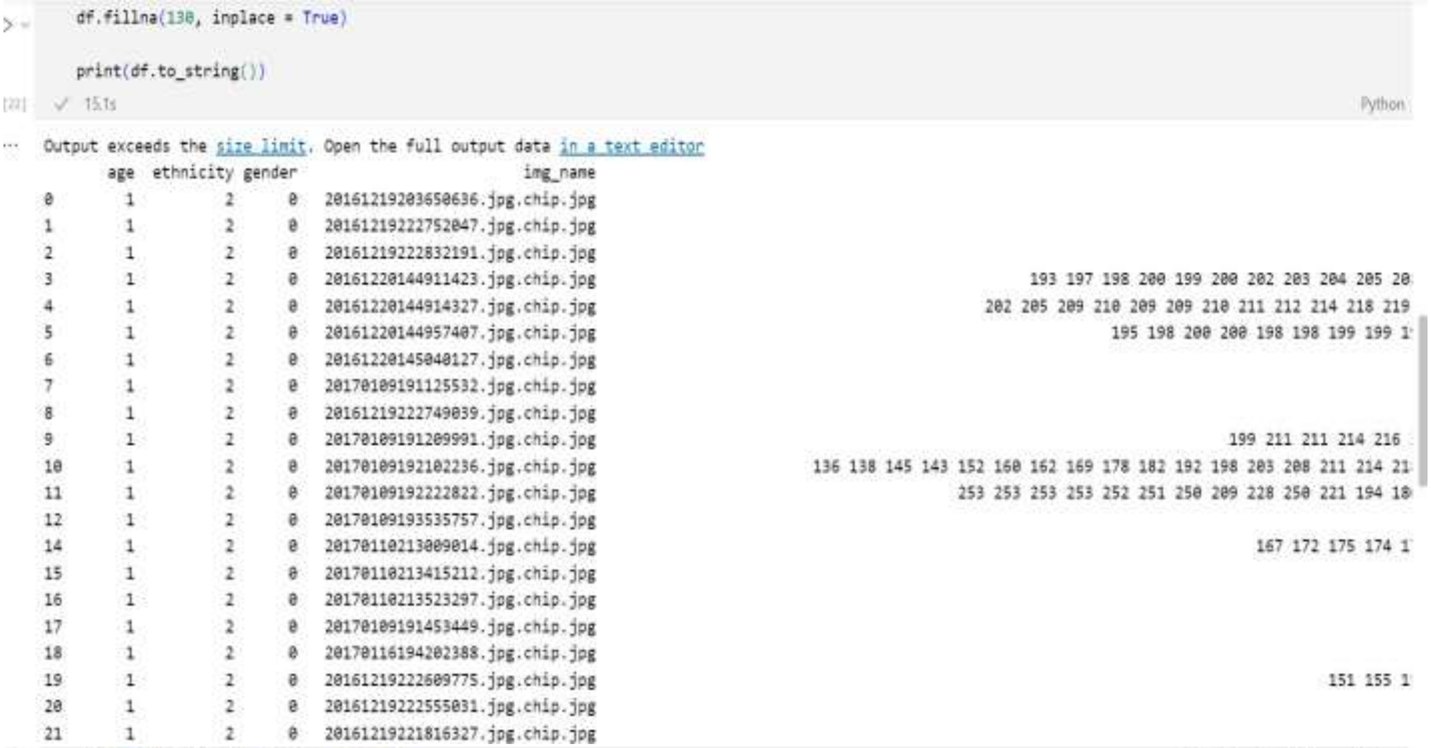
```
19       1          2      0   20161219222609775.jpg.chip.jpg                                                                                151 155 1
20       1          2      0   20161219222555031.jpg.chip.jpg
21       1          2      0   20161219221816327.jpg.chip.jpg
22       1          2      0   20161219221845695.jpg.chip.jpg
23       1          2      0   20161219221908887.jpg.chip.jpg
24       1          2      0   20161219221912695.jpg.chip.jpg                                                                             184 183 189
...
23701   99          1      1   20170120134639935.jpg.chip.jpg
23702   99          2      1   20170110182418864.jpg.chip.jpg
23703   99          2      1   20170117195405372.jpg.chip.jpg
23704   99          0      1   20170110182052119.jpg.chip.jpg                                                                                         1
```



```
df = pd.read_csv('age_gender.csv')

df.dropna(inplace = True)

print(df.to_string())
```

[21] ✓ 16.7s Python

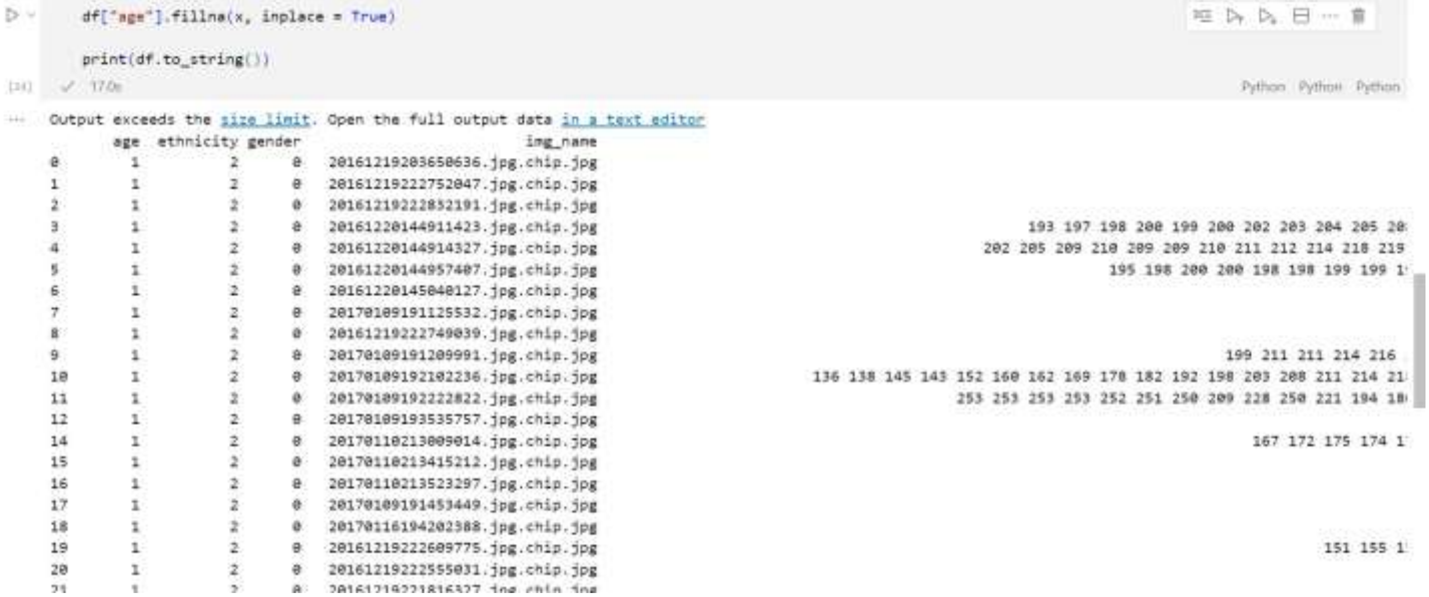
```
Output exceeds the size limit. Open the full output data in a text editor
       age  ethnicity gender                         img_name
0        1          2      0   20161219203650636.jpg.chip.jpg
1        1          2      0   20161219222752047.jpg.chip.jpg
2        1          2      0   20161219222832191.jpg.chip.jpg
3        1          2      0   20161220144911423.jpg.chip.jpg                                               193 197 198 200 199 200 202 203 204 205 20
4        1          2      0   20161220144914327.jpg.chip.jpg                                           202 205 209 210 209 209 210 211 212 214 218 219
5        1          2      0   20161220144957407.jpg.chip.jpg                                                        195 198 200 200 198 198 199 199 1
6        1          2      0   20161220145040127.jpg.chip.jpg
7        1          2      0   20170109191125532.jpg.chip.jpg
8        1          2      0   20161219222749039.jpg.chip.jpg
9        1          2      0   20170109191209991.jpg.chip.jpg                                                                    199 211 211 214 216
10       1          2      0   20170109192102236.jpg.chip.jpg                    136 138 145 143 152 160 162 169 178 182 192 198 203 208 211 214 21
11       1          2      0   20170109192222822.jpg.chip.jpg                                        253 253 253 253 252 251 250 209 228 250 221 194 18
12       1          2      0   20170109193535757.jpg.chip.jpg
14       1          2      0   20170110213009014.jpg.chip.jpg                                                                        167 172 175 174 1
15       1          2      0   20170110213415212.jpg.chip.jpg
16       1          2      0   20170110213523297.jpg.chip.jpg
17       1          2      0   20170109191453449.jpg.chip.jpg
18       1          2      0   20170116194202388.jpg.chip.jpg
19       1          2      0   20161219222609775.jpg.chip.jpg                                                                                151 155 1
```



```
df.fillna(130, inplace = True)

print(df.to_string())
```

[22] ✓ 15.1s

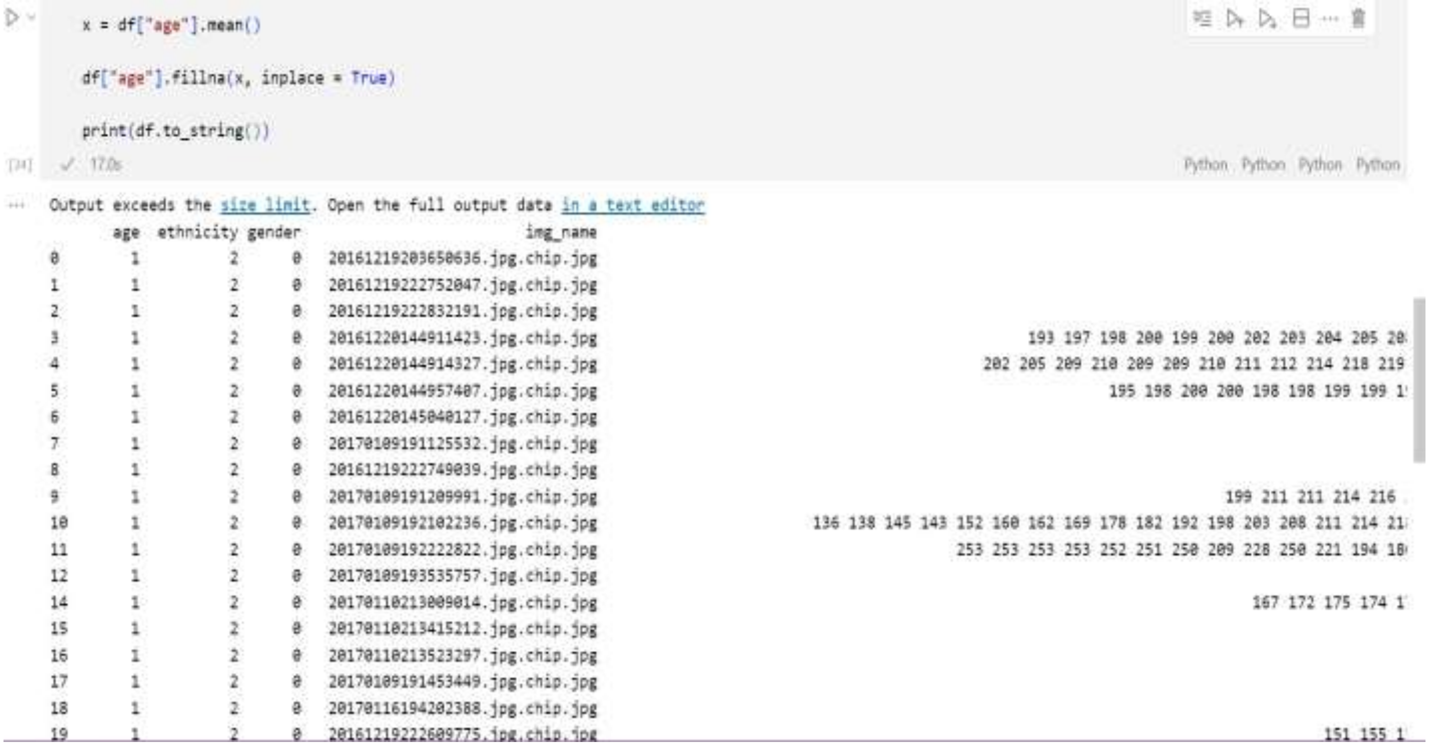
```
Output exceeds the size limit. Open the full output data in a text editor
    age  ethnicity gender                         img_name
0     1          2      0  20161219203650636.jpg.chip.jpg
1     1          2      0  20161219222752047.jpg.chip.jpg
2     1          2      0  20161219222832191.jpg.chip.jpg
3     1          2      0  20161220144911423.jpg.chip.jpg                                   193 197 198 200 199 200 202 203 204 205 20
4     1          2      0  20161220144914327.jpg.chip.jpg                               202 205 209 210 209 209 210 211 212 214 218 219
5     1          2      0  20161220144957407.jpg.chip.jpg                                           195 198 200 200 198 198 199 199 1
6     1          2      0  20161220145040127.jpg.chip.jpg
7     1          2      0  20170109191125532.jpg.chip.jpg
8     1          2      0  20161219222749039.jpg.chip.jpg
9     1          2      0  20170109191209991.jpg.chip.jpg                                                          199 211 211 214 216
10    1          2      0  20170109192102236.jpg.chip.jpg  136 138 145 143 152 160 162 169 178 182 192 198 203 208 211 214 21
11    1          2      0  20170109192222822.jpg.chip.jpg                           253 253 253 253 252 251 250 209 228 250 221 194 18
12    1          2      0  20170109193535757.jpg.chip.jpg
14    1          2      0  20170110213009014.jpg.chip.jpg                                                              167 172 175 174 1
15    1          2      0  20170110213415212.jpg.chip.jpg
16    1          2      0  20170110213523297.jpg.chip.jpg
17    1          2      0  20170109191453449.jpg.chip.jpg
18    1          2      0  20170116194202388.jpg.chip.jpg
19    1          2      0  20161219222609775.jpg.chip.jpg                                                                    151 155 1
20    1          2      0  20161219222555031.jpg.chip.jpg
21    1          2      0  20161219221816327.jpg.chip.jpg
```



```
df["age"].fillna(x, inplace = True)

print(df.to_string())
```

[24] ✓ 17.0s

```
Output exceeds the size limit. Open the full output data in a text editor
    age  ethnicity gender                         img_name
0     1          2      0  20161219203650636.jpg.chip.jpg
1     1          2      0  20161219222752047.jpg.chip.jpg
2     1          2      0  20161219222832191.jpg.chip.jpg
3     1          2      0  20161220144911423.jpg.chip.jpg                                   193 197 198 200 199 200 202 203 204 205 20
4     1          2      0  20161220144914327.jpg.chip.jpg                               202 205 209 210 209 209 210 211 212 214 218 219
5     1          2      0  20161220144957407.jpg.chip.jpg                                           195 198 200 200 198 198 199 199 1
6     1          2      0  20161220145040127.jpg.chip.jpg
7     1          2      0  20170109191125532.jpg.chip.jpg
8     1          2      0  20161219222749039.jpg.chip.jpg
9     1          2      0  20170109191209991.jpg.chip.jpg                                                          199 211 211 214 216
10    1          2      0  20170109192102236.jpg.chip.jpg  136 138 145 143 152 160 162 169 178 182 192 198 203 208 211 214 21
11    1          2      0  20170109192222822.jpg.chip.jpg                           253 253 253 253 252 251 250 209 228 250 221 194 18
12    1          2      0  20170109193535757.jpg.chip.jpg
14    1          2      0  20170110213009014.jpg.chip.jpg                                                              167 172 175 174 1
15    1          2      0  20170110213415212.jpg.chip.jpg
16    1          2      0  20170110213523297.jpg.chip.jpg
17    1          2      0  20170109191453449.jpg.chip.jpg
18    1          2      0  20170116194202388.jpg.chip.jpg
19    1          2      0  20161219222609775.jpg.chip.jpg                                                                    151 155 1
20    1          2      0  20161219222555031.jpg.chip.jpg
21    1          2      0  20161219221816327.jpg.chip.jpg
```

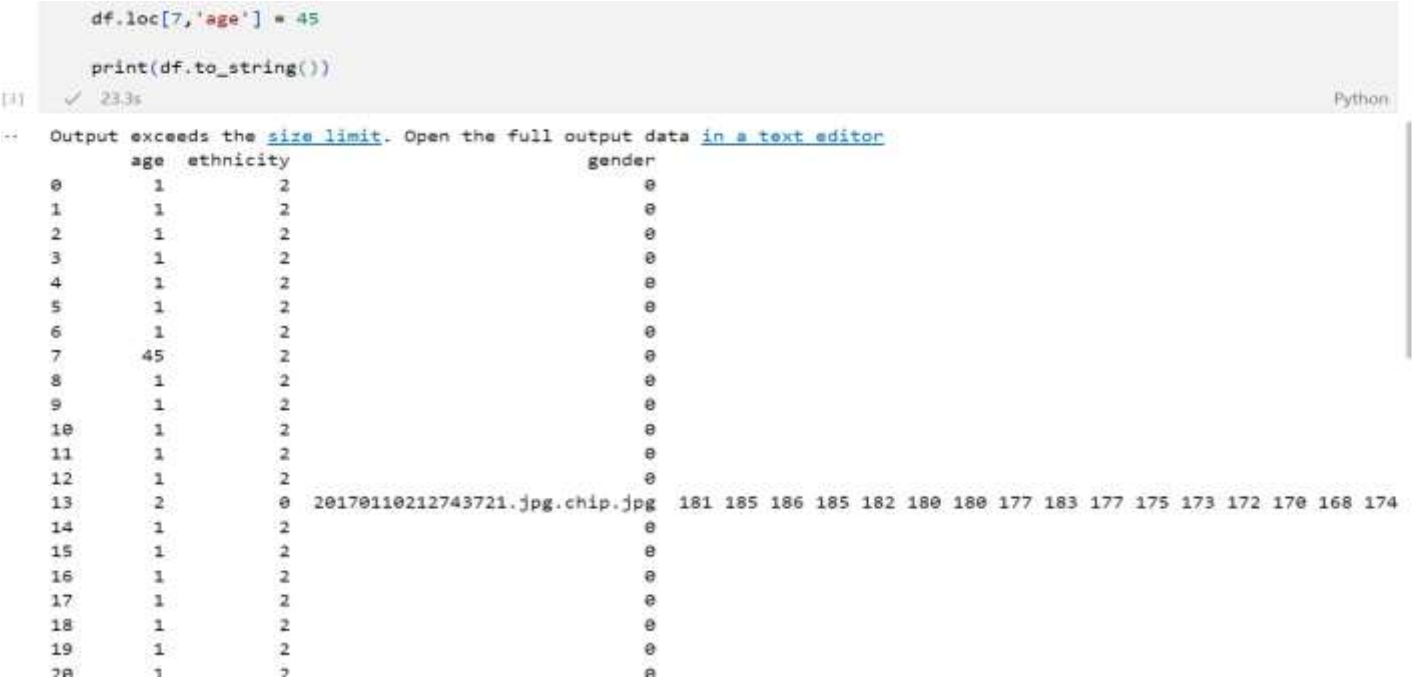


```
x = df["age"].mean()

df["age"].fillna(x, inplace = True)

print(df.to_string())
```

[34] ✓ 17.0s

Output exceeds the size limit. Open the full output data in a text editor

```
        age  ethnicity gender                        img_name
0        1          2      0   20161219203650636.jpg.chip.jpg
1        1          2      0   20161219222752047.jpg.chip.jpg
2        1          2      0   20161219222832191.jpg.chip.jpg
3        1          2      0   20161220144911423.jpg.chip.jpg                                              193 197 198 200 199 200 202 203 204 205 20
4        1          2      0   20161220144914327.jpg.chip.jpg                                          202 205 209 210 209 209 210 211 212 214 218 219
5        1          2      0   20161220144957407.jpg.chip.jpg                                                          195 198 200 200 198 198 199 199 1
6        1          2      0   20161220145040127.jpg.chip.jpg
7        1          2      0   20170109191125532.jpg.chip.jpg
8        1          2      0   20161219222749039.jpg.chip.jpg
9        1          2      0   20170109191209991.jpg.chip.jpg                                                                       199 211 211 214 216
10       1          2      0   20170109192102236.jpg.chip.jpg                  136 138 145 143 152 160 162 169 178 182 192 198 203 208 211 214 21
11       1          2      0   20170109192222822.jpg.chip.jpg                                      253 253 253 253 252 251 250 209 228 250 221 194 18
12       1          2      0   20170109193535757.jpg.chip.jpg
14       1          2      0   20170110213009014.jpg.chip.jpg                                                                           167 172 175 174 1
15       1          2      0   20170110213415212.jpg.chip.jpg
16       1          2      0   20170110213523297.jpg.chip.jpg
17       1          2      0   20170109191453449.jpg.chip.jpg
18       1          2      0   20170116194202388.jpg.chip.jpg
19       1          2      0   20161219222609775.jpg.chip.jpg                                                                                   151 155 1
```

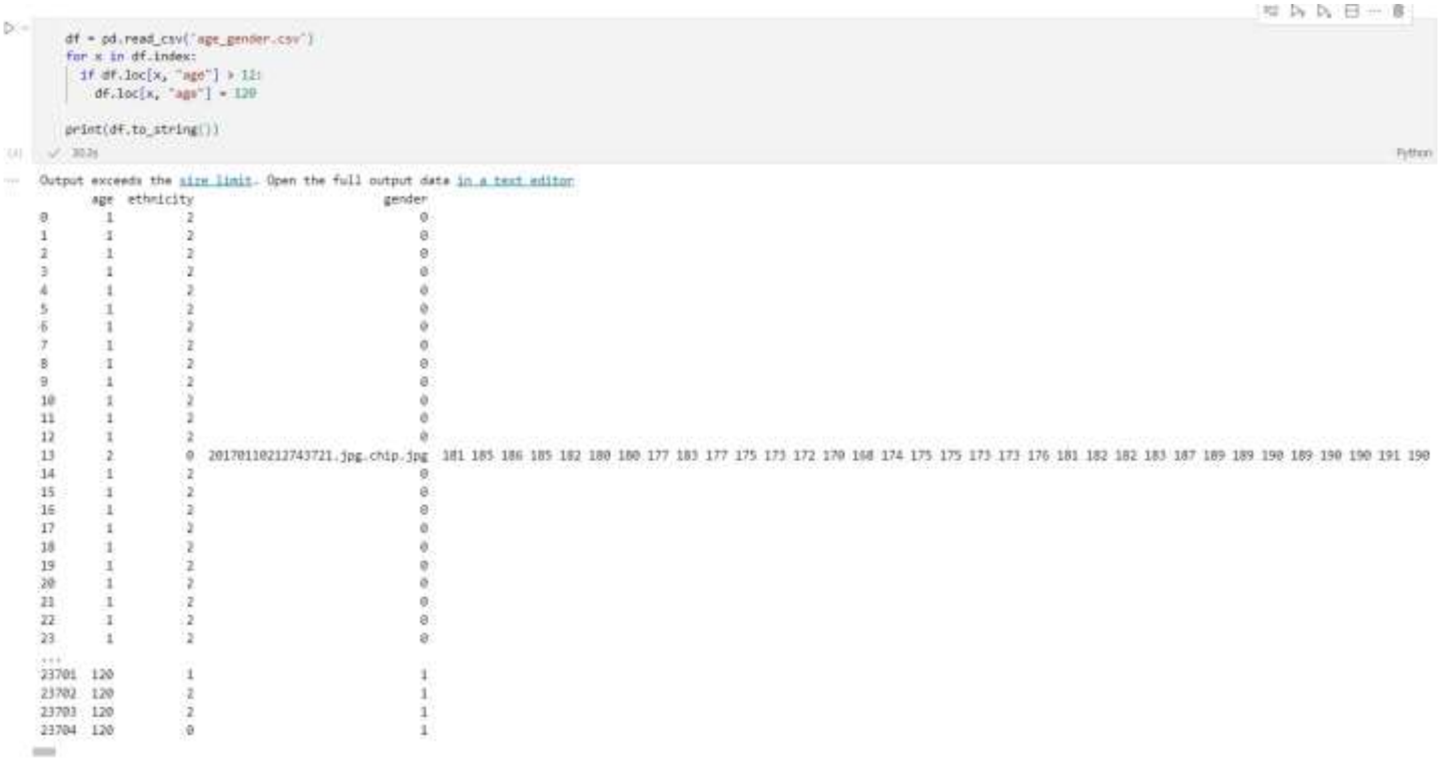


```
df.loc[7,'age'] = 45

print(df.to_string())
```

[3] ✓ 23.3s

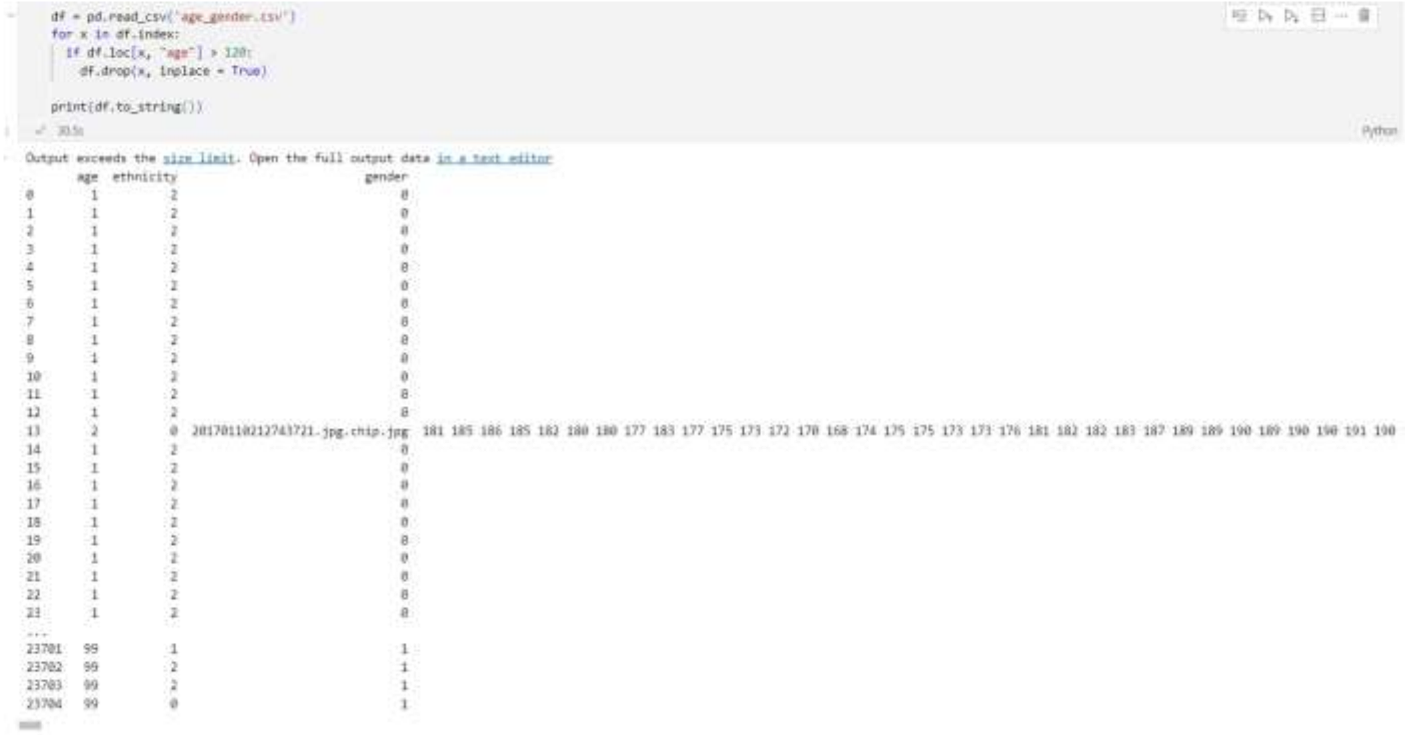
Output exceeds the size limit. Open the full output data in a text editor

```
        age  ethnicity                            gender
0         1          2                                 0
1         1          2                                 0
2         1          2                                 0
3         1          2                                 0
4         1          2                                 0
5         1          2                                 0
6         1          2                                 0
7        45          2                                 0
8         1          2                                 0
9         1          2                                 0
10        1          2                                 0
11        1          2                                 0
12        1          2                                 0
13        2          0  20170110212743721.jpg.chip.jpg  181 185 186 185 182 180 180 177 183 177 175 173 172 170 168 174
14        1          2                                 0
15        1          2                                 0
16        1          2                                 0
17        1          2                                 0
18        1          2                                 0
19        1          2                                 0
20        1          2                                 0
```



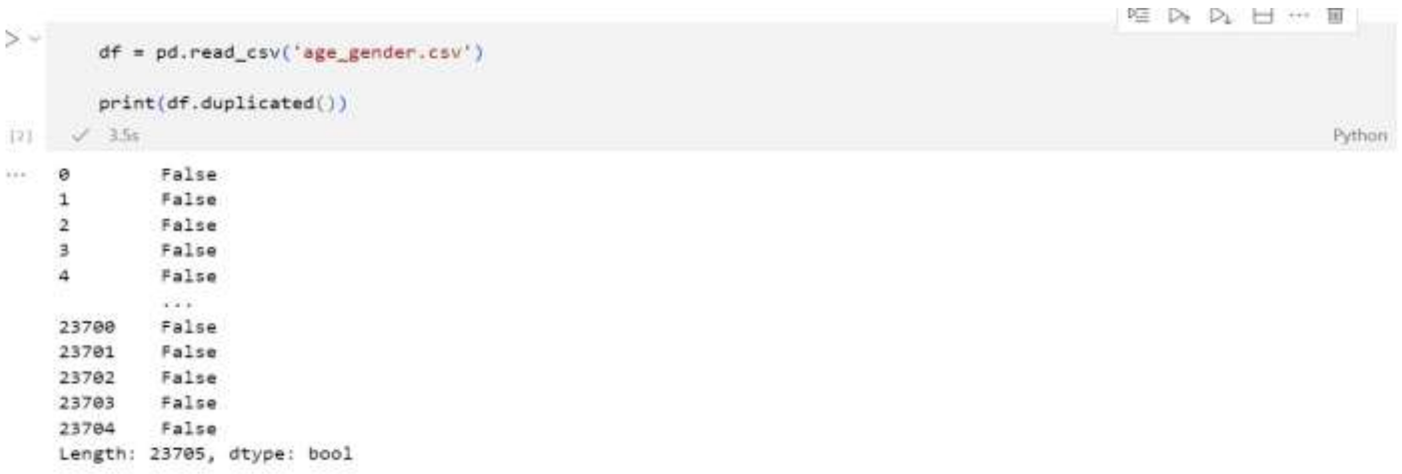
```
df = pd.read_csv('age_gender.csv')
for x in df.index:
  if df.loc[x, "age"] > 12:
    df.loc[x, "age"] = 120

print(df.to_string())
```

```
Output exceeds the size limit. Open the full output data in a text editor
       age  ethnicity                           gender
0        1          2                                0
1        1          2                                0
2        1          2                                0
3        1          2                                0
4        1          2                                0
5        1          2                                0
6        1          2                                0
7        1          2                                0
8        1          2                                0
9        1          2                                0
10       1          2                                0
11       1          2                                0
12       1          2                                0
13       2          0  20170110212743721.jpg.chip.jpg  181 185 186 185 182 180 180 177 183 177 175 173 172 170 168 174 175 175 173 173 176 181 182 182 183 187 189 189 190 189 190 190 191 190
14       1          2                                0
15       1          2                                0
16       1          2                                0
17       1          2                                0
18       1          2                                0
19       1          2                                0
20       1          2                                0
21       1          2                                0
22       1          2                                0
23       1          2                                0
...
23701  120          1                                1
23702  120          2                                1
23703  120          2                                1
23704  120          0                                1
```



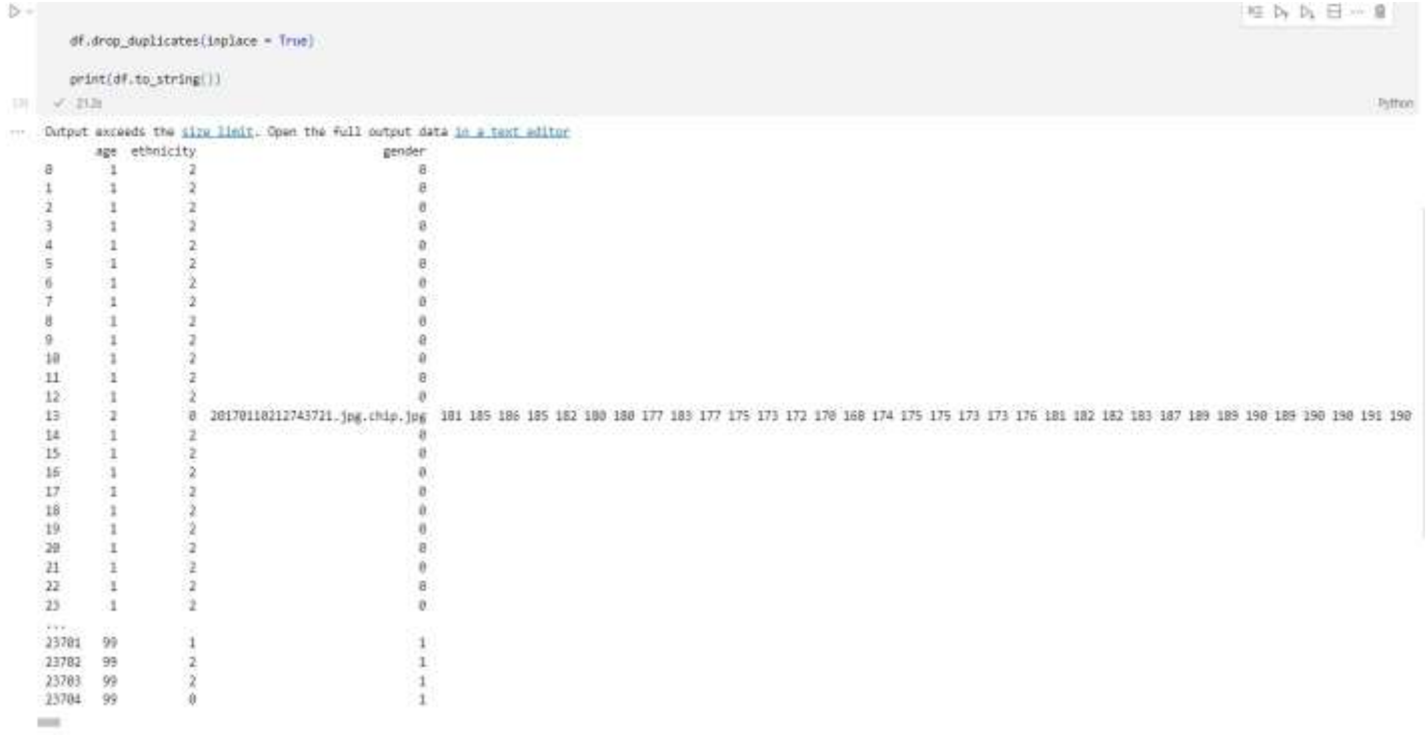
```
df = pd.read_csv('age_gender.csv')
for x in df.index:
  if df.loc[x, "age"] > 120:
    df.drop(x, inplace = True)

print(df.to_string())
```

```
Output exceeds the size limit. Open the full output data in a text editor
       age  ethnicity                           gender
0        1          2                                0
1        1          2                                0
2        1          2                                0
3        1          2                                0
4        1          2                                0
5        1          2                                0
6        1          2                                0
7        1          2                                0
8        1          2                                0
9        1          2                                0
10       1          2                                0
11       1          2                                0
12       1          2                                0
13       2          0  20170110212743721.jpg.chip.jpg  181 185 186 185 182 180 180 177 183 177 175 173 172 170 168 174 175 175 173 173 176 181 182 182 183 187 189 189 190 189 190 190 191 190
14       1          2                                0
15       1          2                                0
16       1          2                                0
17       1          2                                0
18       1          2                                0
19       1          2                                0
20       1          2                                0
21       1          2                                0
22       1          2                                0
23       1          2                                0
...
23701   99          1                                1
23702   99          2                                1
23703   99          2                                1
23704   99          0                                1
```



```
df = pd.read_csv('age_gender.csv')

print(df.duplicated())
```

```
0        False
1        False
2        False
3        False
4        False
         ...
23700    False
23701    False
23702    False
23703    False
23704    False
Length: 23705, dtype: bool
```



```
df.drop_duplicates(inplace = True)

print(df.to_string())
```

Output exceeds the size limit. Open the full output data in a text editor

```
       age  ethnicity                                gender
0        1          2                                     0
1        1          2                                     0
2        1          2                                     0
3        1          2                                     0
4        1          2                                     0
5        1          2                                     0
6        1          2                                     0
7        1          2                                     0
8        1          2                                     0
9        1          2                                     0
10       1          2                                     0
11       1          2                                     0
12       1          2                                     0
13       2          0  20170110212743721.jpg.chip.jpg  181 185 186 185 182 180 180 177 183 177 175 173 172 170 168 174 175 175 173 173 176 181 182 182 183 187 189 189 190 189 190 190 191 190
14       1          2                                     0
15       1          2                                     0
16       1          2                                     0
17       1          2                                     0
18       1          2                                     0
19       1          2                                     0
20       1          2                                     0
21       1          2                                     0
22       1          2                                     0
23       1          2                                     0
...
23701   99          1                                     1
23702   99          2                                     1
23703   99          2                                     1
23704   99          0                                     1
```