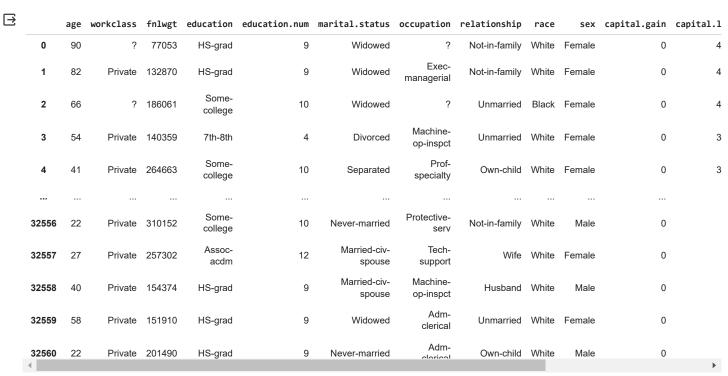
```
import pandas as pd
import numpy as np
data = pd.read_csv('adult.csv')
df = pd.DataFrame(data)
df
```



df1 = df[['age','education.num']].copy()
df1

| | age | education.num |
|-------|-----|---------------|
| 0 | 90 | 9 |
| 1 | 82 | 9 |
| 2 | 66 | 10 |
| 3 | 54 | 4 |
| 4 | 41 | 10 |
| | | |
| 32556 | 22 | 10 |
| 32557 | 27 | 12 |
| 32558 | 40 | 9 |
| 32559 | 58 | 9 |
| 32560 | 22 | 9 |

32561 rows × 2 columns

```
x = df1['age']
x_{mean} = x.mean()
print(x)
print(x_mean)
     0
               90
               82
     1
     2
               66
     3
               54
     4
               41
     32556
               22
     32557
               27
```

```
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        32558
        32559
        32560
   print(y)
   print(y_mean)
        0
        1
        3
```

```
58
              22
     Name: age, Length: 32561, dtype: int64 38.58164675532078
y = df1['education.num']
y_mean = y.mean()
               9
               9
              10
               4
              10
     4
     32556
              10
     32557
              12
     32558
               9
     32559
               9
     32560
     Name: education.num, Length: 32561, dtype: int64
     10.0806793403151
1 = list()
for i in x:
 1.append(i-x_mean)
k = list()
for j in y:
  k.append(j-y_mean)
for t in range(len(1)):
 sum+=(1[t]*k[t])
cov = sum/(len(1)-1)
cov
     -26.683919874034615
Start coding or generate with AI.
```