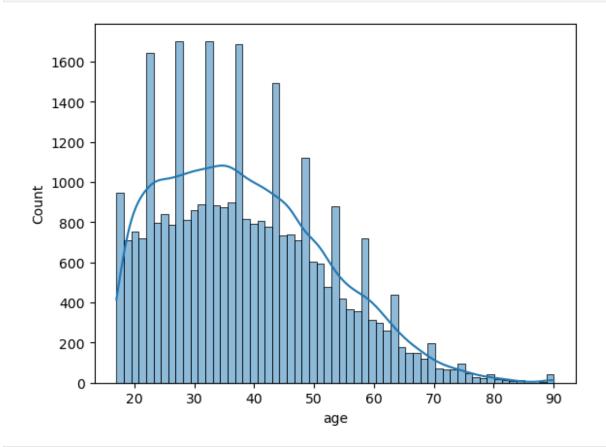
```
import pandas as pd
column_names = ["age", "workclass", "fnlwgt", "education", "education-
num", "marital-status", "occupation", "relationship", "race", "sex",
"capital-gain", "capital-loss", "hours-per-week", "native-country",
"income"l
data = pd.read csv('adult.csv', names = column names)
data
       age
                     workclass
                                 fnlwgt
                                            education
                                                        education-num \
0
        39
                     State-gov
                                  77516
                                            Bachelors
                                                                    13
1
        50
              Self-emp-not-inc
                                                                    13
                                  83311
                                            Bachelors
2
        38
                        Private
                                 215646
                                              HS-grad
                                                                     9
3
                                                                     7
        53
                        Private
                                 234721
                                                  11th
4
        28
                        Private
                                 338409
                                                                    13
                                            Bachelors
                                 257302
                                           Assoc-acdm
32556
        27
                        Private
                                                                    12
32557
        40
                        Private
                                 154374
                                              HS-grad
                                                                     9
                                                                     9
        58
                                              HS-grad
32558
                        Private
                                 151910
                                                                     9
32559
        22
                        Private
                                 201490
                                              HS-grad
                                                                     9
32560
        52
                  Self-emp-inc
                                 287927
                                              HS-grad
                                                      relationship
             marital-status
                                       occupation
                                                                        race
0
              Never-married
                                     Adm-clerical
                                                     Not-in-family
                                                                      White
1
        Married-civ-spouse
                                                           Husband
                                                                      White
                                 Exec-managerial
2
                   Divorced
                               Handlers-cleaners
                                                     Not-in-family
                                                                      White
                               Handlers-cleaners
        Married-civ-spouse
                                                           Husband
                                                                      Black
        Married-civ-spouse
                                  Prof-specialty
                                                               Wife
                                                                      Black
32556
        Married-civ-spouse
                                     Tech-support
                                                               Wife
                                                                      White
32557
        Married-civ-spouse
                               Machine-op-inspct
                                                           Husband
                                                                      White
32558
                    Widowed
                                    Adm-clerical
                                                         Unmarried
                                                                      White
              Never-married
                                     Adm-clerical
                                                         Own-child
32559
                                                                      White
32560
        Married-civ-spouse
                                 Exec-managerial
                                                               Wife
                                                                      White
                 capital-gain capital-loss hours-per-week native-
            sex
country
           Male
                          2174
                                            0
                                                             40
                                                                  United-
States
                                            0
          Male
                                                             13
                                                                  United-
```

States 2	Mal	.e	0		0	40	United-	
States 3	Mal	0	0		0	40	United-	
States							unitea-	
4 Cuba	Femal	.e	0		0	40		
 32556	Femal	.e	0		0	38	United-	
States								
32557 States	Mal	.e	0		0	40	United-	
32558 States	Femal	.e	0		0	40	United-	
32559	Mal	.e	Θ		0	20	United-	
States 32560	Femal	٩	15024		0	40	United-	
States	T Cilia c		1302 !		v	10	OHIZECU	
0 1 2 3 4 32556 32557 32558 32559 32560 [32561	income <=50K <=50K <=50K <=50K <=50K <=50K >50K <=50K >50K <=50K rows x		ns]					
data								
0 1 2 3 4 32556 32557 32558 32559 32560	age 39 50 38 53 28 27 40 58 22 52	Sta Self-emp-r F F F F F F	rkclass ate-gov not-inc Private Private Private Private Private Private Private Private	fnlwgt 77516 83311 215646 234721 338409 257302 154374 151910 201490 287927	education Bachelors Bachelors HS-grad 11th Bachelors Assoc-acdm HS-grad HS-grad HS-grad		on-num \ 13 13 9 7 13 12 9 9 9	

	mar	ital-status	occupati	ion rela	ationsh	ip ra	ace
0	Ne	ver-married	Adm-clerio	cal Not-:	in-fami	ly Wh:	ite
1	Married	-civ-spouse	Exec-manageri	ial	Husba	nd Wh:	ite
2		Divorced	Handlers-cleane	ers Not-:	in-fami	ly Wh:	ite
3	Married	-civ-spouse	Handlers-cleane		Husba	_	ack
4		-civ-spouse	Prof-special		Wi		ack
	Harrica	civ spouse	TTOT Special	. c y	***	ic bu	ack
						• •	
32556	Married	-civ-spouse	Tech-suppo	ort	Wi	fe Wh:	ite
32557	Married	-civ-spouse	Machine-op-insp	oct	Husba	nd Wh:	ite
32558		Widowed	Adm-clerio	cal I	Unmarri	ed Wh:	ite
32559	Ne	ver-married	Adm-clerio	cal (Own-chi	ld Wh:	ite
32560	Married	-civ-spouse	Exec-manageri	ial	Wi	fe Wh:	ite
	sex	capital-gain	capital-loss	hours-per	-week	native-	
country		опретон 3 и г. г.	оор — го то то то				
0 States	Male	2174	Θ		40	United	-
1	Male	0	0		13	United	-
States 2	Male	0	0		40	United	
States	ria ce	U	U		40	OHITCEU	_
3	Male	Θ	0		40	United	-
States 4	Female	0	0		40		
Cuba							
32556	Female	0	Θ		38	United	-
States 32557	Male	0	Θ		40	United	
States							
32558 States	Female	0	0		40	United	-
32559	Male	0	0		20	United	-
States 32560	Female	15024	0		40	United	-
States			· ·		. •		

```
income
0
        <=50K
1
        <=50K
2
        <=50K
3
        <=50K
4
        <=50K
        <=50K
32556
32557
         >50K
32558
        <=50K
32559
        <=50K
32560
         >50K
[32561 rows x 15 columns]
#What is the central tendency of the age distribution?
data.describe()
                            fnlwgt education-num capital-gain
                age
capital-loss
count 32561.000000
                     3.256100e+04
                                     32561.000000
                                                   32561.000000
32561.000000
          38.581647
                     1.897784e+05
                                        10.080679
                                                    1077.648844
mean
87.303830
          13.640433
                     1.055500e+05
                                         2.572720
                                                    7385.292085
std
402.960219
min
          17.000000
                     1.228500e+04
                                         1.000000
                                                       0.000000
0.000000
25%
          28.000000 1.178270e+05
                                         9.000000
                                                       0.000000
0.000000
          37.000000
                     1.783560e+05
                                        10.000000
50%
                                                       0.000000
0.000000
                     2.370510e+05
                                        12,000000
                                                       0.000000
75%
          48.000000
0.000000
          90.000000 1.484705e+06
                                        16.000000 99999.000000
max
4356.000000
       hours-per-week
         32561.000000
count
            40.437456
mean
std
            12.347429
             1.000000
min
25%
            40.000000
            40.000000
50%
75%
            45.000000
            99.000000
max
import seaborn as sns
sns.histplot(data,x='age',kde=True)
```



```
#Is the age distribution skewed or symmetric?
#Ans: Thus Age Distribution is Right Skewed
#Above
```

age_mean = data['age'].mean()
age_mean

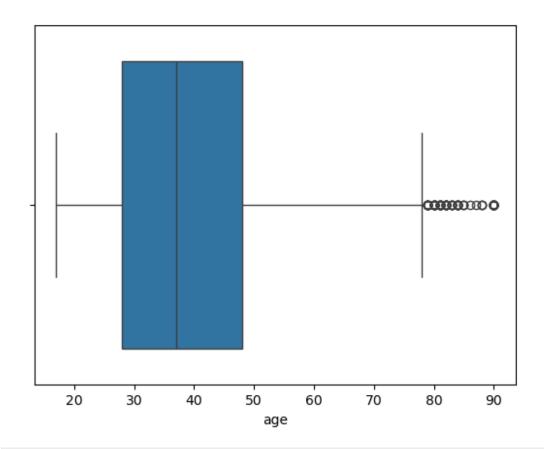
38.58164675532078

data.dtypes

age	int64
workclass	object
fnlwgt	int64
education	object
education-num	int64
marital-status	object
occupation	object
relationship	object
race	object
sex	object
capital-gain	int64

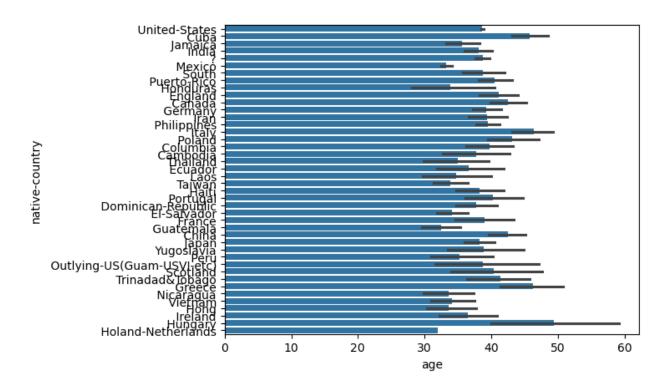
```
capital-loss
                   int64
hours-per-week
                   int64
native-country
                  object
                  object
income
dtype: object
#Outliers
q1 = data['age'].quantile(0.25)
q3 = data['age'].quantile(0.75)
IQR = q3 - q1
upper limit = q3 + 1.5*IQR
lower_limit = q1 - 1.5*IQR
out data = data.loc[(data['age'] > lower limit) & (data['age'] <</pre>
upper limit)]
out data
                                                     education-num \
                    workclass
                                fnlwgt
                                          education
       age
0
        39
                    State-gov
                                77516
                                          Bachelors
                                                                 13
1
        50
             Self-emp-not-inc
                                                                 13
                                 83311
                                          Bachelors
2
                      Private
                                215646
                                                                  9
        38
                                            HS-grad
3
        53
                      Private
                                234721
                                               11th
                                                                  7
4
        28
                      Private
                               338409
                                          Bachelors
                                                                 13
                                257302
32556
        27
                      Private
                                         Assoc-acdm
                                                                 12
                               154374
                                                                  9
32557
        40
                      Private
                                            HS-grad
        58
                                            HS-grad
                                                                  9
32558
                      Private
                               151910
                                                                  9
32559
        22
                                201490
                                            HS-grad
                      Private
                                                                  9
32560
        52
                 Self-emp-inc
                                287927
                                            HS-grad
            marital-status
                                                   relationship
                                     occupation
                                                                    race
/
0
             Never-married
                                   Adm-clerical
                                                  Not-in-family
                                                                   White
1
        Married-civ-spouse
                                Exec-managerial
                                                        Husband
                                                                   White
2
                             Handlers-cleaners
                                                  Not-in-family
                                                                   White
                  Divorced
3
        Married-civ-spouse
                             Handlers-cleaners
                                                        Husband
                                                                   Black
        Married-civ-spouse
                                 Prof-specialty
                                                           Wife
                                                                   Black
32556
        Married-civ-spouse
                                   Tech-support
                                                           Wife
                                                                   White
32557
        Married-civ-spouse
                             Machine-op-inspct
                                                        Husband
                                                                   White
32558
                   Widowed
                                   Adm-clerical
                                                      Unmarried
                                                                   White
                                   Adm-clerical
                                                      Own-child
32559
             Never-married
                                                                   White
```

32560	Married	larried-civ-spouse Exec-managerial		ial	Wife White	
	sex	capital-gain	capital-loss	hours-per-week	native-	
country 0	\ Male	2174	0	40	United-	
States						
1 States	Male	0	0	13	United-	
2	Male	0	0	40	United-	
States						
3 States	Male	0	0	40	United-	
4	Female	0	0	40		
Cuba						
32556	Female	0	0	38	United-	
States 32557	Male	0	0	40	United-	
States				10		
32558	Female	0	0	40	United-	
States 32559	Male	0	0	20	United-	
States 32560	Female	15024	0	40	United-	
States						
0 1 2 3 4	income <=50K <=50K <=50K <=50K <=50K					
32556 32557 32558 32559 32560	<=50K >50K <=50K <=50K >50K					
[32395 rows x 15 columns]						
<pre>sns.boxplot(data=data,x='age')</pre>						
<axes: xlabel="age"></axes:>						



sns.barplot(data,x='age',y='native-country')

<Axes: xlabel='age', ylabel='native-country'>



sns.barplot(data,x='age',y='workclass')

<Axes: xlabel='age', ylabel='workclass'>

