In [1]:
```
# import libaries
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

In [33]:
```
x=pd.read_csv(r"C:\Users\user\Downloads\16_Sleep_health_and_lifestyle_dataset
```

Out[33]:

| | Person ID | Gender | Age | Occupation | Sleep Duration | Quality of Sleep | Physical Activity Level | Stress Level | BMI Category | Blo Press |
|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 1 | Male | 27 | Software Engineer | 6.1 | 6 | 42 | 6 | Overweight | 126 |
| **1** | 2 | Male | 28 | Doctor | 6.2 | 6 | 60 | 8 | Normal | 125 |
| **2** | 3 | Male | 28 | Doctor | 6.2 | 6 | 60 | 8 | Normal | 125 |
| **3** | 4 | Male | 28 | Sales Representative | 5.9 | 4 | 30 | 8 | Obese | 140 |
| **4** | 5 | Male | 28 | Sales Representative | 5.9 | 4 | 30 | 8 | Obese | 140 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| **369** | 370 | Female | 59 | Nurse | 8.1 | 9 | 75 | 3 | Overweight | 140 |
| **370** | 371 | Female | 59 | Nurse | 8.0 | 9 | 75 | 3 | Overweight | 140 |
| **371** | 372 | Female | 59 | Nurse | 8.1 | 9 | 75 | 3 | Overweight | 140 |
| **372** | 373 | Female | 59 | Nurse | 8.1 | 9 | 75 | 3 | Overweight | 140 |
| **373** | 374 | Female | 59 | Nurse | 8.1 | 9 | 75 | 3 | Overweight | 140 |

374 rows × 13 columns

In [34]:
```
x=x.head(10)
```

Out[34]:

| | Person ID | Gender | Age | Occupation | Sleep Duration | Quality of Sleep | Physical Activity Level | Stress Level | BMI Category | Bloo Pressur |
|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 1 | Male | 27 | Software Engineer | 6.1 | 6 | 42 | 6 | Overweight | 126/8 |
| **1** | 2 | Male | 28 | Doctor | 6.2 | 6 | 60 | 8 | Normal | 125/8 |
| **2** | 3 | Male | 28 | Doctor | 6.2 | 6 | 60 | 8 | Normal | 125/8 |
| **3** | 4 | Male | 28 | Sales Representative | 5.9 | 4 | 30 | 8 | Obese | 140/9 |
| **4** | 5 | Male | 28 | Sales Representative | 5.9 | 4 | 30 | 8 | Obese | 140/9 |
| **5** | 6 | Male | 28 | Software Engineer | 5.9 | 4 | 30 | 8 | Obese | 140/9 |
| **6** | 7 | Male | 29 | Teacher | 6.3 | 6 | 40 | 7 | Obese | 140/9 |
| **7** | 8 | Male | 29 | Doctor | 7.8 | 7 | 75 | 6 | Normal | 120/8 |
| **8** | 9 | Male | 29 | Doctor | 7.8 | 7 | 75 | 6 | Normal | 120/8 |
| **9** | 10 | Male | 29 | Doctor | 7.8 | 7 | 75 | 6 | Normal | 120/8 |

In [35]:
```
x.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 10 entries, 0 to 9
Data columns (total 13 columns):
 #   Column                   Non-Null Count  Dtype  
---  ------                   --------------  -----  
 0   Person ID                10 non-null     int64  
 1   Gender                   10 non-null     object 
 2   Age                      10 non-null     int64  
 3   Occupation               10 non-null     object 
 4   Sleep Duration           10 non-null     float64
 5   Quality of Sleep         10 non-null     int64  
 6   Physical Activity Level  10 non-null     int64  
 7   Stress Level             10 non-null     int64  
 8   BMI Category             10 non-null     object 
 9   Blood Pressure           10 non-null     object 
 10  Heart Rate               10 non-null     int64  
 11  Daily Steps              10 non-null     int64  
 12  Sleep Disorder           10 non-null     object 
dtypes: float64(1), int64(7), object(5)
memory usage: 1.1+ KB
```

In [36]:

Out[36]:
```
Index(['Person ID', 'Gender', 'Age', 'Occupation', 'Sleep Duration',
       'Quality of Sleep', 'Physical Activity Level', 'Stress Level',
       'BMI Category', 'Blood Pressure', 'Heart Rate', 'Daily Steps',
       'Sleep Disorder'],
      dtype='object')
```

In [37]:
```
d=x[['Person ID', 'Gender', 'Age', 'Occupation', 'Sleep Duration']]
```

Out[37]:

| | Person ID | Gender | Age | Occupation | Sleep Duration |
|---|---|---|---|---|---|
| **0** | 1 | Male | 27 | Software Engineer | 6.1 |
| **1** | 2 | Male | 28 | Doctor | 6.2 |
| **2** | 3 | Male | 28 | Doctor | 6.2 |
| **3** | 4 | Male | 28 | Sales Representative | 5.9 |
| **4** | 5 | Male | 28 | Sales Representative | 5.9 |
| **5** | 6 | Male | 28 | Software Engineer | 5.9 |
| **6** | 7 | Male | 29 | Teacher | 6.3 |
| **7** | 8 | Male | 29 | Doctor | 7.8 |
| **8** | 9 | Male | 29 | Doctor | 7.8 |
| **9** | 10 | Male | 29 | Doctor | 7.8 |

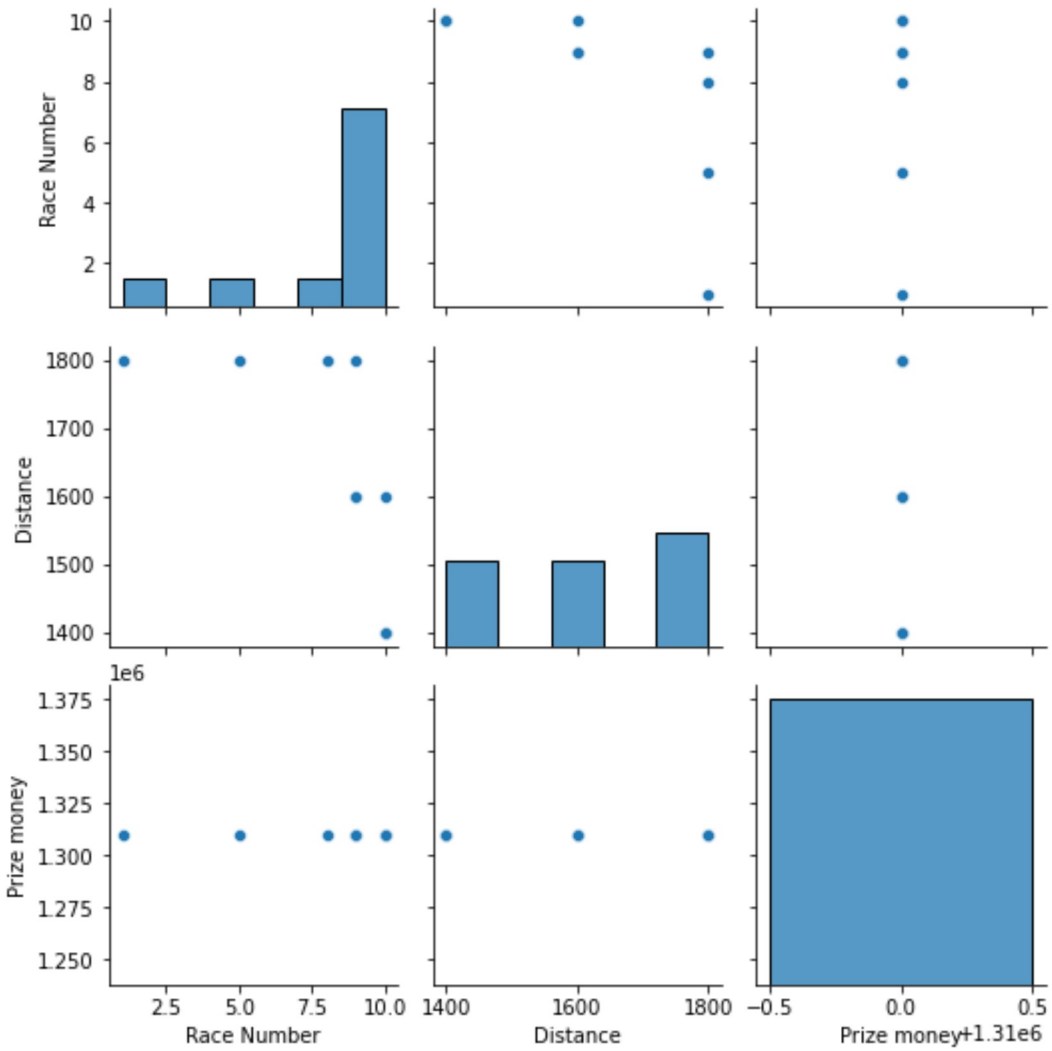
In [7]:

Out[7]:

| | Race Number | Distance | Prize money | Starting position | Jockey weight | Horse age | Path | Final place |
|---|---|---|---|---|---|---|---|---|
| **count** | 10.000000 | 10.000000 | 10.0 | 10.000000 | 10.000000 | 10.000000 | 10.000000 | 10.000000 |
| **mean** | 8.100000 | 1620.000000 | 1310000.0 | 8.000000 | 53.800000 | 7.400000 | 1.500000 | 4.700000 |
| **std** | 2.923088 | 175.119007 | 0.0 | 3.527668 | 2.149935 | 0.516398 | 1.581139 | 2.496664 |
| **min** | 1.000000 | 1400.000000 | 1310000.0 | 3.000000 | 52.000000 | 7.000000 | 0.000000 | 1.000000 |
| **25%** | 8.250000 | 1450.000000 | 1310000.0 | 6.000000 | 52.000000 | 7.000000 | 0.250000 | 3.000000 |
| **50%** | 9.000000 | 1600.000000 | 1310000.0 | 8.000000 | 53.000000 | 7.000000 | 1.000000 | 4.000000 |
| **75%** | 10.000000 | 1800.000000 | 1310000.0 | 9.000000 | 55.500000 | 8.000000 | 2.000000 | 6.000000 |
| **max** | 10.000000 | 1800.000000 | 1310000.0 | 14.000000 | 57.000000 | 8.000000 | 5.000000 | 9.000000 |

In [8]:

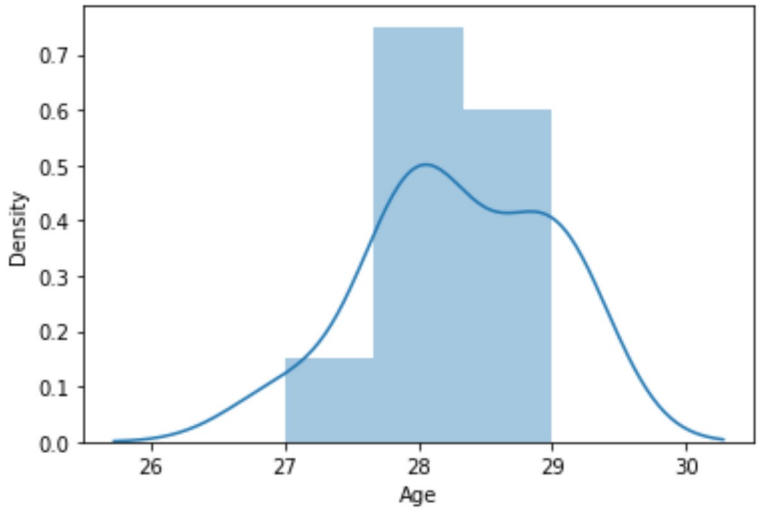
Out[8]: <seaborn.axisgrid.PairGrid at 0x2747f2e3d00>



In [39]:

```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\distributions.py:2557: Fut
ureWarning: `distplot` is a deprecated function and will be removed in a futu
re version. Please adapt your code to use either `displot` (a figure-level fu
nction with similar flexibility) or `histplot` (an axes-level function for hi
stograms).
  warnings.warn(msg, FutureWarning)
```

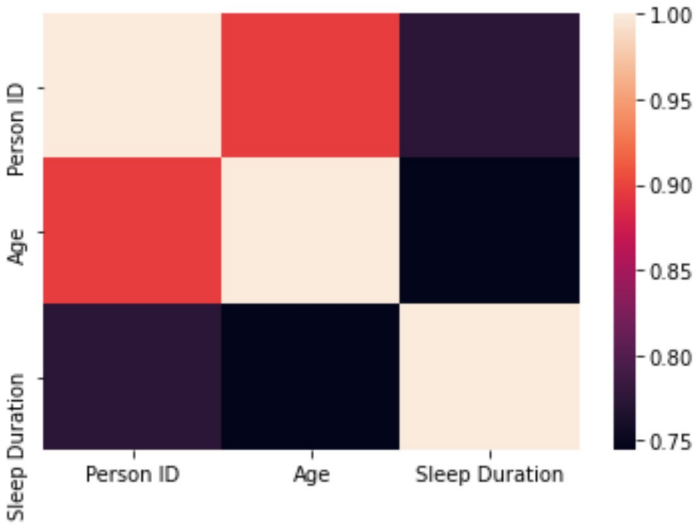
Out[39]: <AxesSubplot:xlabel='Age', ylabel='Density'>




In [40]:

In [41]:

Out[41]: <AxesSubplot:>




In [42]:

```
x=x1[[  'Person ID',  'Age',  'Sleep Duration']]
```

In [43]:
```
# to split my dataset into traning and test date

from sklearn.model_selection import train_test_split
```

In [44]:
```
from sklearn.linear_model import LinearRegression

lr=LinearRegression()
```

Out[44]:
```
LinearRegression()
```

In [45]:

```
1.4210854715202004e-14
```

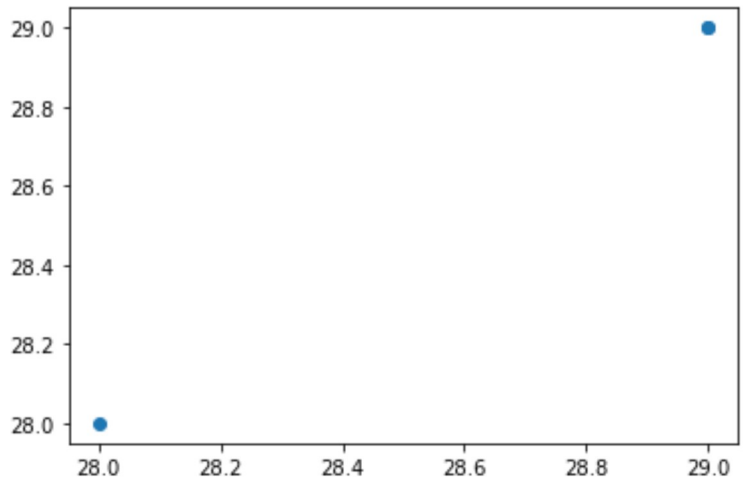
In [46]:
```
coeff=pd.DataFrame(lr.coef_,x.columns,columns=['Co-efficient'])
```

Out[46]:

| | Co-efficient |
|---|---|
| **Person ID** | 2.637840e-17 |
| **Age** | 1.000000e+00 |
| **Sleep Duration** | 3.589282e-17 |

In [47]:
```
prediction=lr.predict(x_test)
```

Out[47]:
```
<matplotlib.collections.PathCollection at 0x2740675ea30>
```




In [48]:

Out[48]:
```
1.0
```

In [49]:

Out[49]:
```
1.0
```

In [50]:
```
from sklearn.linear_model import Ridge,Lasso
```

In [51]:
```
rr=Ridge(alpha=10)
rr.fit(x_train,y_train)
```

Out[51]: 0.376539856718753

In [52]:
```
la=Lasso(alpha=10)
```

Out[52]: Lasso(alpha=10)

In [53]:

Out[53]: -1.2346938775510221

In [ ]: