In [27]:
```
# Carlos W. Mercado, CS241, Spring Semester
# Week 12, Prove 12b Milestone - Data Analysis

import pandas as pd
import os
import seaborn as sns
import matplotlib.pyplot as plt

players = pd.read_csv('basketball_players.csv')
```

```
/srv/conda/envs/notebook/lib/python3.7/site-packages/IPython/core/interactiveshell.py:3063: DtypeWarning: Col
umns (41) have mixed types. Specify dtype option on import or set low_memory=False.
  interactivity=interactivity, compiler=compiler, result=result)
```

players

In [2]:
```
'''
01
Calculate the mean and median number of points scored. (In other words, each row is the amount of points a pl
ayer scored during a particular season.
Calculate the median of these values. The result of this is that we have the median number of points players
 score each season.)
'''
mean = players['points'].mean()
```

In [3]:
```
mean
```

Out[3]:
```
492.1306892341375
```

In [4]:
```
median = players['points'].median()
```

In [5]:
```
median
```

Out[5]:
```
329.0
```

In [6]:
```
'''
02
Determine the highest number of points recorded in a single season. Identify who scored those points and the
 year they did so.
'''
max_points = players['points'].max()
```

In [7]:
```
max_points
```

Out[7]:
```
4029
```

In [8]:
```
master = pd.read_csv('basketball_master.csv')
```

In [10]:
```
nba = pd.merge(players, master, how='left', left_on='playerID', right_on='bioID')
```

In [14]:
```
nba.columns
```

Out[14]:
```
Index(['playerID', 'year', 'stint', 'tmID', 'lgID', 'GP', 'GS', 'minutes',
       'points', 'oRebounds', 'dRebounds', 'rebounds', 'assists', 'steals',
       'blocks', 'turnovers', 'PF', 'fgAttempted', 'fgMade', 'ftAttempted',
       'ftMade', 'threeAttempted', 'threeMade', 'PostGP', 'PostGS',
       'PostMinutes', 'PostPoints', 'PostoRebounds', 'PostdRebounds',
       'PostRebounds', 'PostAssists', 'PostSteals', 'PostBlocks',
       'PostTurnovers', 'PostPF', 'PostfgAttempted', 'PostfgMade',
       'PostftAttempted', 'PostftMade', 'PostthreeAttempted', 'PostthreeMade',
       'note', 'bioID', 'useFirst', 'firstName', 'middleName', 'lastName',
       'nameGiven', 'fullGivenName', 'nameSuffix', 'nameNick', 'pos',
       'firstseason', 'lastseason', 'height', 'weight', 'college',
       'collegeOther', 'birthDate', 'birthCity', 'birthState', 'birthCountry',
       'highSchool', 'hsCity', 'hsState', 'hsCountry', 'deathDate', 'race'],
      dtype='object')
```

In [16]:
```
player_max = nba.points == max_points
```

In [17]:
```
chamb = nba[player_max]
```

In [18]:
```
chamb
```

Out[18]:

	playerID	year	stint	tmID	lgID	GP	GS	minutes	points	oRebounds	...	birthDate	birthCity	birthState	birthCountry	h
2078	chambwi01	1961	1	PHW	NBA	80	0	3882	4029	0	...	1936-08-21	Philadelphia	PA	USA	

1 rows × 68 columns

In [19]:
```
nba.columns
```

Out[19]:
```
Index(['playerID', 'year', 'stint', 'tmID', 'lgID', 'GP', 'GS', 'minutes',
       'points', 'oRebounds', 'dRebounds', 'rebounds', 'assists', 'steals',
       'blocks', 'turnovers', 'PF', 'fgAttempted', 'fgMade', 'ftAttempted',
       'ftMade', 'threeAttempted', 'threeMade', 'PostGP', 'PostGS',
       'PostMinutes', 'PostPoints', 'PostoRebounds', 'PostdRebounds',
       'PostRebounds', 'PostAssists', 'PostSteals', 'PostBlocks',
       'PostTurnovers', 'PostPF', 'PostfgAttempted', 'PostfgMade',
       'PostftAttempted', 'PostftMade', 'PostthreeAttempted', 'PostthreeMade',
       'note', 'bioID', 'useFirst', 'firstName', 'middleName', 'lastName',
       'nameGiven', 'fullGivenName', 'nameSuffix', 'nameNick', 'pos',
       'firstseason', 'lastseason', 'height', 'weight', 'college',
       'collegeOther', 'birthDate', 'birthCity', 'birthState', 'birthCountry',
       'highSchool', 'hsCity', 'hsState', 'hsCountry', 'deathDate', 'race'],
      dtype='object')
```

In [20]:
```
selected_data = chamb[['points', 'year', 'firstName', 'middleName', 'lastName']]
```

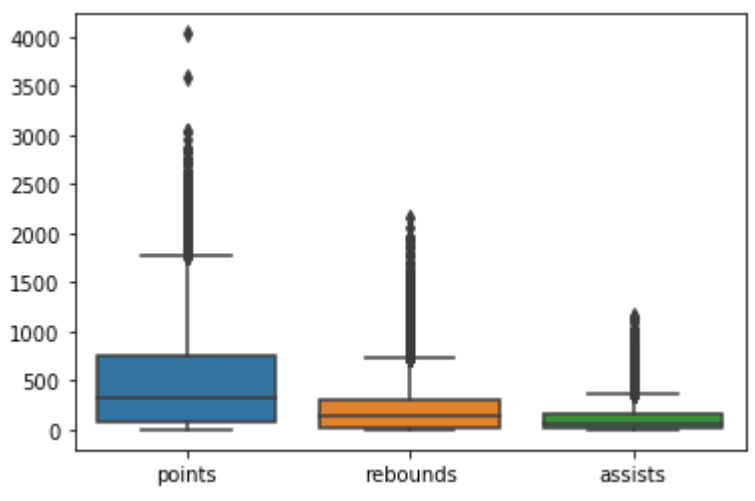
In [21]:
```
selected_data
```

Out[21]:

	points	year	firstName	middleName	lastName
2078	4029	1961	Wilton	Norman	Chamberlain

In [22]:
```
'''
03
Produce a boxplot that shows the distribution of total points, total assists,
and total rebounds (each of these three is a separate box plot, but they can be
on the same scale and in the same graphic).
'''
sns.boxplot(data=nba[['points', 'rebounds', 'assists']])
```

Out[22]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x7f0dd1b20dd0>
```



In [23]:
```
'''
04
Produce a plot that shows how the number of points scored has changed over time by showing the median of poin
ts scored per year,
over time. The x-axis is the year and the y-axis is the median number of points among all players for that ye
ar.
'''
median_points_per_year = nba[['points', 'year']].groupby('year').median()
```

In [28]:
```
median_points_per_year = median_points_per_year.reset_index()
```

In [26]:
```
sns.regplot(data=median_points_per_year, x='year', y='points')
```

Out[26]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x7f0dd1018150>
```