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DSC 540-T302

Week-9 and Week-10

Date : 11/05/2023

Activity - 9

Import ncesssary libraries, including regex and beautifulsoup.

Check the SSL certificate.

Read the HTML from URL.

Writae a small function to check the status of the web request.

Decode the response and pass this to the BeautifuSoup for HTML parsing.

Find all the href tags and store them in the list of links.Check what the list looks like - print the first 30 element.

Use a regular expression to fincd the numeric digits in the links.These are the file numbers for the top 100 eBooks.

Initialize the empty list to hold the file numbers over and appropriate range and use regex to find the numeric digits in the link href string.Use the find all method.

What does the soup objectstext looks like?Use the .text method and print only the first 2000 characters(do not print the whole thing).

Search the extracted text(Using regular expression) from the soup object to find the names of the top 100 eBooks(Yesterday's ranking).

Create starting index. It should point at the text Top 100 Ebooks yesterda.Use the splitlines method of soup.txt. It splits the line of

the text of the soup object.

Loop 1-100 to add the strings of the next 100 lines to this temporary list. Hint : Use the splitlines method.

Use a regular expression to extract only text from the name strings and append to an empty list. Use match and span to find the indices and use them.

In [351…

```
# Load necessary libraries

import requests
from bs4 import BeautifulSoup
import re
```

In [360…

```
# Check the SSL certificate
requests.packages.urllib3.disable_warnings()

def check_request_status(url):
    try:
        response = requests.get(url, verify=False)
        if response.status_code == 200:
            response.encoding = 'utf-8'
            return response.text
        else:
            print(f"Request failed with status code {response.status_code}")
            return None
    except requests.exceptions.RequestException as e:
        print(f"Request failed: {str(e)}")
        return None

# Read the HTML from the URL
url = "https://www.gutenberg.org/browse/scores/top"
html_content = check_request_status(url)

if html_content:
    soup = BeautifulSoup(html_content, 'html.parser')

# Find all href tags and store them in a list
    links = [a['href'] for a in soup.find_all('a') if 'href' in a.attrs]

# Print the first 30 elements of the list
    print("First 30 links:")
    print(links[:30])

# Use a regular expression to find numeric digits in the links
    numeric_digits = [re.findall(r'\d+', link) for link in links]

# Initialize the list to hold file numbers within a specific range
    file_numbers = []

# Find numeric digits in the link href strings
    for digits in numeric_digits:
        if digits:
            number = digits[0]
            if 1 <= int(number) <= 100:  # Assuming you want file numbers in the range
                file_numbers.append(number)
```

```
# Extract the text from the soup object
    soup_text = soup.get_text()

# Print the first 2000 characters of the text
    print("First 2000 characters of soup text:")
    print(soup_text[:2000])
```

```
First 30 links:
['/', '/about/', '/about/', '/policy/collection_development.html', '/about/contact_in
formation.html', '/about/background/', '/policy/permission.html', '/policy/privacy_po
licy.html', '/policy/terms_of_use.html', '/ebooks/', '/ebooks/', '/ebooks/bookshel
f/', '/browse/scores/top', '/ebooks/offline_catalogs.html', '/help/', '/help/', '/hel
p/copyright.html', '/help/errata.html', '/help/file_formats.html', '/help/faq.html',
'/policy/', '/help/public_domain_ebook_submission.html', '/help/submitting_your_own_w
ork.html', '/help/mobile.html', '/attic/', '/donate/', '/donate/', '#books-last1', '#
authors-last1', '#books-last7']
First 2000 characters of soup text:




Top 100 | Project Gutenberg
























Menu▾




About
          ▾

▾



About Project Gutenberg
Collection Development
Contact Us
History & Philosophy
Permissions & License
Privacy Policy
Terms of Use
```

```
Search and Browse
          ▾

▾


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Bookshelves
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Help
          ▾

▾


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```
last 7 days1554835
last 30 days6612244



Top 100 EBooks yesterday
Top 100 Authors yesterday
Top 100 EBooks last 7 days
Top 100 Authors last 7 days
Top 100 EBooks last 30 days
Top 100 Authors last 30 days


Top 100 EBooks yesterday

Frankenstein; Or, The Modern Prometheus by Mary Wollstonecraft Shelley (4118)
Pride and Prejudice by Jane Austen (2620)
Romeo and Juliet by William Shakespeare (2074)
The Scarlet Letter by Nathaniel Hawthorne (1725)
Alice's Adventures in Wonderland by Lewis Carroll (1465)
A Doll's House : a play by Henrik Ibsen (1339)
The Great Gatsby by F. Scott  Fitzgerald (1238)
The Importance of Being Earnest: A Trivial Comedy for Serious People by Oscar Wilde
(1173)
The Picture of Dorian Gray by Oscar Wilde (1149)
A Christmas Carol in Prose; Being a Ghost Story of Christmas by Charles Dickens (112
9)
Calculus Made Easy by Silvanus P.  Thompson (1128)
Dracula by Bram Stoker (1126)
Metamorphosis by Franz Kafka (936)
A Modest Proposal by Jonathan Swift (912)
The Strange Case of Dr. Jekyll and Mr. Hyde by Robert Louis Stevenson (909)
The Ye
```

In [362…

```python
# Initialize a list to hold the names of the top 100 eBooks
lst_titles_temp=[]

start_idx=soup.text.splitlines().index('Top 100 EBooks yesterday')

#Loop through the next 100 lines to add the strings to a temporary list
for i in range(100):
    lst_titles_temp.append(soup.text.splitlines()[start_idx+2+i])

lst_titles=[]
for i in range(100):
    id1,id2=re.match('^[a-zA-Z ]*',lst_titles_temp[i]).span()
    lst_titles.append(lst_titles_temp[i][id1:id2])

# Print the names of the top 100 eBooks
for l in lst_titles:
    print(l)
```

```
Top
Top
Top
Top


Top

Frankenstein
Pride and Prejudice by Jane Austen
Romeo and Juliet by William Shakespeare
The Scarlet Letter by Nathaniel Hawthorne
Alice
A Doll
The Great Gatsby by F
The Importance of Being Earnest
The Picture of Dorian Gray by Oscar Wilde
A Christmas Carol in Prose
Calculus Made Easy by Silvanus P
Dracula by Bram Stoker
Metamorphosis by Franz Kafka
A Modest Proposal by Jonathan Swift
The Strange Case of Dr
The Yellow Wallpaper by Charlotte Perkins Gilman
Ironheart by William MacLeod Raine
A Tale of Two Cities by Charles Dickens
Jane Eyre
How to know the wild flowers
The Adventures of Sherlock Holmes by Arthur Conan Doyle
Great Expectations by Charles Dickens
Narrative of the Life of Frederick Douglass
Moby Dick
Adventures of Huckleberry Finn by Mark Twain
The Prince by Niccol
Amos Judd by John Ames Mitchell
Heart of Darkness by Joseph Conrad
The Souls of Black Folk by W
The Iliad by Homer
Crime and Punishment by Fyodor Dostoyevsky
Beauty interrupted by Charles L
Grimms
An Inquiry into the Nature and Causes of the Wealth of Nations by Adam Smith
The Philippines a Century Hence by Jos
Leviathan by Thomas Hobbes
Electricity by W
Meditations by Emperor of Rome Marcus Aurelius
Anne of Green Gables by L
Treasure Island by Robert Louis Stevenson
The Brothers Karamazov by Fyodor Dostoyevsky
Frankenstein
Walden
Frankenstein
The Wonderful Wizard of Oz by L
Dubliners by James Joyce
Emma by Jane Austen
Peter Pan by J
The Odyssey by Homer
Anna Karenina by graf Leo Tolstoy
The Adventures of Tom Sawyer
The Kama Sutra of Vatsyayana by Vatsyayana
```

```
Ulysses by James Joyce
Don Quijote by Miguel de Cervantes Saavedra
The Count of Monte Cristo by Alexandre Dumas and Auguste Maquet
Second Treatise of Government by John Locke
The Legend of Sleepy Hollow by Washington Irving
The call of the wild by Jack London
Wuthering Heights by Emily Bront
War and Peace by graf Leo Tolstoy
The Prophet by Kahlil Gibran
The Interesting Narrative of the Life of Olaudah Equiano
Notes from the Underground by Fyodor Dostoyevsky
The divine comedy by Dante Alighieri
Tractatus Logico
The Republic by Plato
Incidents in the Life of a Slave Girl
Beyond Good and Evil by Friedrich Wilhelm Nietzsche
Little Women by Louisa May Alcott
In the great white land by Gordon Stables
Don Quixote by Miguel de Cervantes Saavedra
The Hound of the Baskervilles by Arthur Conan Doyle
The Works of Edgar Allan Poe
Winnie
Thus Spake Zarathustra
The War of the Worlds by H
Carmilla by Joseph Sheridan Le Fanu
The pearl divers
The Romance of Lust
Sense and Sensibility by Jane Austen
The Problems of Philosophy by Bertrand Russell
Spoon River Anthology by Edgar Lee Masters
The Fall of the House of Usher by Edgar Allan Poe
Uncle Tom
The Time Machine by H
The Great American Fraud by Samuel Hopkins Adams
Beowulf
Gulliver
A Study in Scarlet by Arthur Conan Doyle
The Complete Works of William Shakespeare by William Shakespeare
The King in Yellow by Robert W
Le Morte d
```

Activity 10

Retrieves and prints basic data about a movie (title entered by user) from the web (OMDB database)

If a poster of the movie could be found, it downloads the file and saves at a user-specified location

In [121…
```python
# Load necessary libraries

import urllib.request, urllib.parse, urllib.error
import json
```

In [241…
```python
import requests
from PIL import Image
from io import BytesIO

def get_movie_data(title):
    # Define the OMDB API endpoint and parameters
    api_url = "http://www.omdbapi.com/"
    api_key = "2218a339"
    params = {
        "t": title,
        "apikey": api_key
    }

    try:
        # Make a GET request to the OMDB API
        response = requests.get(api_url, params=params)
        data = response.json()

        if response.status_code == 200 and data.get("Response") == "True":
            # Movie data is found
            print("Title:", data["Title"])
            print("Year:", data["Year"])
            print("Genre:", data["Genre"])
            print("Director:", data["Director"])
            print("Plot:", data["Plot"])

            # Check if a poster is available
            if data.get("Poster") != "N/A":
                poster_url = data["Poster"]
                save_poster(poster_url, title)
            else:
                print("No poster available for this movie.")
        else:
            print("Movie not found.")
    except Exception as e:
        print("An error occurred:", str(e))

def save_poster(url, title):
    response = requests.get(url)

    if response.status_code == 200:
        img = Image.open(BytesIO(response.content))
        img.save(f"{title}_poster.jpg")
        print(f"Poster saved as {title}_poster.jpg")
    else:
        print("Failed to download the poster.")

if __name__ == "__main__":
    movie_title = input("Enter the title of the movie: ")
    get_movie_data(movie_title)
```

```
Enter the title of the movie: JAWS
Movie not found.
```

Connect to an API of your choice and do a simple data pull - you can use any API - except the API you have selected for your project.

In [93]:

```
import requests

# Call the API
```

```python
def get_random_joke():
    url = "https://v2.jokeapi.dev/joke/Any"

    response = requests.get(url)

    if response.status_code == 200:
        data = response.json()
        if data['type'] == "single":
            joke = data['joke']
            print(f"Joke: {joke}")
        elif data['type'] == "twopart":
            setup = data['setup']
            delivery = data['delivery']
            print(f"Setup: {setup}")
            print(f"Delivery: {delivery}")
        else:
            print("Unknown joke format")
    else:
        print("Error:", response.status_code)
        print("Failed to retrieve a random joke.")

if __name__ == "__main__":
    get_random_joke()
```

```
Joke: To whoever stole my copy of Microsoft Office, I will find you. You have my Wor
d!
```

Connect to the API and do a "Get" call/operation on the API to return a subset of data from the API

In [91]:
```python
import requests

def get_subset_of_data(api_url, params):
    response = requests.get(api_url, params=params)

    if response.status_code == 200:
        data = response.json()
        return data
    else:
        print("Error:", response.status_code)
        return None

if __name__ == "__main__":
    api_url = "https://jsonplaceholder.typicode.com/posts"

    # Specify the parameters to get 5 posts (subset of data)
    params = {
        "_start": 0,  # Starting index
        "_limit": 5   # Number of items to retrieve
    }

    subset_data = get_subset_of_data(api_url, params)

    if subset_data:
        for item in subset_data:
            print(f"Post #{item['id']}: {item['title']}")
    else:
        print("Failed to retrieve a subset of data.")
```

```
Post #1: sunt aut facere repellat provident occaecati excepturi optio reprehenderit
Post #2: qui est esse
Post #3: ea molestias quasi exercitationem repellat qui ipsa sit aut
Post #4: eum et est occaecati
Post #5: nesciunt quas odio
Post #6: dolorem eum magni eos aperiam quia
```

Take a dataset of your own, and choose 3 of the following visualizations to complete.

a. Line b. Scatter c. Bar d. Histogram e. Density Plot f. Pie Chart

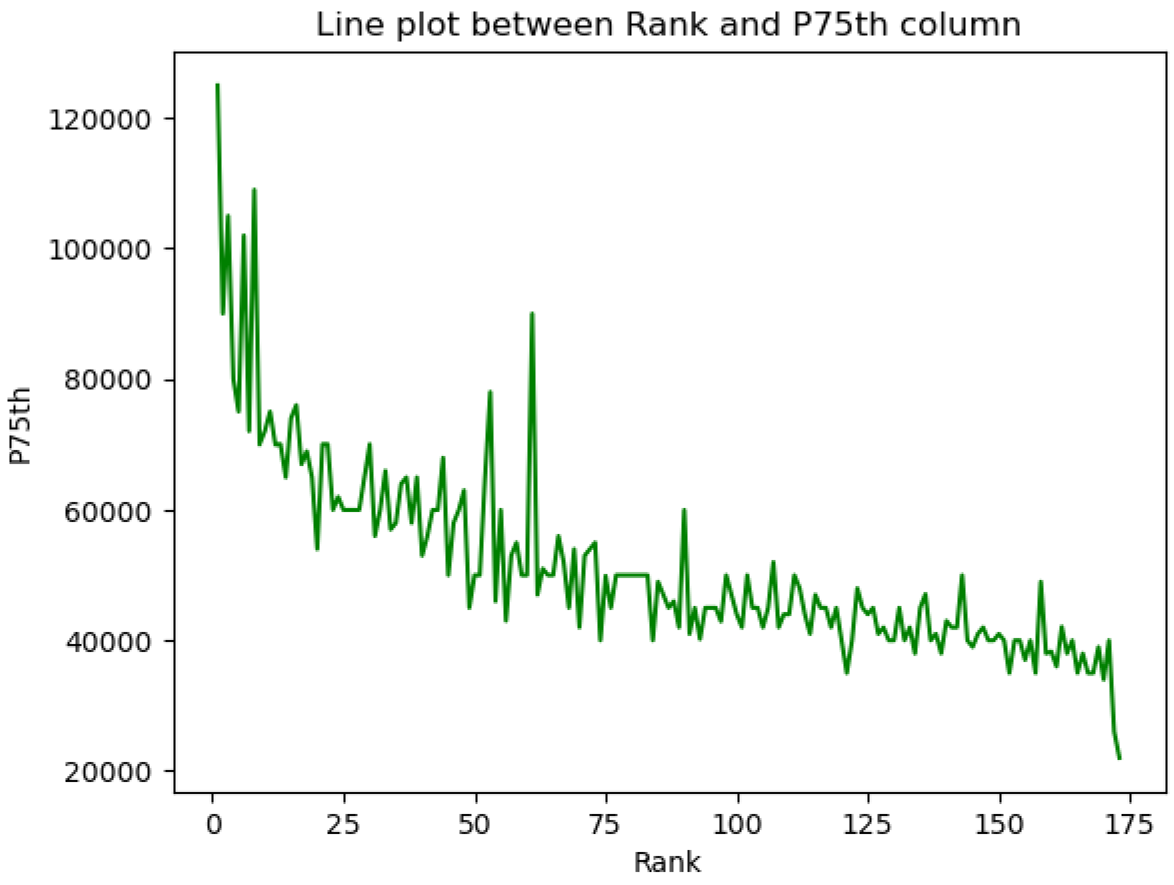
In [64]:
```
# Import panda and Read the csv data source.

import pandas as pd
import matplotlib.pyplot as plt

download_url = ("https://raw.githubusercontent.com/fivethirtyeight/""data/master/colle
df = pd.read_csv(download_url)

type(df)

df.head()
```

Out[64]:

	Rank	Major_code	Major	Total	Men	Women	Major_category	ShareWomen	Sam
0	1	2419	PETROLEUM ENGINEERING	2339.0	2057.0	282.0	Engineering	0.120564	
1	2	2416	MINING AND MINERAL ENGINEERING	756.0	679.0	77.0	Engineering	0.101852	
2	3	2415	METALLURGICAL ENGINEERING	856.0	725.0	131.0	Engineering	0.153037	
3	4	2417	NAVAL ARCHITECTURE AND MARINE ENGINEERING	1258.0	1123.0	135.0	Engineering	0.107313	
4	5	2405	CHEMICAL ENGINEERING	32260.0	21239.0	11021.0	Engineering	0.341631	

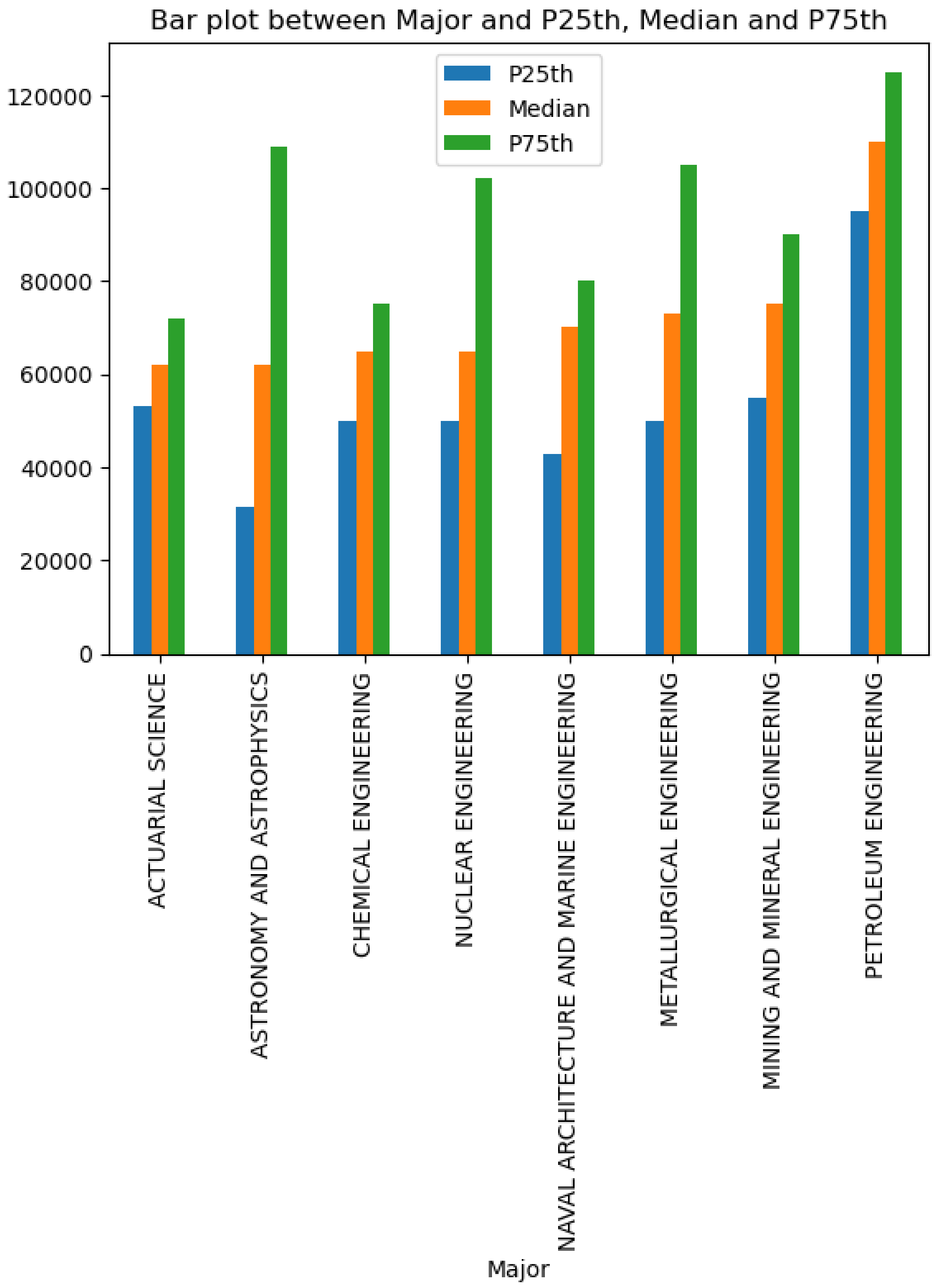
5 rows × 21 columns

In [79]:
```
# Line plot between Rank and P75th column

plt.plot(df["Rank"], df["P75th"],color='green')
plt.xlabel('Rank')
plt.ylabel('P75th')
plt.title('Line plot between Rank and P75th column')
plt.show()
```



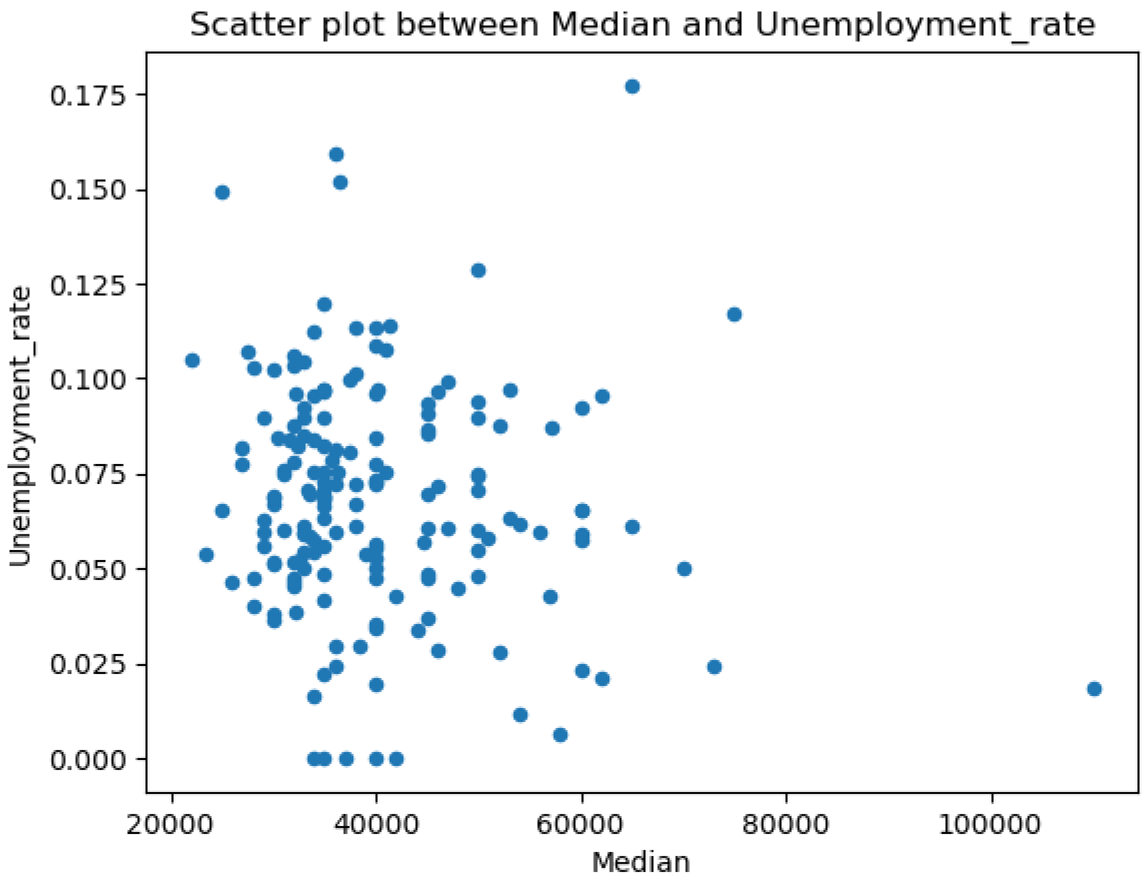
In [82]:
```
# Bar plot between Major and P25th, Median and P75th

top_medians = df[df["Median"] > 60000].sort_values("Median")
top_medians.plot(x="Major", y=["P25th", "Median", "P75th"], kind="bar")
plt.title('Bar plot between Major and P25th, Median and P75th')
```

Out[82]:
```
Text(0.5, 1.0, 'Bar plot between Major and P25th, Median and P75th')
```



In [81]:
```
# Scatter plot between Median and Unemployment_rate

df.plot(x="Median", y="Unemployment_rate", kind="scatter")
plt.title('Scatter plot between Median and Unemployment_rate')
```

Out[81]:
```
Text(0.5, 1.0, 'Scatter plot between Median and Unemployment_rate')
```


Scatter plot between Median and Unemployment_rate
Unemployment_rate
Median
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
20000
40000
60000
80000
100000