import requests

from bs4 import BeautifulSoup

import json

from urllib.parse import urlparse

def validate\_wiki\_link(link):

parsed\_url = urlparse(link)

return parsed\_url.netloc == "en.wikipedia.org" and parsed\_url.path.startswith("/wiki/")

def scrape\_links(url, visited\_links):

response = requests.get(url)

soup = BeautifulSoup(response.content, 'html.parser')

links = set()

for link in soup.find\_all('a', href=True):

href = link['href']

if href.startswith('/wiki/') and ":" not in href:

full\_link = f"https://en.wikipedia.org{href}"

if full\_link not in visited\_links:

links.add(full\_link)

return links

def main():

wiki\_link = input("Enter a Wikipedia link: ")

if not validate\_wiki\_link(wiki\_link):

print("Invalid Wikipedia link.")

return

n = int(input("Enter a valid integer between 1 and 3: "))

if n < 1 or n > 3:

print("Invalid value for n. Should be between 1 and 3.")

return

visited\_links = set()

results = []

for \_ in range(n):

new\_links = scrape\_links(wiki\_link, visited\_links)

visited\_links.update(new\_links)

results.append(list(new\_links))

total\_links = sum(len(links) for links in results)

unique\_links = len(visited\_links)

output\_data = {

"results": results,

"total\_links": total\_links,

"unique\_links": unique\_links

}

with open("scraped\_links.json", "w") as json\_file:

json.dump(output\_data, json\_file, indent=4)

print("Results written to scraped\_links.json")

if \_\_name\_\_ == "\_\_main\_\_":

main()

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his script performs the tasks you outlined in your requirements and writes the results to a scraped\_links.json file. You can customize the code as needed and then run it using a Python interpreter. It will prompt you for input and generate the results as described.

Make sure to have the requests and beautifulsoup4 libraries installed:

pip install requests

pip install beautifulsoup4

The script will create a JSON file named scraped\_links.json in the same directory, which will contain the results, including the lists of links discovered in each cycle, the total count of links, and the count of unique links.