

webCrawler

October 12, 2025

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[14]: import requests
from bs4 import BeautifulSoup
from urllib.parse import urljoin, urlparse
import time

crawled_data = {
    "pages": [],
    "links": {},
}

visited = set()

def crawl(url, depth):
    if depth == 0 or url in visited:
        return

    visited.add(url)
    headers = {
        'User-Agent': 'Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/
↪537.36 (KHTML, like Gecko) Chrome/58.0.3029.110 Safari/537.3'
    }

    try:
        response = requests.get(url, headers=headers)
        if response.status_code != 200:
            print(f"Failed to retrieve {url} (status code: {response.
↪status_code})")
            return

        soup = BeautifulSoup(response.text, 'lxml')
        print(f"Crawling: {url}")

        crawled_data["pages"].append(url)
        crawled_data["links"][url] = []

        for link in soup.find_all('a', href=True):
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        next_url = urljoin(url, link['href'])

        if urlparse(url).netloc == urlparse(next_url).netloc:
            crawled_data["links"][url].append(next_url)
            crawl(next_url, depth - 1)

    time.sleep(1)

except Exception as e:
    print(f"Error crawling {url}: {e}")

def print_stats():
    print("\n--- Crawling Stats ---")
    total_pages = len(crawled_data["pages"])
    total_links = sum(len(links) for links in crawled_data["links"].values())

    print(f"Total pages crawled: {total_pages}")
    print(f"Total links found: {total_links}")

if __name__ == "__main__":
    start_url = input("Enter the URL to crawl: ")
    depth_limit = int(input("Enter the crawling depth limit (e.g., 2): "))

    crawl(start_url, depth_limit)
    print_stats()

```

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Enter the URL to crawl: https://books.toscrape.com/
Enter the crawling depth limit (e.g., 2): 2

Crawling: https://books.toscrape.com/
Crawling: https://books.toscrape.com/index.html
Crawling: https://books.toscrape.com/catalogue/category/books_1/index.html
Crawling:
https://books.toscrape.com/catalogue/category/books/travel_2/index.html
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fiction_4/index.html
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art_5/index.html
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https://books.toscrape.com/catalogue/category/books/philosophy_7/index.html
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https://books.toscrape.com/catalogue/category/books/romance_8/index.html

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Crawling: <https://books.toscrape.com/catalogue/page-2.html>

--- Crawling Stats ---

Total pages crawled: 74

Total links found: 4401