

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

FACULTY OF ENGINEERING

PES UNIVERSITY

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Electronic City, Hosur Road, Bengaluru – 560 100, Karnataka, India

UE21CS342BA2

**ALGORITHMS FOR INFORMATION RETRIEVAL
AND INTELLIGENCE WEB**

Project title

Historical Events Information Retrieval System

Team members name

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Brief description of the project

Before digital tools, finding historical information meant going to libraries to look through books and papers, which took a lot of time. Only people who could get to these libraries easily had access to this information, and it was mostly just text, which might not be very engaging. Also, updating these books with new information took a long time.

This project is a Historical Information Retrieval System designed to simplify and enhance the way users access historical data. When a user inputs the name of a historical event or provides a brief description, the system efficiently retrieves detailed information and related images from a structured dataset.

Advantages of using this system :

- 1) Speed and Efficiency: Users can quickly receive detailed information, making research faster than traditional manual search methods.
- 2) Ease of Use: The simple interface lets users easily search for events using just a name or keywords, making it accessible to all.
- 3) Visual Engagement: Integrating images with text helps make learning about history more engaging and memorable.

Functionalities

- Search Functionality: This feature lets you quickly find historical events by typing their names or related words into a search box. It then looks through its database to find the most relevant information, making it easy for you to learn about different events without any hassle.
- Information Retrieval: After you search for an event, the system shows you detailed information about it. This includes important facts like dates, people involved, and why the event was significant. You get a complete picture of what happened, helping you understand its importance in history.
- Image Display: Along with the text, the system also shows you pictures related to the event. These images help you visualize what happened, making it easier to understand and remember the event. Whether it's photos, maps, or drawings, seeing these visuals adds to your learning experience.

Technology used

Python and jupyter notebook

Code snippet

We have webscrapped our dataset from wikipedia links

Text_webscrapped.py

```
import requests
from bs4 import BeautifulSoup
import csv

wiki_links = [
    # Add all the Wikipedia links here
    "https://en.wikipedia.org/wiki/Battle_of_Chaul",
    "https://en.wikipedia.org/wiki/Mamluk%E2%80%93Portuguese_conflicts",
    "https://en.wikipedia.org/wiki/Battle_of_Diu",
    "https://en.wikipedia.org/wiki/Battle_of_Gagron",
    "https://en.wikipedia.org/wiki/Battle_of_Khatoli",
    "https://en.wikipedia.org/wiki/Battle_of_Dholpur",
    "https://en.wikipedia.org/wiki/Battle_of_Raichur",
    "https://en.wikipedia.org/wiki/First_Battle_of_Panipat",
    "https://en.wikipedia.org/wiki/Battle_of_Khanwa",
    "https://en.wikipedia.org/wiki/Battle_of_Chausa",
    "https://en.wikipedia.org/wiki/Battle_of_Tughlaqabad",
    "https://en.wikipedia.org/wiki/Second_Battle_of_Panipat",
    "https://en.wikipedia.org/wiki/Battle_of_Talikota",
    "https://en.wikipedia.org/wiki/Paradesi_Synagogue",
    "https://en.wikipedia.org/wiki/List_of_battles_in_Rajasthan#Against_the_Mughal_Empires",
    "https://en.wikipedia.org/wiki/East_India_Company",
    "https://en.wikipedia.org/wiki/Battle_of_Rohilla",
    "https://en.wikipedia.org/wiki/Battle_of_Amritsar_(1634)",
    "https://en.wikipedia.org/wiki/Battle_of_Lahira",
    "https://en.wikipedia.org/wiki/Battle_of_Kartarpur",
    "https://en.wikipedia.org/wiki/Battle_of_Pratapgarh",
    "https://en.wikipedia.org/wiki/Shivaji#Siege_of_Panhala",
    "https://en.wikipedia.org/wiki/Battle_of_Pavan_Khind",
    "https://en.wikipedia.org/wiki/Battle_of_Surat",
    "https://en.wikipedia.org/wiki/Battle_of_Purandar#Treaty_of_Purandar",
    "https://en.wikipedia.org/wiki/Gokula#Battle_of_Tilpat",
    "https://en.wikipedia.org/wiki/Battle_of_Sinhagad",
    "https://en.wikipedia.org/wiki/Battle_of_Saraighat",
    "https://en.wikipedia.org/wiki/Battle_of_Salher",
    "https://en.wikipedia.org/wiki/Battle_of_Itakhuli",
    "https://en.wikipedia.org/wiki/Mughal_invasions_of_Konkan_(1684)",
    "https://en.wikipedia.org/wiki/Battle_of_Wai",
```

"https://en.wikipedia.org/wiki/Deccan_wars#Maratha_capital_moved_to_Jinji",
"https://en.wikipedia.org/wiki/Battle_of_Nadaun",
"https://en.wikipedia.org/wiki/Battle_of_Guler_(1696)",
"https://en.wikipedia.org/wiki/Danish_India",
"https://en.wikipedia.org/wiki/Battle_of_Anandpur_(1700)",
"https://en.wikipedia.org/wiki/Battle_of_Nirmohgarh_(1702)",
"https://en.wikipedia.org/wiki/Battle_of_Chappar_Chiri",
"https://en.wikipedia.org/wiki/Attingal_Outbreak",
"https://en.wikipedia.org/wiki/Battle_of_Palkhed",
"https://en.wikipedia.org/wiki/Battle_of_Bundelkhand",
"https://en.wikipedia.org/wiki/Battle_of_Dabhoi",
"https://en.wikipedia.org/wiki/Battle_of_Bhopal",
"https://en.wikipedia.org/wiki/Battle_of_Vasai",
"https://en.wikipedia.org/wiki/Battle_of_Colachel",
"https://en.wikipedia.org/wiki/Marthanda_Varma#Treaty_of_Mavelikkara_(1753)",
"https://en.wikipedia.org/wiki/Dutch_East_India_Company",
"https://en.wikipedia.org/wiki/Battle_of_Kumher",
"https://en.wikipedia.org/wiki/Black_Hole_of_Calcutta",
"https://en.wikipedia.org/wiki/Battle_of_Narela",
"https://en.wikipedia.org/wiki/Battle_of_Plassey",
"https://en.wikipedia.org/wiki/Battle_of_Delhi_(1757)",
"https://en.wikipedia.org/wiki/Carnatic_wars#Third_Carnatic_War_(1756%E2%80%9931763)",
"https://en.wikipedia.org/wiki/Capture_of_Peshawar_(1758)",
"https://en.wikipedia.org/wiki/French_India",
"https://en.wikipedia.org/wiki/First_Battle_of_Lahore_(1759)",
"https://en.wikipedia.org/wiki/Battle_of_Wandiwash",
"https://en.wikipedia.org/wiki/Third_Battle_of_Panipat",
"https://en.wikipedia.org/wiki/Capture_of_Agra",
"https://en.wikipedia.org/wiki/Battle_of_Sialkot_(1761)",
"https://en.wikipedia.org/wiki/Battle_of_Gujranwala_(1761)",
"https://en.wikipedia.org/wiki/Vadda_Ghalughara",
"https://en.wikipedia.org/wiki/Battle_of_Harnaulgarh",
"https://en.wikipedia.org/wiki/Battle_of_Rakshasbhuvan",
"https://en.wikipedia.org/wiki/Battle_of_Sirhind_(1764)",
"https://en.wikipedia.org/wiki/Battle_of_Buxar",
"https://en.wikipedia.org/wiki/First_Anglo-Mysore_War",
"https://en.wikipedia.org/wiki/Great_Bengal_famine_of_1770",
"https://en.wikipedia.org/wiki/Regulating_Act_1773",
"https://en.wikipedia.org/wiki/First_Anglo-Maratha_War",
"https://en.wikipedia.org/wiki/Battle_of_Mandan",
"https://en.wikipedia.org/wiki/Battle_of_Wadgaon",
"https://en.wikipedia.org/wiki/Treaty_of_Salbai",
"https://en.wikipedia.org/wiki/Second_Anglo-Mysore_War",
"https://en.wikipedia.org/wiki/Bhor_Ghat#History",

```
"https://en.wikipedia.org/wiki/Treaty_of_Mangalore",  
"https://en.wikipedia.org/wiki/Captivity_of_Mangalorean_Catholics_at_Seringap  
atam",  
"https://en.wikipedia.org/wiki/Maratha%E2%80%93Mysore_wars",  
"https://en.wikipedia.org/wiki/Third_Anglo-Mysore_War",  
"https://en.wikipedia.org/wiki/Battle_of_Patan",  
"https://en.wikipedia.org/wiki/Battle_of_Nedumkotta",  
"https://en.wikipedia.org/wiki/Bengal_Renaissance",  
"https://en.wikipedia.org/wiki/Fourth_Anglo-Mysore_War",  
"https://en.wikipedia.org/wiki/Polygar_Wars",  
"https://en.wikipedia.org/wiki/Second_Anglo-Maratha_War",  
"https://en.wikipedia.org/wiki/Siege_of_Multan_(1818)",  
"https://en.wikipedia.org/wiki/Battle_of_Shopian",  
"https://en.wikipedia.org/wiki/Anglo-Burmese_Wars",  
"https://en.wikipedia.org/wiki/Battle_of_Nowshera",  
"https://en.wikipedia.org/wiki/British_rule_in_Burma",  
"https://en.wikipedia.org/wiki/Kol_uprising",  
"https://en.wikipedia.org/wiki/Battle_of_Balakot",  
"https://en.wikipedia.org/wiki/Capture_of_Peshawar_(1834)",  
"https://en.wikipedia.org/wiki/Battle_of_Jamrud",  
"https://en.wikipedia.org/wiki/First_Anglo-Afghan_War",  
"https://en.wikipedia.org/wiki/First_Anglo-Sikh_war",  
"https://en.wikipedia.org/wiki/Battle_of_Ramnagar",  
"https://en.wikipedia.org/wiki/Battle_of_Chillianwala",  
"https://en.wikipedia.org/wiki/Santhal_rebellion",  
"https://en.wikipedia.org/wiki/Hindu_Widows%27_Remarriage_Act,_1856",  
"https://en.wikipedia.org/wiki/Indian_Rebellion_of_1857",  
"https://en.wikipedia.org/wiki/University_of_Mumbai",  
"https://en.wikipedia.org/wiki/University_of_Madras",  
"https://en.wikipedia.org/wiki/University_of_Calcutta",  
"https://en.wikipedia.org/wiki/British_Raj",  
"https://en.wikipedia.org/wiki/Prarthana_Samaj",  
"https://en.wikipedia.org/wiki/Satyashodhak_Samaj",  
"https://en.wikipedia.org/wiki/Aligarh_Muslim_University",  
"https://en.wikipedia.org/wiki/Arya_Samaj",  
"https://en.wikipedia.org/wiki/Deccan_Riots",  
"https://en.wikipedia.org/wiki/Delhi_Durbar",  
"https://en.wikipedia.org/wiki/Indian_National_Congress",  
"https://en.wikipedia.org/wiki/Anglo-Manipur_War",  
"https://en.wikipedia.org/wiki/Anushilan_Samiti",  
"https://en.wikipedia.org/wiki/British_expedition_to_Tibet",  
"https://en.wikipedia.org/wiki/Partition_of_Bengal_(1905)",  
"https://en.wikipedia.org/wiki/Jugantar",  
"https://en.wikipedia.org/wiki/All-India_Muslim_League",  
"https://en.wikipedia.org/wiki/Surat_Split",
```

"https://en.wikipedia.org/wiki/Emperor_vs_Aurobindo_Ghosh_and_others",
"https://en.wikipedia.org/wiki/Indian_Councils_Act_1909",
"https://en.wikipedia.org/wiki/Delhi_conspiracy_case",
"https://en.wikipedia.org/wiki/Ghadar_Movement",
"https://en.wikipedia.org/wiki/Hindu%E2%80%93German_Conspiracy",
"https://en.wikipedia.org/wiki/Ghadar_Mutiny",
"https://en.wikipedia.org/wiki/Provisional_Government_of_India",
"https://en.wikipedia.org/wiki/Lucknow_Pact",
"https://en.wikipedia.org/wiki/Champaran_Satyagraha",
"https://en.wikipedia.org/wiki/Justice_Party_(India)",
"https://en.wikipedia.org/wiki/Kheda_Satyagraha_of_1918",
"https://en.wikipedia.org/wiki/Jallianwala_Bagh_massacre",
"https://en.wikipedia.org/wiki/Montagu%E2%80%93Chelmsford_Reforms",
"https://en.wikipedia.org/wiki/Rowlatt_Act",
"https://en.wikipedia.org/wiki/Non-cooperation_movement",
"https://en.wikipedia.org/wiki/Khilafat_Movement",
"https://en.wikipedia.org/wiki/Chauri_Chaura_incident",
"https://en.wikipedia.org/wiki/Hindustan_Socialist_Republican_Association",
"https://en.wikipedia.org/wiki/Kakori_conspiracy",
"https://en.wikipedia.org/wiki/Rashtriya_Swayamsevak_Sangh",
"https://en.wikipedia.org/wiki/Mahad_Satyagraha",
"https://en.wikipedia.org/wiki/Simon_Commission",
"https://en.wikipedia.org/wiki/Bardoli_Satyagraha",
"https://en.wikipedia.org/wiki/Purna_Swaraj",
"https://en.wikipedia.org/wiki/Salt_March",
"https://en.wikipedia.org/wiki/Round_Table_Conferences_(India)",
"https://en.wikipedia.org/wiki/Gandhi%E2%80%93Irwin_Pact",
"https://en.wikipedia.org/wiki/Poona_Pact",
"https://en.wikipedia.org/wiki/Government_of_India_Act_1935",
"https://en.wikipedia.org/wiki/1937_Indian_provincial_elections",
"https://en.wikipedia.org/wiki/All_India_Forward_Bloc",
"https://en.wikipedia.org/wiki/Lahore_Resolution",
"https://en.wikipedia.org/wiki/All-India_Jamhur_Muslim_League",
"https://en.wikipedia.org/wiki/August_Offer",
"https://en.wikipedia.org/wiki/Cripps_Mission",
"https://en.wikipedia.org/wiki/Quit_India_Movement",
"https://en.wikipedia.org/wiki/Indian_National_Army",
"https://en.wikipedia.org/wiki/Azad_Hind",
"https://en.wikipedia.org/wiki/Simla_Conference",
"https://en.wikipedia.org/wiki/Royal_Indian_Navy_mutiny",
"https://en.wikipedia.org/wiki/1946_Cabinet_Mission_to_India",
"https://en.wikipedia.org/wiki/Direct_Action_Day",
"https://en.wikipedia.org/wiki/Noakhali_riots",
"https://en.wikipedia.org/wiki/Indian_Independence_Act_1947",
"https://en.wikipedia.org/wiki/Third_Front_(India)#National_",

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"https://en.wikipedia.org/wiki/Partition_of_India",
"https://en.wikipedia.org/wiki/Indo-Pakistani_war_of_1947%E2%80%931948",
"https://en.wikipedia.org/wiki/Line_of_Control",
"https://en.wikipedia.org/wiki/Kargil_War",
"https://en.wikipedia.org/wiki/States_Reorganisation_Act,_1956",
"https://en.wikipedia.org/wiki/Indo-Pakistani_war_of_1965",
"https://en.wikipedia.org/wiki/ISRO",
"https://en.wikipedia.org/wiki/Indo-Pakistani_war_of_1971",
"https://en.wikipedia.org/wiki/Smiling_Buddha",
"https://en.wikipedia.org/wiki/The_Emergency_(India)",
"https://en.wikipedia.org/wiki/Communist_Party_of_India_(Marxist)",
"https://en.wikipedia.org/wiki/Operation_Blue_Star",
"https://en.wikipedia.org/wiki/1984_anti-Sikh_riots",
"https://en.wikipedia.org/wiki/Securities_and_Exchange_Board_of_India",
"https://en.wikipedia.org/wiki/Exodus_of_Kashmiri_Hindus",
"https://en.wikipedia.org/wiki/Liberation_Tigers_of_Tamil_Eelam",
"https://en.wikipedia.org/wiki/Economic_liberalization",
"https://en.wikipedia.org/wiki/Demolition_of_the_Babri_Masjid",
"https://en.wikipedia.org/wiki/Bombay_riots",
"https://en.wikipedia.org/wiki/1996_Amarnath_Yatra_tragedy",
"https://en.wikipedia.org/wiki/1999_Odisha_cyclone",
"https://en.wikipedia.org/wiki/2001_Gujarat_earthquake",
"https://en.wikipedia.org/wiki/2004_Indian_Ocean_earthquake_and_tsunami",
"https://en.wikipedia.org/wiki/2005_Kashmir_earthquake",
"https://en.wikipedia.org/wiki/2008_Mumbai_attacks",
"https://en.wikipedia.org/wiki/2010_Pune_bombing",
"https://en.wikipedia.org/wiki/2013_Indian_helicopter_bribery_scandal",
"https://en.wikipedia.org/wiki/2013_Hyderabad_blasts",
"https://en.wikipedia.org/wiki/Mars_Orbiter_Mission",
"https://en.wikipedia.org/wiki/Goods_and_Services_Tax_(India)",
"https://en.wikipedia.org/wiki/2019_Balakot_airstrike",
"https://en.wikipedia.org/wiki/Vienna_Convention_on_the_Law_of_Treaties",
"https://en.wikipedia.org/wiki/Article_370_of_the_Constitution_of_India",
"https://en.wikipedia.org/wiki/Citizenship_(Amendment)_Act,_2019",
"https://en.wikipedia.org/wiki/COVID-19_pandemic_in_India",
"https://en.wikipedia.org/wiki/Chandrayaan-3",
" https://en.wikipedia.org/wiki/Aditya-L1",
"https://en.wikipedia.org/wiki/2023_Cricket_World_Cup",
]

def scrape_wikipedia_links(links, output_file):
    with open(output_file, 'w', newline='', encoding='utf-8') as csvfile:
        fieldnames = ['Event Name', 'Important Info']
        writer = csv.DictWriter(csvfile, fieldnames=fieldnames)
```

```
writer.writeheader()

for link in links:
    response = requests.get(link)
    soup = BeautifulSoup(response.content, 'html.parser')

    event_name = soup.find('h1', id='firstHeading').text.strip()

    important_info = ""
    paragraphs = soup.find_all('p')
    paragraphs_to_extract = 6 # Number of paragraphs to extract
    extracted_paragraphs = 0

    for paragraph in paragraphs:
        if paragraph.text.strip():
            important_info += paragraph.text.strip() + "\n\n" #
Concatenate with newline
            extracted_paragraphs += 1
            if extracted_paragraphs >= paragraphs_to_extract:
                break

    writer.writerow({'Event Name': event_name, 'Important Info':
important_info})

if __name__ == "__main__":
    output_file = 'data2.csv'
    scrape_wikipedia_links(wiki_links, output_file)
```

We have webscrapped images from google

Images_webscrapped.py

```
import time
import base64
from io import BytesIO
import os
import requests

from selenium import webdriver
from selenium.webdriver.chrome.service import Service
from selenium.webdriver.common.by import By
from selenium.webdriver.common.keys import Keys
from selenium.common.exceptions import ElementClickInterceptedException
from webdriver_manager.chrome import ChromeDriverManager
```



```
import requests
from PIL import Image

import json

cwd = os.getcwd()
IMAGE_FOLDER = 'download'

os.makedirs(
    name=f'{cwd}/{IMAGE_FOLDER}',
    exist_ok=True
)

service = Service(ChromeDriverManager().install())
driver = webdriver.Chrome(
    service=service
)

SLEEP_TIME = 1

image_data = {
    "images": []
}

def download_google_images(search_query: str) -> str:
    '''Download google images with this function\n
    Takes -> search_query, number_of_images\n
    Returns -> None
    '''

    os.makedirs(
        name=f'{cwd}/{IMAGE_FOLDER}',
        exist_ok=True
    )

    url = 'https://images.google.com/'

    driver.get(
        url=url
    )
    print(By.XPATH)
    box = driver.find_element(
        by=By.XPATH,
```

```
        value="//textarea[contains(@class,'gLfyf')]"
    )

    box.send_keys(search_query)
    box.send_keys(Keys.ENTER)
    time.sleep(SLEEP_TIME)

    img_result = driver.find_element(
        by=By.XPATH,
        value="//img[contains(@class,'YQ4gaf') and not(contains(@class, ' '))]"
    )

    img_url = img_result.get_attribute('src')

    count = 0
    try:
        src = ''
        if 'https://encrypted' in img_result.get_attribute('src'):
            pass
        elif 'http' in img_result.get_attribute('src'):
            src += img_result.get_attribute('src')
        else:
            pass
        if src == '' and 'base' in img_result.get_attribute('src'):
            src += img_result.get_attribute('src')
        if 'https://' in src:
            file_path = f'{IMAGE_FOLDER}/{search_query}.jpeg'

        try:
            result = requests.get(src, allow_redirects=True, timeout=10)
            open(file_path, 'wb').write(result.content)

            img_data = {
                "href": src,
                "image_path": file_path
            }
            image_data["images"].append(img_data)

            img = Image.open(file_path)
            img = img.convert('RGB')
            img.save(file_path, 'JPEG')
            print(f'Count - {count} - Image saved from https.')
            print(src)
        except:
            print('Bad image.')
```

```
        try:
            os.unlink(file_path)
        except:
            pass
        count -= 1
    else:
        img_data = src.split(',')

        file_path = f'{IMAGE_FOLDER}/{search_query}.jpeg'
        try:
            img = Image.open(BytesIO(base64.b64decode(img_data[1])))
            img = img.convert('RGB')
            img.save(file_path, 'JPEG')
            print(f'Count - {count} - Image saved from Base64.')

            img_data = {
                "href": src,
                "image_path": file_path
            }
            image_data["images"].append(img_data)

        except:
            print('Bad image.')
            count -= 1
    except ElementClickInterceptedException as e:
        count -= 1
        print(e)
        print('Image is not clickable.')

tags = [
    "Battle of Chaul",
    "Mamluk-Portuguese conflicts",
    "Battle of Diu",
    "Battle of Gagron",
    "Battle of Khatoli",
    "Battle of Dholpur",
    "Battle of Raichur",
    "First Battle of Panipat",
    "Battle of Khanwa",
    "Battle of Chausa",
    "Battle of Tughlaqabad",
    "Second Battle of Panipat",
    "Battle of Talikota",
    "Paradesi Synagogue",
    "List of battles in Rajasthan#Against the Mughal Empires",
```

"East India Company",
"Battle of Rohilla",
"Battle of Amritsar (1634)",
"Battle of Lahira",
"Battle of Kartarpur",
"Battle of Pratapgarh",
"Siege of Panhala",
"Battle of Pavan Khind",
"Battle of Surat",
"Treaty of Purandar",
"Gokula Battle of Tilpat",
"Battle of Sinhagad",
"Battle of Saraighat",
"Battle of Salher",
"Battle of Itakhuli",
"Mughal invasions of Konkan (1684)",
"Battle of Wai",
"Deccan wars Maratha capital moved to Jinji",
"Battle of Nadaun",
"Battle of Guler (1696)",
"Danish India",
"Battle of Anandpur (1700)",
"Battle of Nirmohgarh (1702)",
"Battle of Chappar Chiri",
"Attingal Outbreak",
"Battle of Palkhed",
"Battle of Bundelkhand",
"Battle of Dabhoi",
"Battle of Bhopal",
"Battle of Vasai",
"Battle of Colachel",
"Marthanda Varma Treaty of Mavelikkara (1753)",
"Dutch East India Company",
"Battle of Kumher",
"Black Hole of Calcutta",
"Battle of Narela",
"Battle of Plassey",
"Battle of Delhi (1757)",
"Carnatic wars Third Carnatic War (1756-1763)",
"Capture of Peshawar (1758)",
"French India",
"First Battle of Lahore (1759)",
"Battle of Wandiwash",
"Third Battle of Panipat",
"Capture of Agra",

"Battle of Sialkot (1761)",
"Battle of Gujranwala (1761)",
"Vadda Ghalughara",
"Battle of Harnaulgarh",
"Battle of Rakshasbhuwan",
"Battle of Sirhind (1764)",
"Battle of Buxar",
"First Anglo-Mysore War",
"Great Bengal famine of 1770",
"Regulating Act 1773",
"First Anglo-Maratha War",
"Battle of Mandan",
"Battle of Wadgaon",
"Treaty of Salbai",
"Second Anglo-Mysore War",
"Bhor Ghat History",
"Treaty of Mangalore",
"Captivity of Mangalorean Catholics at Seringapatam",
"Maratha-Mysore wars",
"Third Anglo-Mysore War",
"Battle of Patan",
"Battle of Nedumkotta",
"Bengal Renaissance",
"Fourth Anglo-Mysore War",
"Polygar Wars",
"Second Anglo-Maratha War",
"Siege of Multan (1818)",
"Battle of Shopian",
"Anglo-Burmese Wars",
"Battle of Nowshera",
"British rule in Burma",
"Kol uprising",
"Battle of Balakot",
"Capture of Peshawar (1834)",
"Battle of Jamrud",
"First Anglo-Afghan War",
"First Anglo-Sikh war",
"Battle of Ramnagar",
"Battle of Chillianwala",
"Santhal rebellion",
"Hindu Widows' Remarriage Act, 1856",
"Indian Rebellion of 1857",
"University of Mumbai",
"University of Madras",
"University of Calcutta",

"British Raj",
"Prarthana Samaj",
"Satyashodhak Samaj",
"Aligarh Muslim University",
"Arya Samaj",
"Deccan Riots",
"Delhi Durbar",
"Indian National Congress",
"Anglo-Manipur War",
"Anushilan Samiti",
"British expedition to Tibet",
"Partition of Bengal (1905)",
"Jugantar",
"All-India Muslim League",
"Surat Split",
"Emperor vs Aurobindo Ghosh and others",
"Indian Councils Act 1909",
"Delhi conspiracy case",
"Ghadar Movement",
"Hindu-German Conspiracy",
"Ghadar Mutiny",
"Provisional Government of India",
"Lucknow Pact",
"Champaran Satyagraha",
"Justice Party (India)",
"Kheda Satyagraha of 1918",
"Jallianwala Bagh massacre",
"Montagu-Chelmsford Reforms",
"Rowlatt Act",
"Non-cooperation movement",
"Khilafat Movement",
"Chauri Chaura incident",
"Hindustan Socialist Republican Association",
"Kakori conspiracy",
"Rashtriya Swayamsevak Sangh",
"Mahad Satyagraha",
"Simon Commission",
"Bardoli Satyagraha",
"Purna Swaraj",
"Salt March",
"Round Table Conferences (India)",
"Gandhi-Irwin Pact",
"Poona Pact",
"Government of India Act 1935",
"1937 Indian provincial elections",

"All India Forward Bloc",
"Lahore Resolution",
"All-India Jamhur Muslim League",
"August Offer",
"Cripps Mission",
"Quit India Movement",
"Indian National Army",
"Azad Hind",
"Simla Conference",
"Royal Indian Navy mutiny",
"1946 Cabinet Mission to India",
"Direct Action Day",
"Noakhali riots",
"Indian Independence Act 1947",
"Third Front (India) National",
"Partition of India",
"Indo-Pakistani war of 1947-1948",
"Line of Control",
"Kargil War",
"States Reorganisation Act, 1956",
"Indo-Pakistani war of 1965",
"ISRO",
"Indo-Pakistani war of 1971",
"Smiling Buddha",
"The Emergency (India)",
"Communist Party of India (Marxist)",
"Operation Blue Star",
"1984 anti-Sikh riots",
"Securities and Exchange Board of India",
"Exodus of Kashmiri Hindus",
"Liberation Tigers of Tamil Eelam",
"Economic liberalization",
"Demolition of the Babri Masjid",
"Bombay riots",
"1996 Amarnath Yatra tragedy",
"1999 Odisha cyclone",
"2001 Gujarat earthquake",
"2004 Indian Ocean earthquake and tsunami",
"2005 Kashmir earthquake",
"2008 Mumbai attacks",
"2010 Pune bombing",
"2013 Indian helicopter bribery scandal",
"2013 Hyderabad blasts",
"Mars Orbiter Mission",
"Goods and Services Tax (India)",

```
"2019 Balakot airstrike",
"Vienna Convention on the Law of Treaties",
"Article 370 of the Constitution of India",
"Citizenship (Amendment) Act, 2019",
"COVID-19 pandemic in India",
"Chandrayaan-3",
"Aditya-L1",
"2023 Cricket World Cup",
]

for tag in tags:
    print(f'{"="*10} Downloading for the tag - {tag} {"="*10}')
    download_google_images(
        tag,

    )
    print(f'{"="*10} Finished downloading for the tag - {tag} {"="*10}')
```

```
driver.quit()

json_data = json.dumps(image_data, indent=4)

print('\n\n\n')
print(json_data)
print('\n\n\n\n')
```

```
with open('image_data.json', 'w') as file:
    file.write(json_data)
```

For retrieving the information we have used tf-idf method and cosine similarity for matching the user's input and events name in the dataset to give the output

Retrieval_code.ipynb

```
import os
import pandas as pd
import re
from nltk.corpus import stopwords
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.metrics.pairwise import cosine_similarity
from IPython.display import Image, display ,HTML

data = pd.read_csv("AIRW_DATASET-data2.csv")

# Function to construct a Wikipedia URL from an event name
```



```
def construct_wikipedia_url(event_name):
    # Normalize the event name to fit URL format (spaces to underscores, etc.)
    normalized_name = event_name.replace(" ", "_").replace('&', 'and')
    return f"https://en.wikipedia.org/wiki/{normalized_name}"

# Function to retrieve event information based on event name or brief description
def retrieve_event_info(query):
    query_vector = vectorizer.transform([query])

    # Calculate cosine similarity for event names
    event_names_vector = vectorizer.transform(data["Event Name"])
    event_name_similarity = cosine_similarity(query_vector, event_names_vector)

    # Calculate cosine similarity for important info
    important_info_similarity = cosine_similarity(query_vector, tfidf_matrix)

    # Combine the similarities
    combined_similarity = event_name_similarity + important_info_similarity

    threshold = 0.1
    max_similarity = combined_similarity.max()
    if max_similarity < threshold:
        return []

    # Get indices of top matches
    most_similar_indices = combined_similarity.argsort()[0, :-6:-1]

    # Retrieve events in the order of dataset indices
    ordered_event_info_list = []
    for idx in range(len(data)):
        if idx in most_similar_indices:
            event_info = {
                "event_name": data.loc[idx, "Event Name"],
                "important_info": data.loc[idx, "Important Info"],
                "event_wikipedia_url": construct_wikipedia_url(data.loc[idx,
"Event Name"])
            }
            ordered_event_info_list.append(event_info)

    return ordered_event_info_list

def display_images(event_info_list):
    for event_info in event_info_list:
        event_name = event_info["event_name"]
        image_path = f"./download/{event_name}.jpeg"
```

```
if os.path.exists(image_path):
    display(Image(filename=image_path))
else:
    print(f"Image not found for {event_name}")

# Create the TF-IDF vectorizer
vectorizer = TfidfVectorizer()

# Transform the text into TF-IDF vectors
tfidf_matrix = vectorizer.fit_transform(data["Important Info"])

# Get user input for the event name or brief description
while True:
    query = input("Enter an event name or brief description (or 'quit' to exit):")
    if query.lower() == "quit":
        print("Exiting the program. Thank you!")
        break

    event_info_list = retrieve_event_info(query)

    if event_info_list:
        print(f"\nTop 5 Matching Events for '{query}':")
        for idx, event_info in enumerate(event_info_list[:5], start=1):

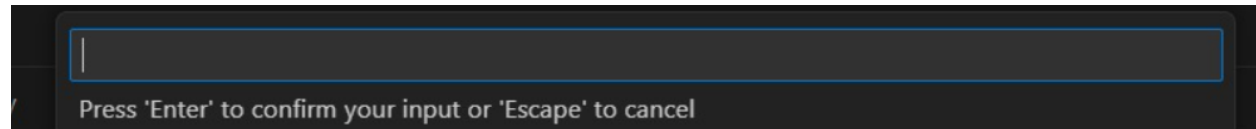
            # Using HTML to display information more readably
            display(HTML(f"<strong>Event Name:</strong>
{event_info['event_name']}"))
            # Display image for the event
            event_name = event_info['event_name']
            image_path = f"./download/{event_name}.jpeg"
            if os.path.exists(image_path):
                display(Image(filename=image_path))
            else:
                print(f"Image not found for {event_name}")
            display(HTML(f"<strong>Important Info:</strong>
<p>{event_info['important_info']}</p>"))
            print("For further information can refer to the wikipedia links ")
            display(HTML(f"<a
href='{event_info['event_wikipedia_url']}'>{event_info['event_wikipedia_url']}'</a>
>"))

            print("-" * 150)

    else:
        print("No matching events found :(")
```

Results

So this the input box where the user has to type the event name or the brief description about the event.




So for example when we type any event name or brief description of that event the system retrieves the information from the dataset based on what the user has typed and gives top 5 matches to them

For example here in the screenshot I have given the input Rajput so top5 matches are given

Top 5 Matching Events for 'rajput':

Event Name: Battle of Gagron



Important Info:

Rajput victory The Battle of Gagron was fought in 1519 between Mahmud Khalji II of Malwa and Rajput Confederacy of Rana Sanga. The conflict took place in Gagron (in the present-day Indian state of Rajasthan) and resulted in Sanga's victory, with him taking Mahmud captive and annexing significant territory. Following the death of the Sultan of Malwa, Nasir-ud-Din Khalji, a succession struggle erupted amongst his sons. Mahmud Khalji II emerged victorious, primarily with the aid of the Rajput chief Medini Rai. The latter amassed considerable influence, resulting in the enmity of the Muslim nobles, with even the new sultan finding it necessary to appeal to Muzaffar Shah II of Gujarat. A Gujarati army was dispatched to Mandu, held by Medini Rai's son, and besieged it. The Rajput chief in turn appealed to Rana Sanga of Mewar for aid, who then marched his army into Malwa, reaching Sarangpur. However, Mandu was captured by the Gujaratis, prompting Sanga to return to Mewar alongside Medini Rai, who was then employed in his service.[3] In retribution for them entering his territory, Mahmud marshalled an army against the Mewaris and marched it through Gagron.[3] Sanga advanced with a large army from Chittor reinforced by the Rathors of Merta under Rao Viramdeva, and met Mahmud, accompanied by the Gujarat auxiliaries under Asaf Khan. The Mewari cavalry made a charge through that of the Gujarati, with the surviving men scattering. They subsequently did the same to the Malwa army, resulting in a decisive victory. Mahmud was wounded and taken prisoner by Rana Sanga, with most of his officers having died and his army decimated. Asaf Khan's son was killed, though he himself managed to escape.[4] Sanga subsequently took control of Bhilsa, Raisen, Sarangpur, Chanderi and Ranthambore. Mahmud was kept captive at Chittor for 6 months, though the Rana himself is said to have personally tended to his wounds. He was subsequently allowed an "honourable" return to his own lands, though one of his sons remained at Mewar as a hostage. Mahmud later sent Sanga a jewelled belt and crown as gifts.[5] Sanga presented the Chittor fortress to Haridas Kesaria after their victory, who humbly declined and accepted a jagir of 12 villages in return.[4][6]

For further information can refer to the wikipedia links

https://en.wikipedia.org/wiki/Battle_of_Gagron

... **Event Name:** Battle of Khanwa

...



... **Important Info:**

Rajput Confederation The Battle of Khanwa was fought at Khanwa on March 16, 1527. It was fought between the invading Timurid forces of Babur and the Rajput Confederation led by Rana Sanga for supremacy of Northern India. The battle was a major event in Medieval Indian history although Timurids won at Panipat but at the time, the sultanate at Delhi was a spent force that was long crumbling. To the contrary Mewar kingdom, under the able rule of Rana Sanga, had turned into one of the strongest powers of northern India. Therefore, the battle was among the most decisive battles in the Mughal conquest of northern India.[9][10][11][12][13][14][excessive citations] It was among the earliest battles in Northern India where gunpowder was used to a great extent. The battle resulted in heavy casualties for both Timurids and Rajputs.[15] Babur is said to have created a Pyramid with the heads of the Rajputs after the triumph in the battle. Until 1524, Babur's aim was to expand his rule to Punjab, primarily to fulfil the legacy of his ancestor Timur, since it used to be part of his empire.[16] Large parts of north India were under the rule of Ibrahim Lodi of the Lodi dynasty, but the empire was crumbling and there were many defectors. Babur had already raided Punjab in 1504 and 1518. In 1519 he tried to invade Punjab but had to return to Kabul due to complications there.[17] In 1520-21 Babur again ventured to conquer Punjab, he easily captured Bhira and Sialkot which were known as the "twin gateways to Hindustan". Babur was able to annex towns and cities till Lahore but was again forced to stop due to rebellions in Qandhar.[18] In 1523 he received invitations from Alam Khan Lodi, brother of Sikandar Lodi, Daulat Khan Lodi, Governor of Punjab and Ala-ud-Din, Ibrahim's uncle, to invade the Delhi Sultanate. Alam personally went to Babur's court and told him about the political situation of India. Babur agreed after sending some of his nobles to scout Punjab. These nobles, after studying the area, approved the plan to invade India. However, there were arguments between the Mughals and the Lodi rebels. Alam demanded that Babur give Delhi to him after it was conquered, as he was instrumental in inviting the Mughals to invade the weakened Lodi Sultanate. Babur refused and thus Alam took his army to besiege Delhi by himself, where his army was defeated by Ibrahim Lodi.[19] Daulat Khan also betrayed Babur and with a force of 40,000 he captured Sialkot from the Mughal garrison and marched towards Lahore. Daulat Khan was soundly defeated and fled to the Lodi camp. The Lodi army, led by Ibrahim Lodi, was defeated by Babur's army at the Battle of Khanwa on March 16, 1527. Babur's victory at Khanwa led to the establishment of the Mughal Empire in India.

For further information can refer to the wikipedia links

https://en.wikipedia.org/wiki/Battle_of_Khanwa

Event Name: List of battles in Rajasthan



Important Info:

Several significant battles are recorded to have taken place in what is now known as Rajasthan. Battle of Jodhpur (1707) - Durgadas Rathore took advantage of the disturbances following the death of Aurangzeb in 1707 to seize Jodhpur and eventually evict the occupying Mughal force out of Marwar.[86] Annexation of Amer (1708) - Bahadur Shah I marched with a large army and annexed Amer without a war. Raja Sawai Jai Singh was forced to retreat with his army. Amber was named 'Mominabad' by the Mughal emperor.[87] Battle of Merta (1708) - Bahadur Shah I's general Mihrab Khan defeated Ajit Singh of Marwar. The Mughal emperor was advised to stay in Ajmer as the Mughals were wary of the guerrilla tactics of Veer Durgadas. Ajit Singh however went against the advice of Durgadas Rathore and directly confronted the large Mughal army. The Mughals bombarded the Rathore horsemen with cannons and rockets and forced them to retreat after heavy losses. Jodhpur was once again occupied by the Mughals.[88] Rajput Rebellion 1708-1710 - The three Rajput Raja's of Amber, Udaipur and Jodhpur made a joint resistance to the Mughals. The Rajputs first expelled the commandants of Jodhpur and Bayana and recovered Amer by a night attack. They next killed Sayyid Hussain Khan Barha in the "Battle of Sambhar (1709)". Ajit Singh also attacked Ajmer and forced its governor to pay tribute. Sayyid Hidayatullah, the governor of Ranthambor was also defeated, bringing a danger to the Mughal capital itself. Bahadur Shah I, then in the Deccan was forced to patch up a truce with the Rajput Rajas (1710).[89]

For further information can refer to the wikipedia links

https://en.wikipedia.org/wiki/List_of_battles_in_Rajasthan

Event Name: Battle of Mandan



Important Info:

The Battle of Mandan was fought between the Shekhawat chiefs and the Mughal Empire due to their refusal to pay tribute to the emperor. The Mughals were Helped by Ahirs of Rewari under Mitra Sen Ahir and the Baloch chieftains Peero Khan and Kale Khan.[1] The Shekhawati Rajput chieftains had been beating back invasions in their area for a long time. In 1775 the Shekhawati chiefs refused to pay tribute to the Mughals which resulted in an invasion by the Mughal army under the command of Mitra Sen Ahir, Kale Khan and Peero Khan. A pitched battle was fought in which both sides suffered heavy losses. Peero Khan was killed and Mitra Sen fled, resulting in a victory for the Shekhawat chiefs.[1] Devi Singhs achievement in Mandan was acknowledged by the Maharaja of Jaipur.[2] Mitrasen Ahir again helped the Mughals against the Shekhawats. This time against the Shekhawat chieftain of Kanud, on February 1779. The Rajput garrison numbered only 400 and their chieftain, Nawal Singh Shekhawat was severely ill, but still gave a long resistance and even managed to sally out and kill Mitrasen's men. However Nawal Singh Shekhawat eventually died from his illness due to which the Mughals were able to negotiate a peace and exchange Kanud fort for other villages, which were given to Nawal Singhs widow.[3]


For further information can refer to the wikipedia links

https://en.wikipedia.org/wiki/Battle_of_Mandan

...

Event Name: Battle of Patan

...



Battle of Patan

...

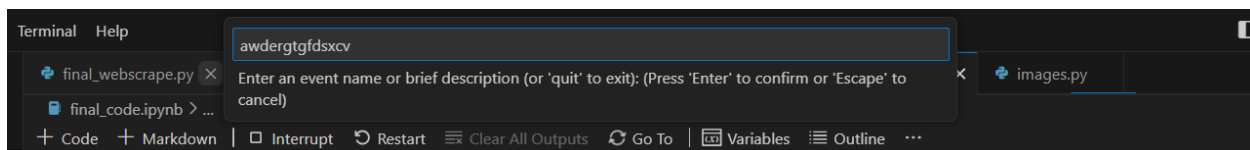
Important Info:

The Battle of Patan was fought on 20 June 1790 between the Maratha Kingdom of Gwalior supported by the Peshwa & Holkar and the alliance formed by the Rajput Kingdoms of Jaipur, Kingdom of Jodhpur supported by Mirza Ismail Beg who betrayed Mahadji and joined the Rajput army in exchange for a promise of money.[1] The battle resulted in a decisive Maratha victory. It was Ekadashi and therefore the Hindus did not participate in the fighting. However, the Muslim soldiers on both sides continued their skirmishes. During a skirmish, some Pindaris of Sindhia stole cattle from Ismail Beg and Ismail hurried to rescue them.[1] However, Gopal Bhau with 2,000 of his horsemen joined the fight, resulting in a one hour skirmish which Ismail Beg, through his personal valour was able to fend off. This skirmish resulted in open fire between both sides. Gopal Bhau sent his men against the Rathors who were stationed in the centre. Bhau's squadron, through their hit and run tactics, led the Rathors into a trap where Boigne shot them down and then bayoneted the surviving horsemen. Boigne, after defeating the Rathors, immediately turned his guns towards Ismail and shot his men down. Ismail was not able to return fire and his men fled, followed by Ismail himself. Abdul Beg and Alaya Matlab also abandoned the field and their men. The only event worth noting was the Rathor charge against the Maratha right wing. The 4,000 strong Holkar contingent was saved by swift reinforcements sent by Gopal Bhau. The Jaipur Nagas were forced into their positions by the two battalions sent by Boigne. De Boigne, after routing the centre and left wings of the alliance, turned all of his forces to the right. The Rathors were soon surrounded and routed.[1] Pitted against European armed and French trained Marathas, Rajput states capitulated one after the other. The Marathas managed to conquer Ajmer and Malwa from Rajputs. Although Jaipur and Jodhpur remained unconquered. The Battle of Patan effectively ended Rajput hopes for independence from external interference. Historian Sir Jadunath Sarkar notes: From the day of Patan (20th June 1790) to the 2nd of April 1818 when Jaipur entered into protective subsidiary alliance with the British government, lay the gloomiest period in the history of Jaipur kingdom. His victory increased Scindia's influence with the Peshwas (Maratha

The user has an option to search for more events by giving the event name or brief description to it . This works until he types quit . so when he does type quit and press enter it provides a message saying "Exiting the program. Thank you!"

Exiting the program. Thank you!

When the event name or description is not matched with any of the events in the dataset system gives a message saying "No matching events found :("



No matching events found :(