Vivekanand Education Society's Institute Of Technology
Department Of Information Technology

DSA mini Project :A.Y. 2025-26

Sustainability Goal : The project supports SDG 9 – Industry, Innovation and Infrastructure and SDG 4 – Quality Education by promoting technological innovation and enhancing student understanding of algorithmic problem-solving.

Title: NEWS FEED RANKING SYSTEM

Domain: Data Structure And Algorithm

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7 AFFORDABLE AND CLEAN ENERGY

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

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Introduction to Project

🧩 Introduction

In today’s digital era, people consume a large amount of news and social media content every day. With thousands of articles and posts being published constantly, it becomes essential to rank and display the most relevant and popular content to users.

The News Feed Ranking System is a mini-project developed using the C programming language to simulate how platforms like Google News or social media feeds organize content.

It uses Data Structures and Algorithms (DSA) such as arrays, structures, and sorting to store and rank news posts based on multiple factors like likes, comments, and user interests.

The main goal of this project is to demonstrate how priority-based ranking can be implemented through simple algorithms and how DSA can be applied to real-world information filtering systems.

Problem Statement

In social media platforms, users receive a large number of posts (news articles, updates, messages). Displaying them in a random order decreases user engagement.

The goal is to build a ranking system that orders posts according to priority factors such as recency, popularity (likes/comments), and relevance (keywords).

Objectives of the project

🎯 Objective :

- To design and implement a News Feed Ranking System that organizes and displays news posts based on their relevance and popularity.
- To apply Data Structures concepts such as arrays, structures,priority queue and sorting algorithms for efficient ranking of posts.
- To provide a user-interactive interface where users can add posts, set interests, and view ranked news feeds.
- To demonstrate the use of DSA in real-world applications such as personalized content delivery.

Requirements of the system (Hardware, software)

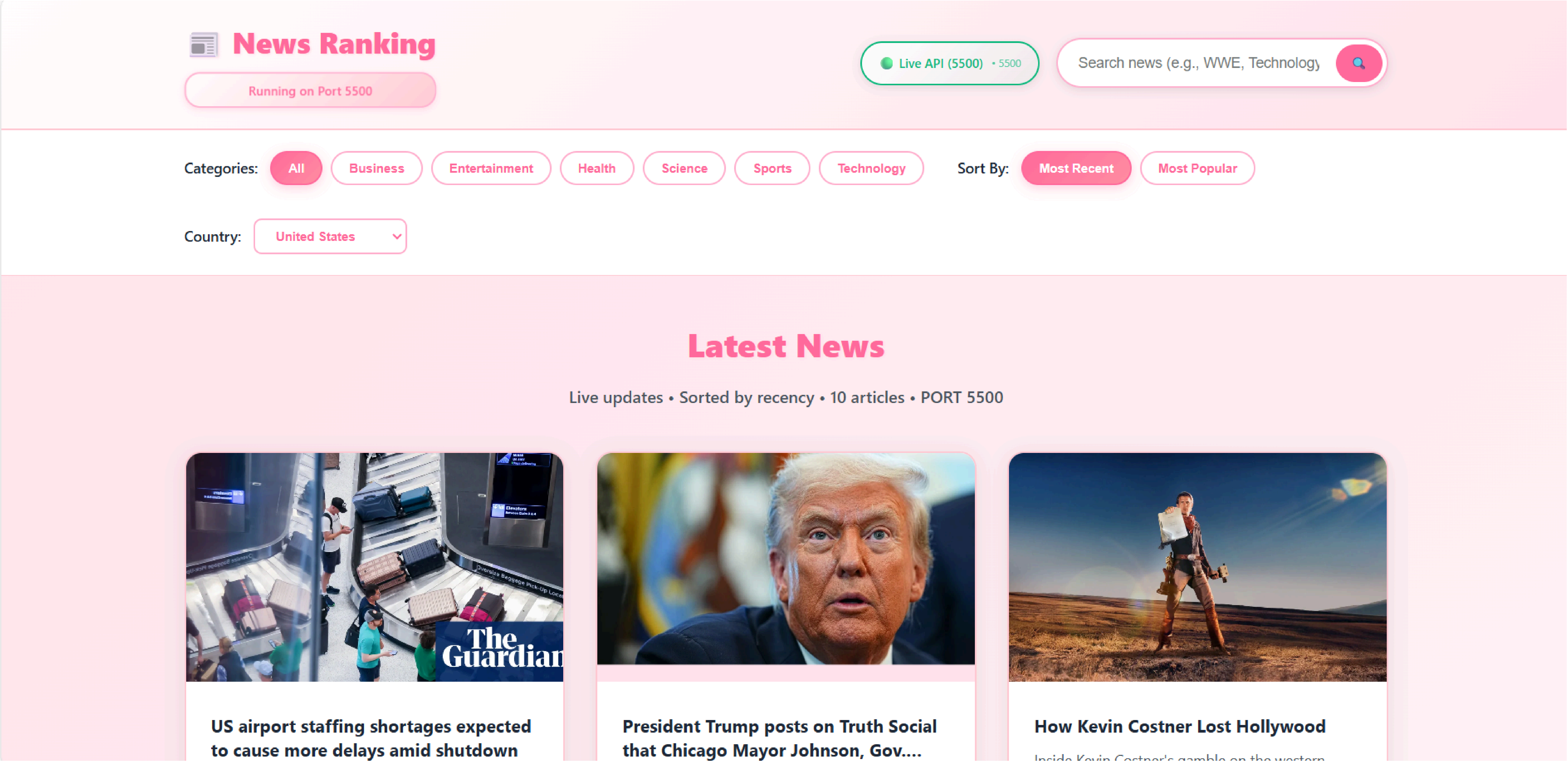
Hardware Requirements:

Component	Minimum Specification	Recommended
Processor	Intel Core i3 or equivalent	Intel Core i5 or higher
RAM	4 GB	8 GB or more
Storage	250 MB free space	500 MB or more
Display	1024x768 resolution	1366x768 or higher
Input Devices	Keyboard, Mouse	Keyboard, Mouse

Software Requirements:

Type	Requirement
Operating System	Windows 10/11, Linux (Ubuntu), or macOS
Compiler / IDE	GCC Compiler / Code::Blocks / Dev-C++ / Visual Studio Code
GUI Library (if used)	GTK, Qt, or console-based menu
Additional Tools	Git (for version control), Web browser (for API testing, if any)

Front End



Latest News

Live updates • Sorted by recency • 10 articles • PORT 5500

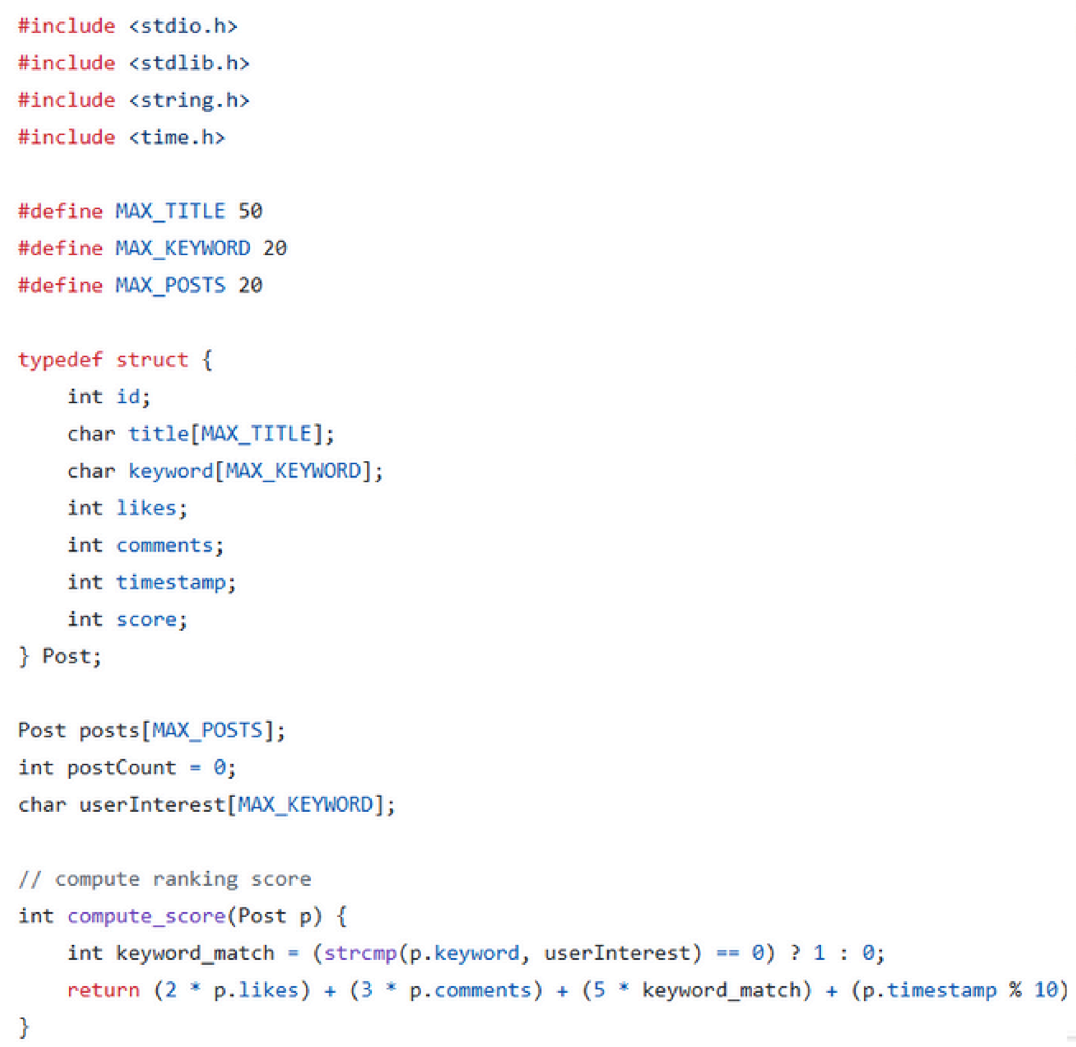
US airport staffing shortages expected to cause more delays amid shutdown

President Trump posts on Truth Social that Chicago Mayor Johnson, Gov....

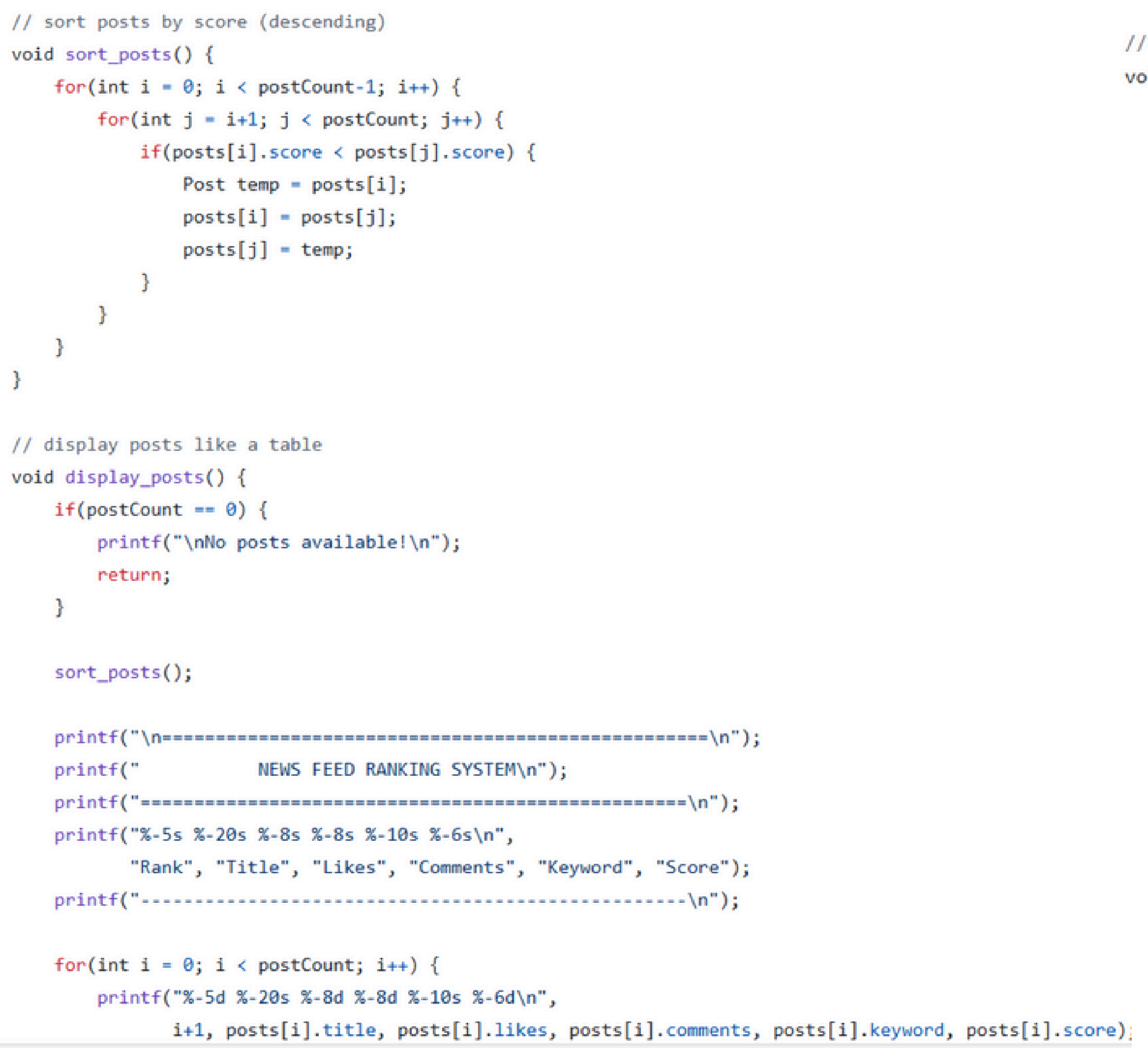
How Kevin Costner Lost Hollywood

Inside Kevin Costner's gamble on the western

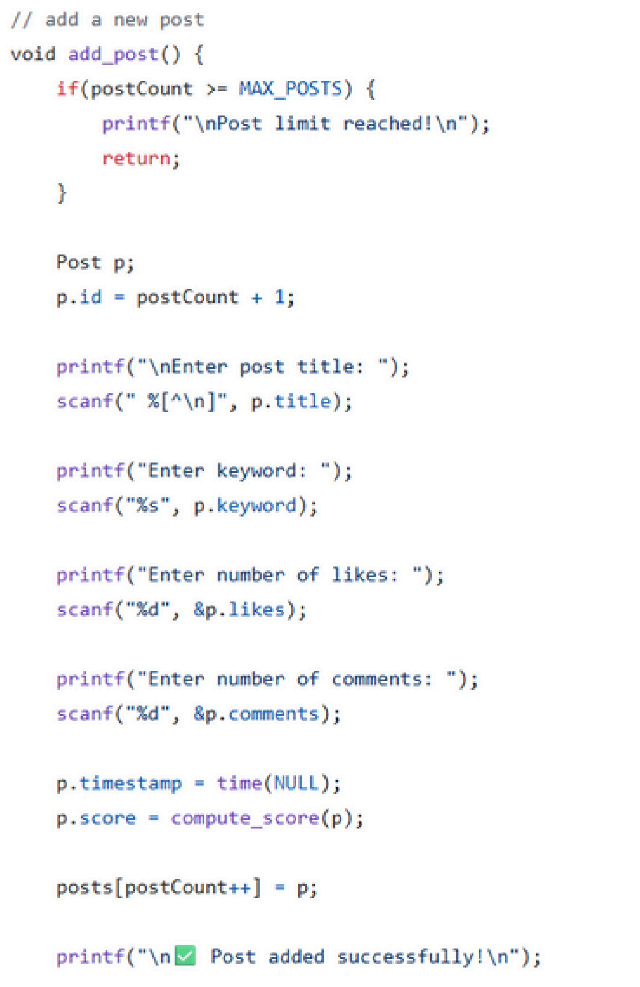
Implementation



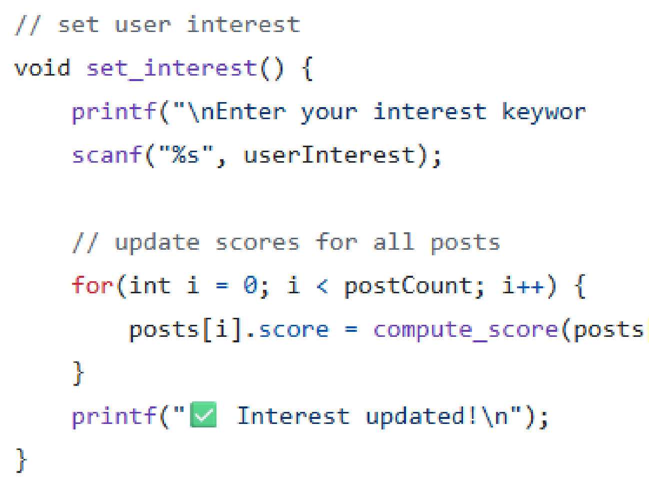
```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <time.h>

#define MAX_TITLE 50
#define MAX_KEYWORD 20
#define MAX_POSTS 20

typedef struct {
    int id;
    char title[MAX_TITLE];
    char keyword[MAX_KEYWORD];
    int likes;
    int comments;
    int timestamp;
    int score;
} Post;

Post posts[MAX_POSTS];
int postCount = 0;
char userInterest[MAX_KEYWORD];

// compute ranking score
int compute_score(Post p) {
    int keyword_match = (strcmp(p.keyword, userInterest) == 0) ? 1 : 0;
    return (2 * p.likes) + (3 * p.comments) + (5 * keyword_match) + (p.timestamp % 10)
}
```



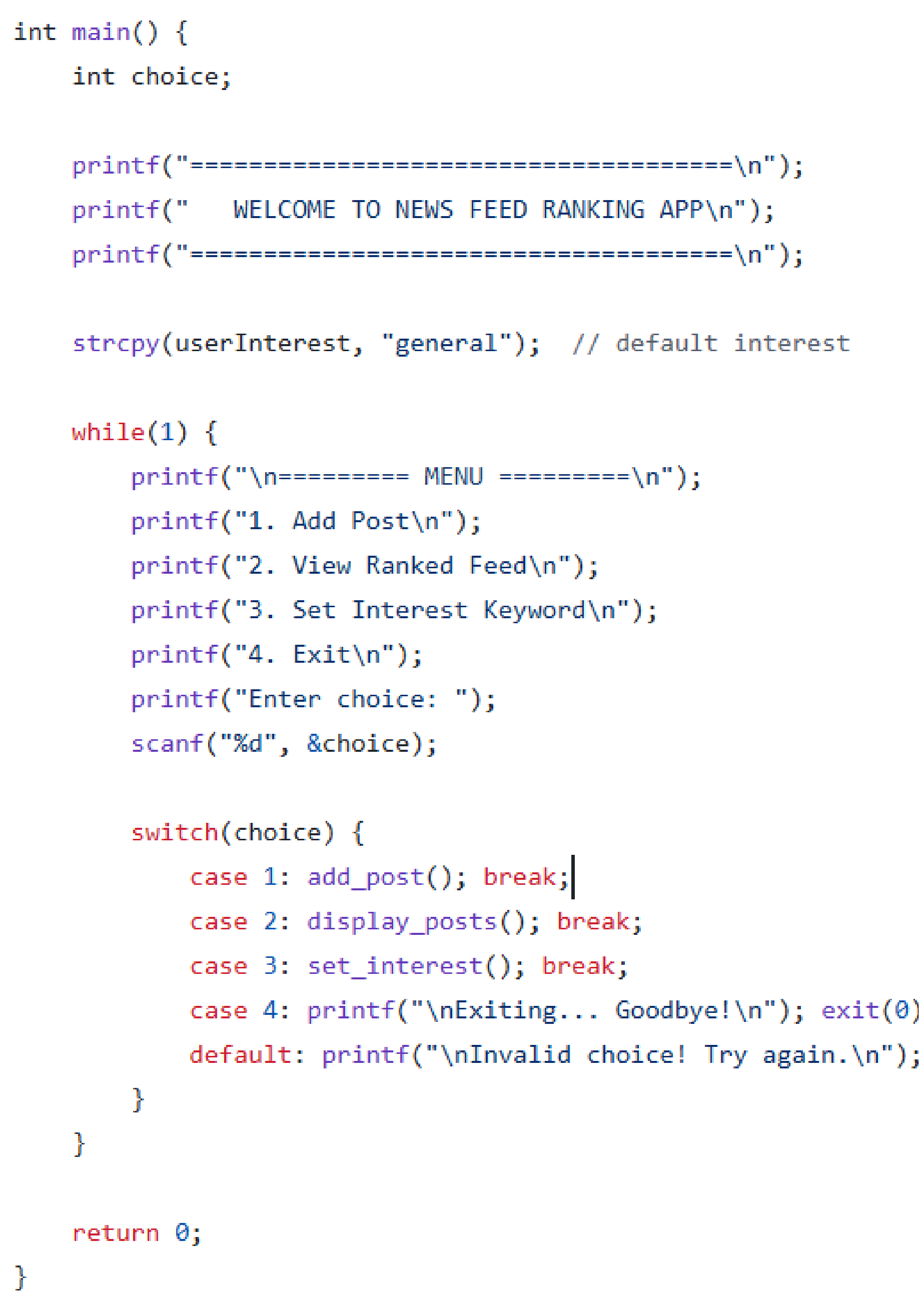
```c
// sort posts by score (descending)
void sort_posts() {
    for(int i = 0; i < postCount-1; i++) {
        for(int j = i+1; j < postCount; j++) {
            if(posts[i].score < posts[j].score) {
                Post temp = posts[i];
                posts[i] = posts[j];
                posts[j] = temp;
            }
        }
    }
}

// display posts like a table
void display_posts() {
    if(postCount == 0) {
        printf("\nNo posts available!\n");
        return;
    }

    sort_posts();

    printf("\n==================================================\n");
    printf("          NEWS FEED RANKING SYSTEM\n");
    printf("==================================================\n");
    printf("%-5s %-20s %-8s %-8s %-10s %-6s\n",
           "Rank", "Title", "Likes", "Comments", "Keyword", "Score");
    printf("--------------------------------------------------\n");

    for(int i = 0; i < postCount; i++) {
        printf("%-5d %-20s %-8d %-8d %-10s %-6d\n",
               i+1, posts[i].title, posts[i].likes, posts[i].comments, posts[i].keyword, posts[i].score);
```



```c
// add a new post
void add_post() {
    if(postCount >= MAX_POSTS) {
        printf("\nPost limit reached!\n");
        return;
    }

    Post p;
    p.id = postCount + 1;

    printf("\nEnter post title: ");
    scanf(" %[^\n]", p.title);

    printf("Enter keyword: ");
    scanf("%s", p.keyword);

    printf("Enter number of likes: ");
    scanf("%d", &p.likes);

    printf("Enter number of comments: ");
    scanf("%d", &p.comments);

    p.timestamp = time(NULL);
    p.score = compute_score(p);

    posts[postCount++] = p;

    printf("\n✅ Post added successfully!\n");
```



```c
// set user interest
void set_interest() {
    printf("\nEnter your interest keywor
    scanf("%s", userInterest);

    // update scores for all posts
    for(int i = 0; i < postCount; i++) {
        posts[i].score = compute_score(posts[i]);
    }
    printf("✅ Interest updated!\n");
}
```



```c
int main() {
    int choice;

    printf("====================================\n");
    printf("   WELCOME TO NEWS FEED RANKING APP\n");
    printf("====================================\n");

    strcpy(userInterest, "general");  // default interest

    while(1) {
        printf("\n========= MENU =========\n");
        printf("1. Add Post\n");
        printf("2. View Ranked Feed\n");
        printf("3. Set Interest Keyword\n");
        printf("4. Exit\n");
        printf("Enter choice: ");
        scanf("%d", &choice);

        switch(choice) {
            case 1: add_post(); break;
            case 2: display_posts(); break;
            case 3: set_interest(); break;
            case 4: printf("\nExiting... Goodbye!\n"); exit(0
            default: printf("\nInvalid choice! Try again.\n");
        }
    }

    return 0;
}
```

Gantt Chart

Task / Phase	Week 1	Week 2	Week 3	Week 4	Week 5
Topic Selection & Research	████████				
Requirement Analysis	████████	███			
Algorithm Design & Data Structure Selection		████████	███		
Coding (Implementation in C)		████████	████████		
Testing & Debugging			████████	███	
Report & Documentation				████████	███
PPT Preparation & Submission					████████

Conclusion

- The News Feed Ranking System successfully demonstrates how Data Structures and Algorithms can be applied to solve real-world problems such as ranking and prioritizing news content.
- By using structures for data storage and sorting algorithms for ranking, the system efficiently organizes news posts based on their relevance, likes, comments, and user interest.
- The project also highlights how a simple menu-driven program can simulate the working of large-scale news or social media recommendation systems.

Through this mini project, we learned the importance of:

- Data representation and structuring,
- Algorithmic thinking for ranking mechanisms,
- Step-by-step problem solving using DSA concepts in C language.
- Overall, the project meets its objective of combining programming logic with DSA fundamentals to build a simple yet meaningful application.

References

- https://www.geeksforgeeks.org/data-structures-and-algorithms-in-c/
- https://www.geeksforgeeks.org/sorting-algorithm
- https://www.chatgpt.com

API Reference (for real-world integration):

- GNews API – Free News Data
- NewsAPI.org – Global News REST API