**Softnerve Assignment**

**Name: Rohit Valsetwar**

**Answers:-**

**Solution for problem- 1**

#include <iostream>

using namespace std;

void findLeaders(int arr[], int n) {

// Initialize the leaders array

int leaders[n];

leaders[n - 1] = arr[n - 1];

// Start from the second last element

for (int i = n - 2; i >= 0; i--) {

// If the current element is greater than the last leader,

// make it the new leader

if (arr[i] > leaders[n - 1]) {

leaders[n - 1] = arr[i];

}

}

// Print the leaders

for (int i = 0; i < n; i++) {

if (leaders[i] != 0) {

cout << leaders[i] << " ";

}

}

}

int main() {

int arr[] = {7, 10, 4, 10, 6, 5, 2};

int n = sizeof(arr) / sizeof(arr[0]);

findLeaders(arr, n);

return 0;

}

**Solution for problem – 2**

#include <iostream>

using namespace std;

int maxProfit(int prices[], int n) {

// Initialize the minimum price and maximum profit

int minPrice = prices[0];

int maxProfit = 0;

// Loop through the prices array

for (int i = 1; i < n; i++) {

// Update the minimum price

minPrice = min(minPrice, prices[i]);

// Update the maximum profit

maxProfit = max(maxProfit, prices[i] - minPrice);

}

// Return the maximum profit

return maxProfit;

}

int main() {

int prices[] = {7, 1, 5, 3, 6, 4};

int n = sizeof(prices) / sizeof(prices[0]);

int maxProfit = maxProfit(prices, n);

cout << "The maximum profit is: " << maxProfit << endl;

return 0;

}

**Solution for Problem – 3**

#include <iostream>

using namespace std;

int sumOfSubsetXORTotals(int nums[], int n) {

// Initialize the sum of XOR totals

int sum = 0;

// Find the XOR total of each subset

for (int i = 0; i < (1 << n); i++) {

// Find the XOR of the subset

int xorTotal = 0;

for (int j = 0; j < n; j++) {

if ((i & (1 << j)) != 0) {

xorTotal ^= nums[j];

}

}

// Add the XOR total to the sum

sum += xorTotal;

}

// Return the sum

return sum;

}

int main() {

int nums[] = {1, 3};

int n = sizeof(nums) / sizeof(nums[0]);

int sum = sumOfSubsetXORTotals(nums, n);

cout << "The sum of all subset XOR totals is: " << sum << endl;

return 0;

}

**Details About my Skills:-**

1. **DSA Skills.**

In terms of technical expertise, I have a strong command of Data Structures and Algorithms (DSA) and have dedicated significant time and effort to honing my skills in this domain. I am particularly proficient in linear data structures, such as arrays, linked lists, stacks, and queues. These foundational structures form the backbone of many algorithms and are crucial in solving complex problems efficiently.

Throughout my academic and professional journey, I have consistently demonstrated my ability to apply these concepts effectively. I have successfully implemented various algorithms utilizing linear data structures to optimize time and space complexities. My proficiency in DSA and linear data structures enables me to analyze problems critically, devise innovative solutions, and implement them with precision.

1. **Hacker rank.-**

** in Problem Solving.**

**in C++ Programming.**

1. **Deep learning rating**

I have successfully completed various NLP projects, including sentiment analysis, text classification, and named entity recognition. Additionally, I have a working knowledge of Generative Adversarial Networks (GANs) and their potential in generating synthetic data. With proficiency in Python and frameworks like TensorFlow and PyTorch, I can efficiently develop and deploy Deep Learning models. I am excited about the opportunity to contribute my skills and drive innovation in your organization.

1. **Appetite of research and putting thoughts in doc**

Throughout my academic and professional journey, I have actively engaged in conducting research and translating complex ideas into clear and concise documentation. I possess a meticulous approach to gathering and analyzing information, enabling me to delve deep into diverse subjects and extract meaningful insights. Moreover, I excel at organizing and structuring my findings into well-crafted documents that effectively communicate key concepts and recommendations.

Whether it be academic research papers, technical reports, or project documentation, I have consistently demonstrated my ability to deliver high-quality outputs that are both informative and engaging. My proficiency in research methodologies, combined with my exceptional written communication skills, allows me to articulate complex ideas in a manner that is accessible to a wide range of audiences.