Bài 1

Bubble Sort

#include <stdio.h>

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

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

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

if (arr[j] > arr[j + 1]) {

int temp = arr[j];

arr[j] = arr[j + 1];

arr[j + 1] = temp;

}

}

}

}

int main() {

int arr[] = {64, 34, 25, 12, 22, 11, 90};

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

bubbleSort(arr, n);

printf("Mang sau khi sap xep: ");

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

printf("%d ", arr[i]);

}

printf("\n");

return 0;

}

Selection Sort

#include <stdio.h>

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

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

int minIndex = i;

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

if (arr[j] < arr[minIndex]) {

minIndex = j;

}

}

int temp = arr[minIndex];

arr[minIndex] = arr[i];

arr[i] = temp;

}

}

int main() {

int arr[] = {64, 34, 25, 12, 22, 11, 90};

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

selectionSort(arr, n);

printf("Mang sau khi sap xep: ");

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

printf("%d ", arr[i]);

}

printf("\n");

return 0;

}

Bài 2

Tìm kiếm tuyến tính

#include <stdio.h>

int linearSearch(int arr[], int n, int x) {

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

if (arr[i] == x) {

return i;

}

}

return -1;

}

int main() {

int arr[] = {2, 4, 6, 8, 10};

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

int x = 6;

int index = linearSearch(arr, n, x);

if (index != -1) {

printf("Phan tu %d duoc tim thay tai chi so %d\n", x, index);

} else {

printf("Phan tu %d khong duoc tim thay trong mang\n", x);

}

return 0;

}

Tìm kiếm nhị phân

#include <stdio.h>

int binarySearch(int arr[], int low, int high, int x) {

while (low <= high) {

int mid = low + (high - low) / 2;

if (arr[mid] == x) {

return mid;

} else if (arr[mid] < x) {

low = mid + 1;

} else {

high = mid - 1;

}

}

return -1;

}

int main() {

int arr[] = {2, 4, 6, 8, 10};

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

int x = 6;

int index = binarySearch(arr, 0, n - 1, x);

if (index != -1) {

printf("Phan tu %d duoc tim thay tai chi so %d\n", x, index);

} else {

printf("Phan tu %d khong duoc tim thay trong mang\n", x);

}

return 0;

}

Bài 3

#include<stdio.h>

int main(){

int i, sum =0;

int SIZE;

printf("nhap so hoc sinh la:");

scanf("%d", &SIZE);

int sumarray[SIZE];

printf("nhap so diem hoc sinh la:\n");

for(i=0; i<SIZE; i++){

printf("mhap so diem hoc sinh thu %d:", i+1);

scanf("%d", &sumarray[i]);

sum += sumarray[i];

}

printf("tinh tong so diem cua cac hoc sinh : %d\n", sum);

float average = (float)sum / SIZE;

printf("diem trung cua cac hoc sinh la :%.2f\n", average);

return 0;

}