PRIMS :

#include <stdio.h>

#include <time.h>

#define MAX 50

void swap(int \*a, int \*b) {

int t = \*a;

\*a = \*b;

\*b = t;

}

int partition(int a[], int low, int high) {

int pivot = a[high];

int i = low - 1;

for (int j = low; j < high; j++) {

if (a[j] < pivot) {

i++;

swap(&a[i], &a[j]);

}

}

swap(&a[i + 1], &a[high]);

return i + 1;

}

void quicksort(int a[], int low, int high) {

if (low < high) {

int p = partition(a, low, high);

quicksort(a, low, p - 1);

quicksort(a, p + 1, high);

}

}

int main() {

int a[MAX], n;

clock\_t start, end;

printf("Enter the number of elements in the array:\n");

scanf("%d", &n);

if (n <= 0 || n > MAX) {

printf("Invalid number of elements. Please enter a value between 1 and %d.\n", MAX);

return 1;

}

printf("Enter the elements:\n");

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

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

}

printf("Before Sorting:\n");

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

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

}

printf("\n");

start = clock();

quicksort(a, 0, n - 1);

end = clock();

printf("Sorted Array:\n");

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

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

}

printf("\n");

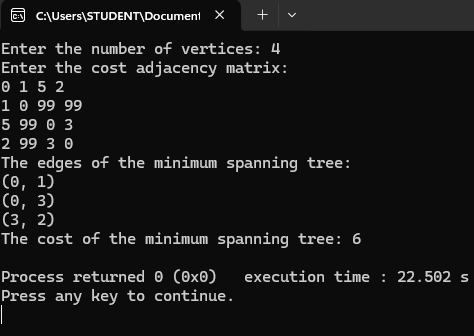
double time\_taken = (double)(end - start) / CLOCKS\_PER\_SEC;

printf("Time taken for sorting: %f seconds\n", time\_taken);

return 0;

}

OUTPUT:

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