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Data Structure & Algorithm Assignment 2

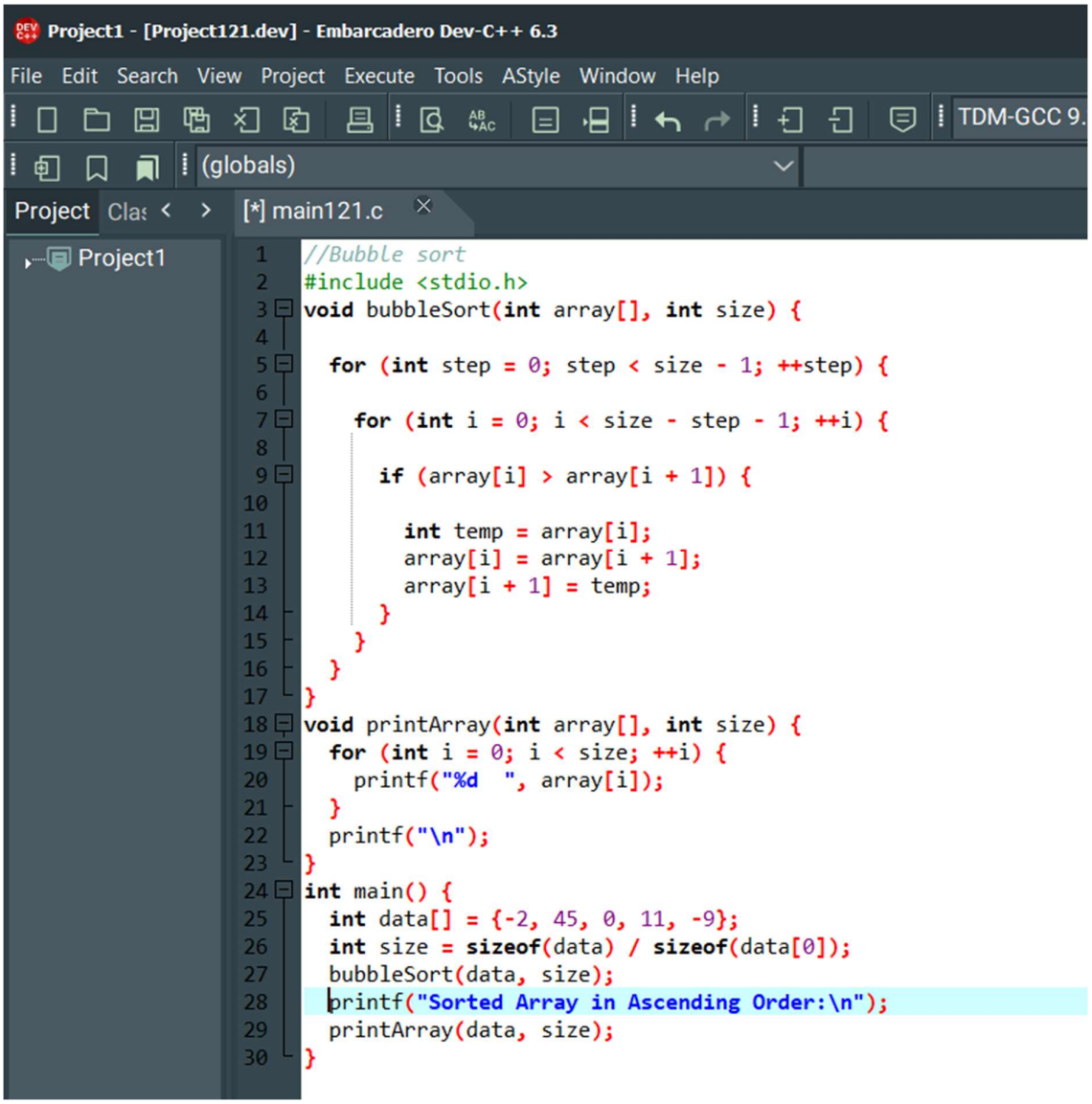
Implement the following sort algorithm using a function

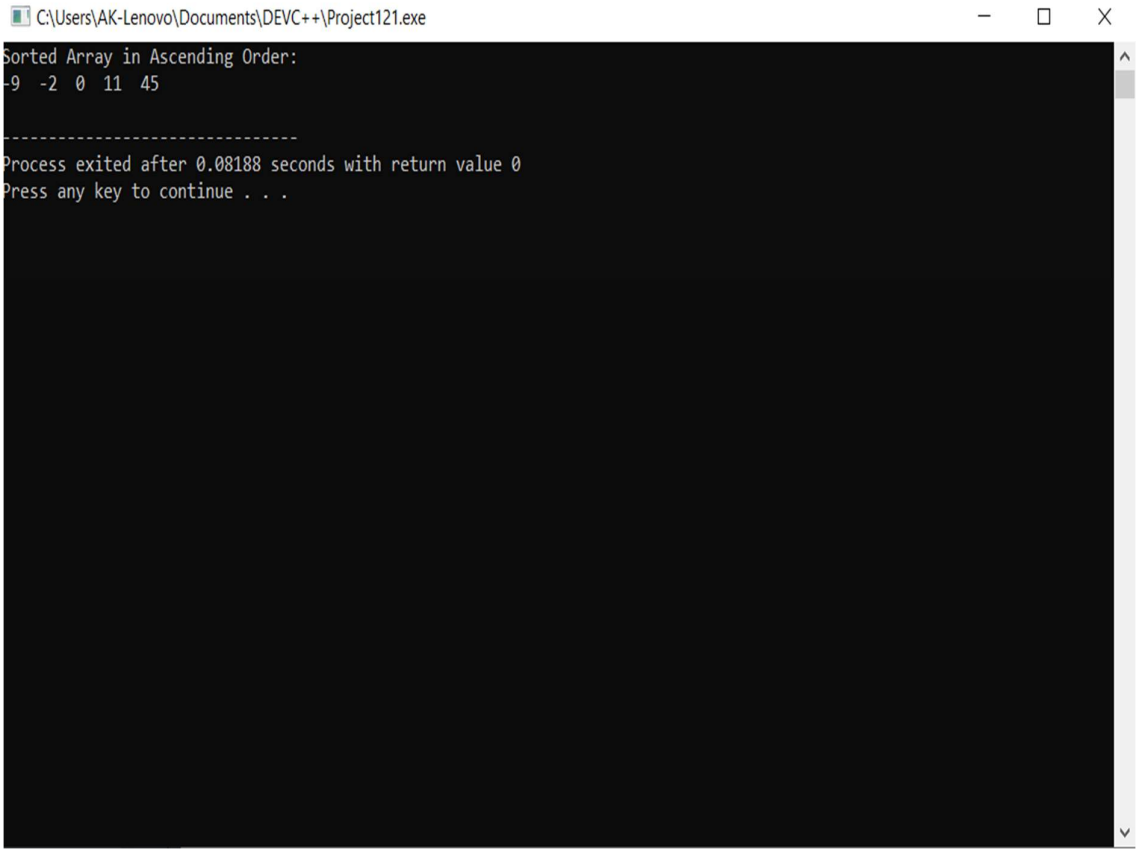
(Separate programs or using the menu):

1. Bubble sort

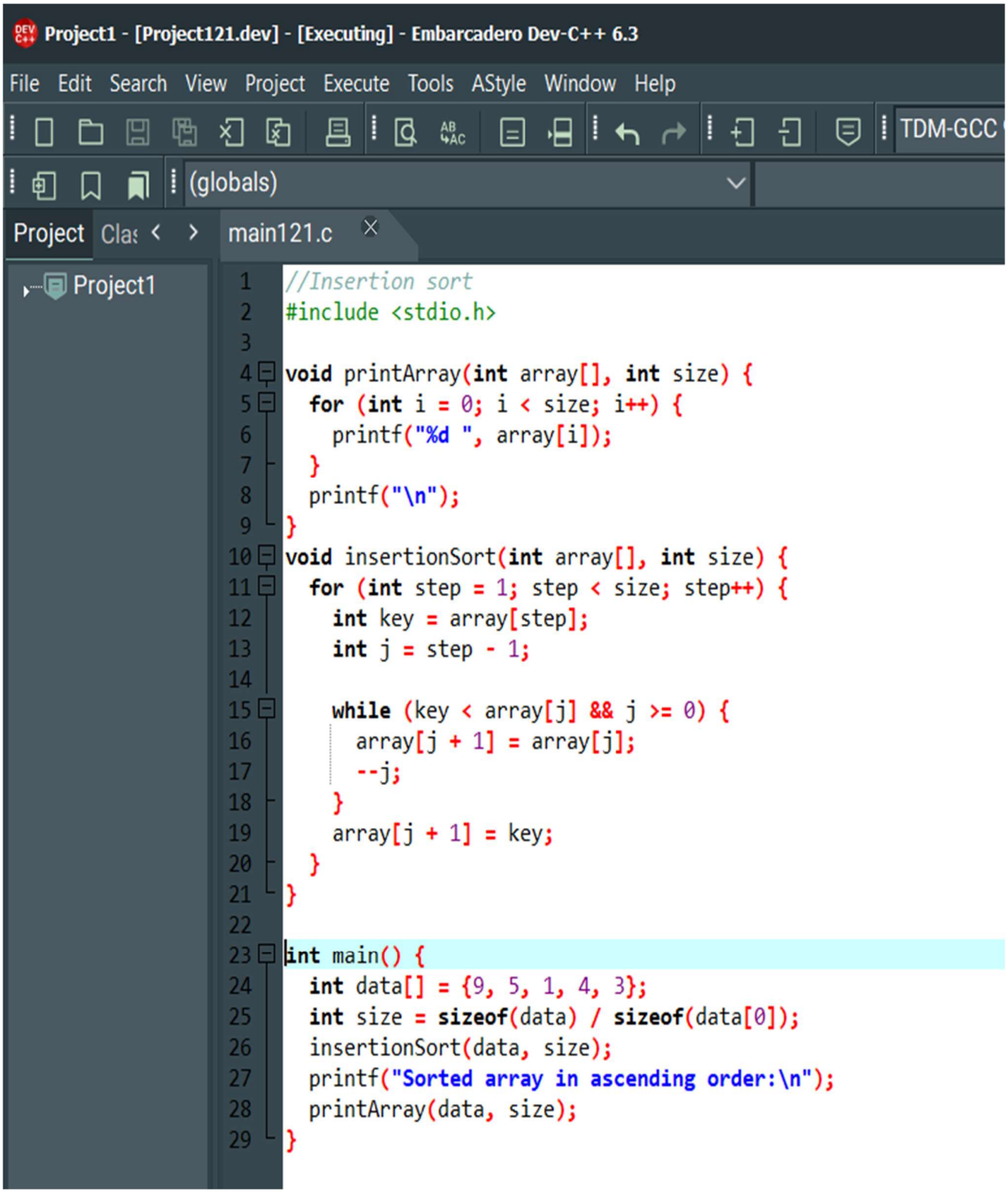
2. Insertion sort

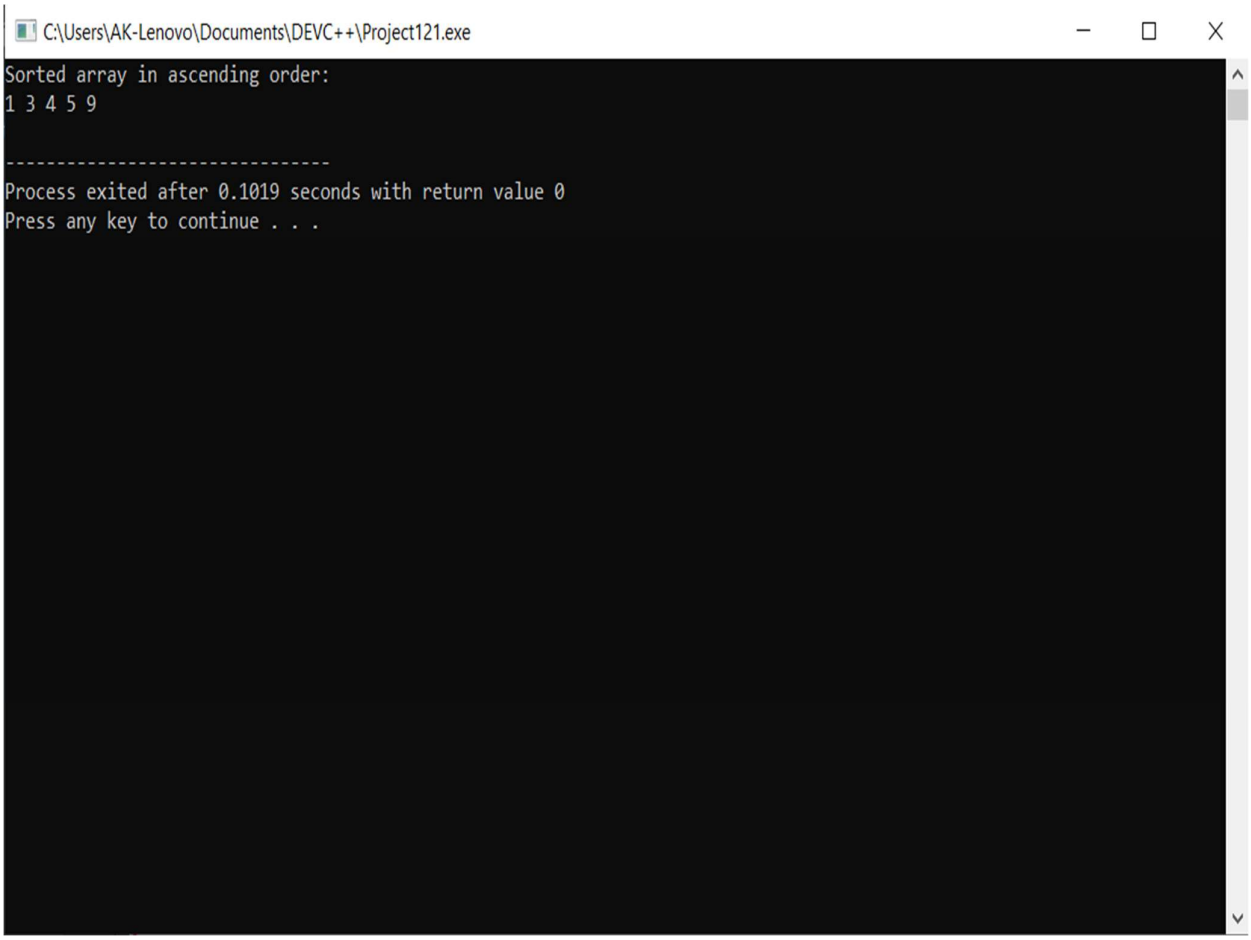
3. Selection sort



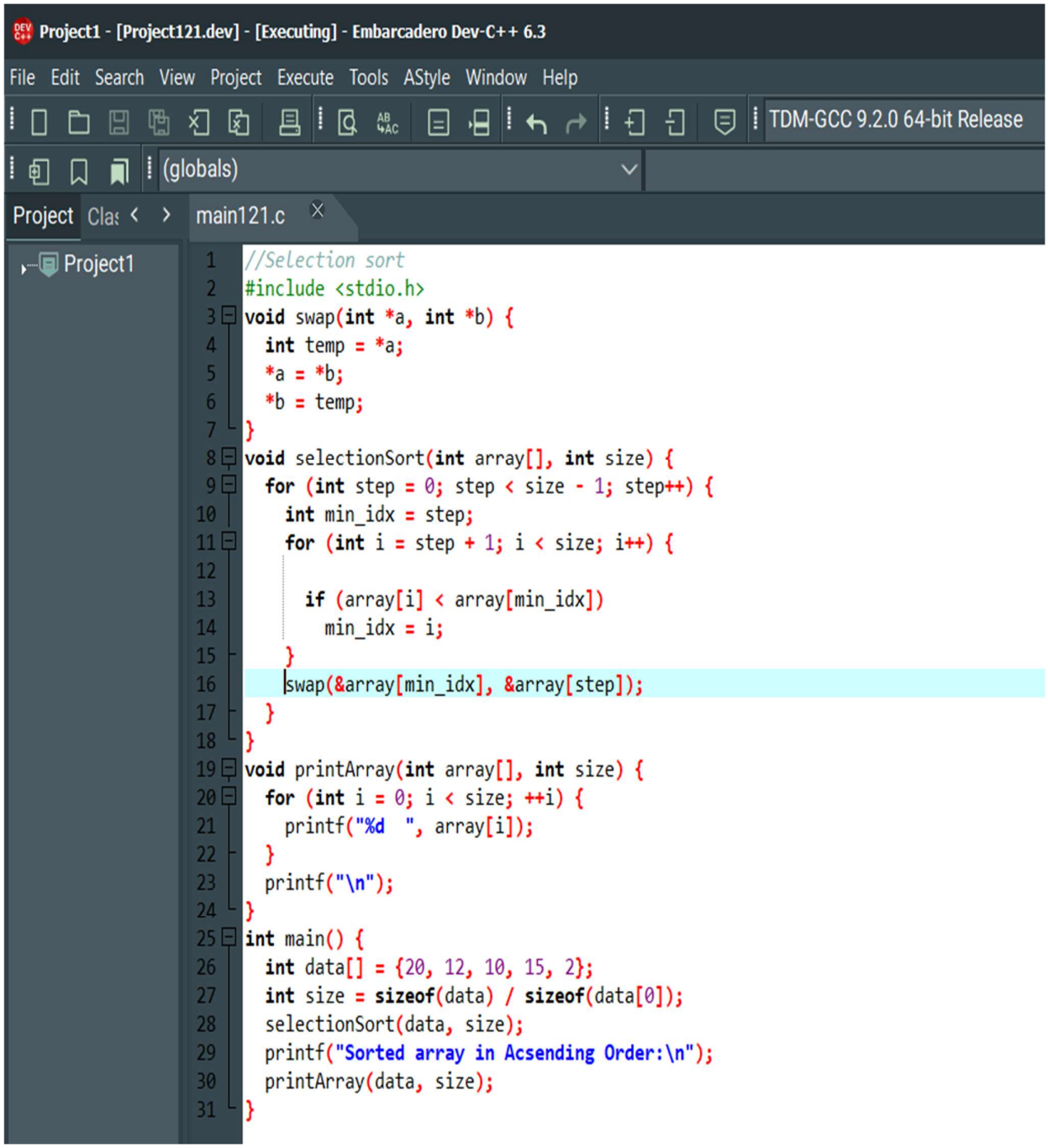

C:\Users\AK-Lenovo\Documents\DEVC++\Project121.exe
Sorted Array in Ascending Order:
-9 -2 0 11 45

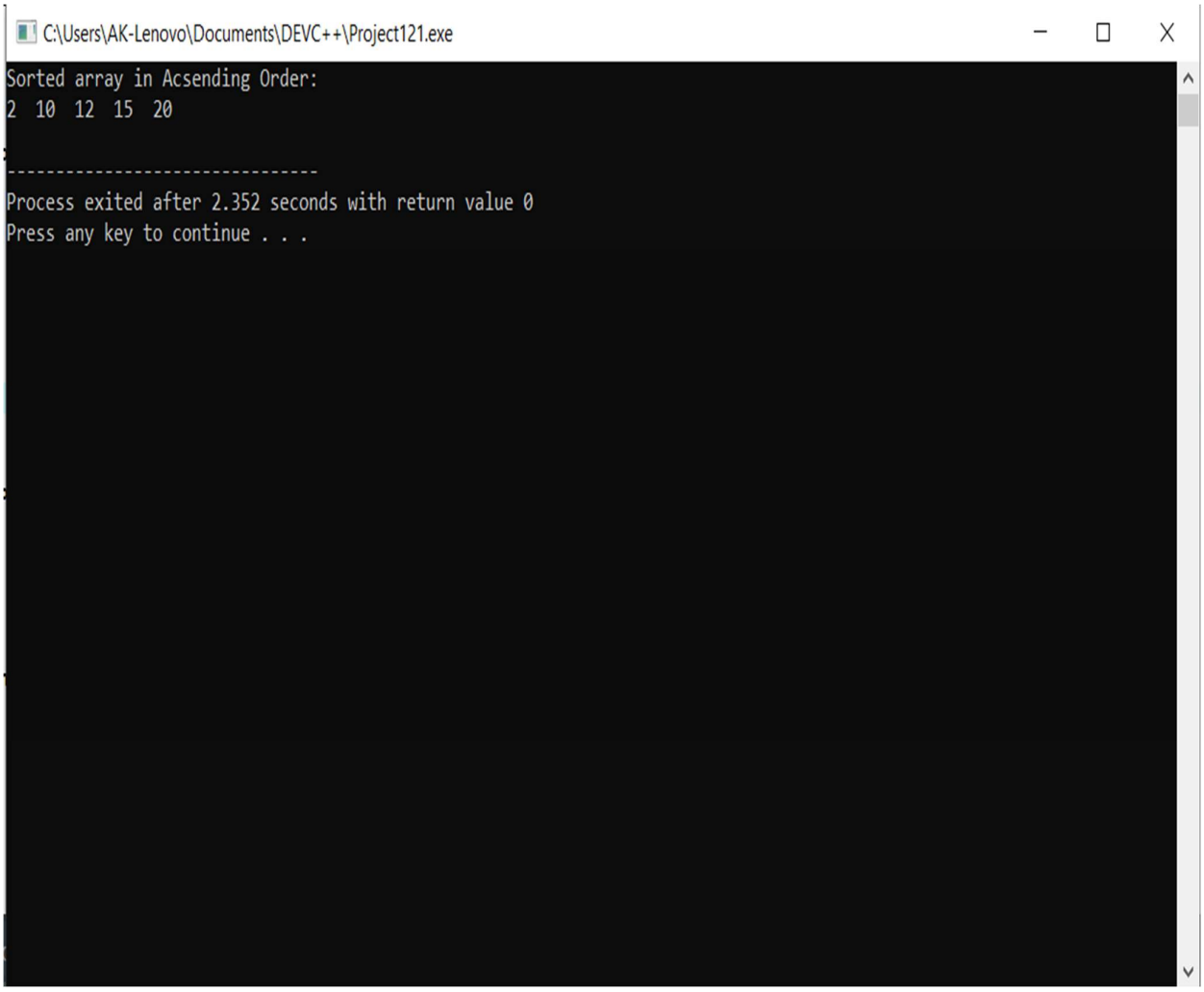
Process exited after 0.08188 seconds with return value 0
Press any key to continue . . .


Project1 - [Project121.dev] - [Executing] - Embarcadero Dev-C++ 6.3
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC
(globals)
Project Clas
main121.c
Project1
//Insertion sort
#include <stdio.h>
void printArray(int array[], int size) {
for (int i = 0; i < size; i++) {
printf("%d ", array[i]);
}
printf("\n");
}
void insertionSort(int array[], int size) {
for (int step = 1; step < size; step++) {
int key = array[step];
int j = step - 1;
while (key < array[j] && j >= 0) {
array[j + 1] = array[j];
--j;
}
array[j + 1] = key;
}
}
int main() {
int data[] = {9, 5, 1, 4, 3};
int size = sizeof(data) / sizeof(data[0]);
insertionSort(data, size);
printf("Sorted array in ascending order:\n");
printArray(data, size);
}


C:\Users\AK-Lenovo\Documents\DEVC++\Project121.exe
Sorted array in ascending order:
1 3 4 5 9

Process exited after 0.1019 seconds with return value 0
Press any key to continue . . .


Project1 - [Project121.dev] - [Executing] - Embarcadero Dev-C++ 6.3
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 9.2.0 64-bit Release
(globals)
Project
main121.c
Project1
//Selection sort
#include <stdio.h>
void swap(int *a, int *b) {
int temp = *a;
*a = *b;
*b = temp;
}
void selectionSort(int array[], int size) {
for (int step = 0; step < size - 1; step++) {
int min_idx = step;
for (int i = step + 1; i < size; i++) {
if (array[i] < array[min_idx])
min_idx = i;
}
swap(&array[min_idx], &array[step]);
}
}
void printArray(int array[], int size) {
for (int i = 0; i < size; ++i) {
printf("%d ", array[i]);
}
printf("\n");
}
int main() {
int data[] = {20, 12, 10, 15, 2};
int size = sizeof(data) / sizeof(data[0]);
selectionSort(data, size);
printf("Sorted array in Acsending Order:\n");
printArray(data, size);
}


C:\Users\AK-Lenovo\Documents\DEVC++\Project121.exe
Sorted array in Acsending Order:
2 10 12 15 20

Process exited after 2.352 seconds with return value 0
Press any key to continue . . .