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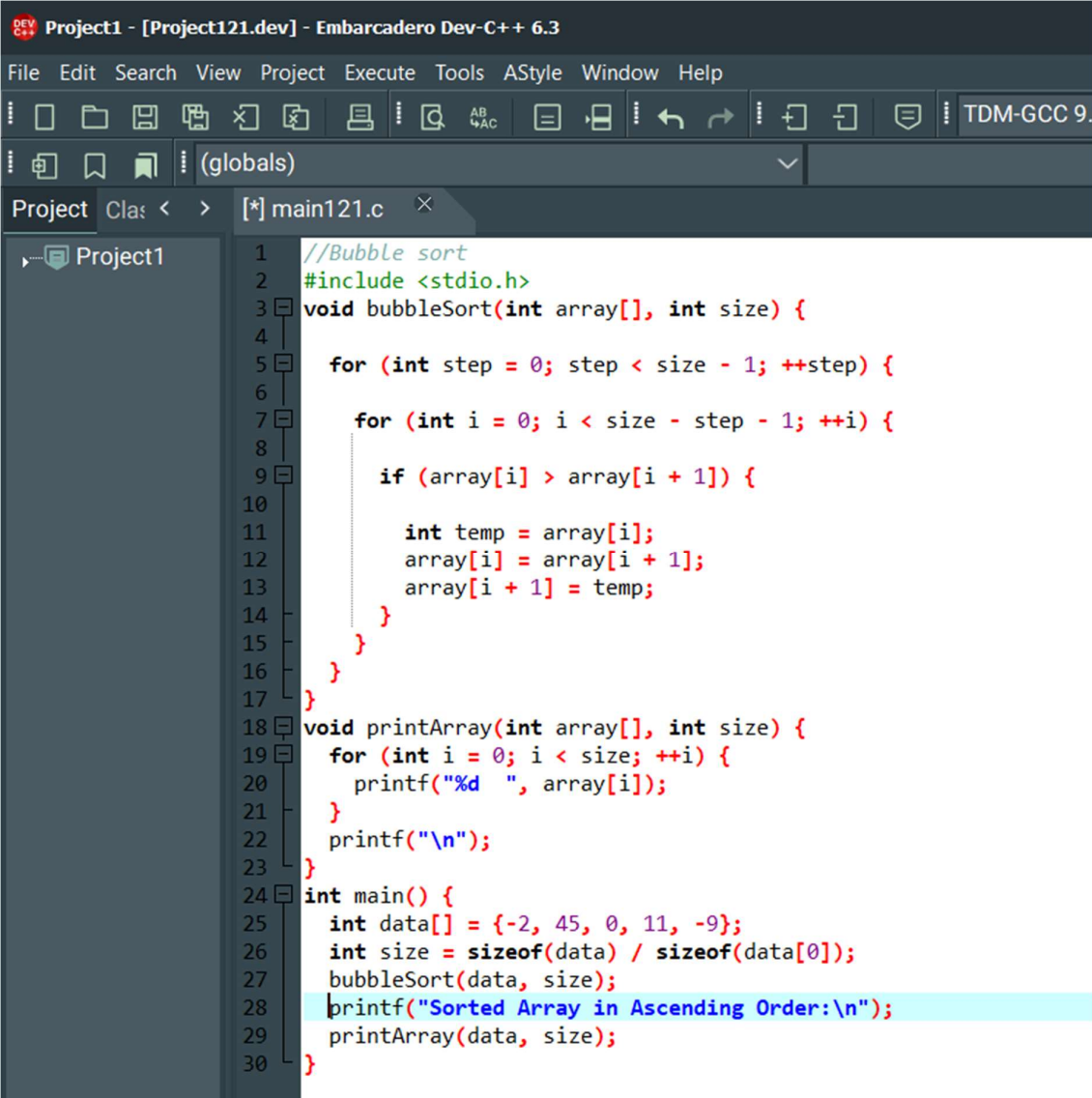
PRN- 21070126006

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



```
Project1 - [Project121.dev] - Embarcadero Dev-C++ 6.3
File Edit Search View Project Execute Tools AStyle Window Help
(globals)
Project Clas < > [*] main121.c x
Project1
1 //Bubble sort
2 #include <stdio.h>
3 void bubbleSort(int array[], int size) {
4
5     for (int step = 0; step < size - 1; ++step) {
6
7         for (int i = 0; i < size - step - 1; ++i) {
8
9             if (array[i] > array[i + 1]) {
10
11                 int temp = array[i];
12                 array[i] = array[i + 1];
13                 array[i + 1] = temp;
14             }
15         }
16     }
17 }
18 void printArray(int array[], int size) {
19     for (int i = 0; i < size; ++i) {
20         printf("%d ", array[i]);
21     }
22     printf("\n");
23 }
24 int main() {
25     int data[] = {-2, 45, 0, 11, -9};
26     int size = sizeof(data) / sizeof(data[0]);
27     bubbleSort(data, size);
28     printf("Sorted Array in Ascending Order:\n");
29     printArray(data, size);
30 }
```

C:\Users\AK-Lenovo\Documents\DEV++\Project121.exe

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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 . . .

DEV C++ 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

```
1 //Insertion sort
2 #include <stdio.h>
3
4 void printArray(int array[], int size) {
5     for (int i = 0; i < size; i++) {
6         printf("%d ", array[i]);
7     }
8     printf("\n");
9 }
10 void insertionSort(int array[], int size) {
11     for (int step = 1; step < size; step++) {
12         int key = array[step];
13         int j = step - 1;
14
15         while (key < array[j] && j >= 0) {
16             array[j + 1] = array[j];
17             --j;
18         }
19         array[j + 1] = key;
20     }
21 }
22
23 int main() {
24     int data[] = {9, 5, 1, 4, 3};
25     int size = sizeof(data) / sizeof(data[0]);
26     insertionSort(data, size);
27     printf("Sorted array in ascending order:\n");
28     printArray(data, size);
29 }
```

C:\Users\AK-Lenovo\Documents\DEV++\Project121.exe

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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 . . .

DEV 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 Cla: < > main121.c

```
1 //Selection sort
2 #include <stdio.h>
3 void swap(int *a, int *b) {
4     int temp = *a;
5     *a = *b;
6     *b = temp;
7 }
8 void selectionSort(int array[], int size) {
9     for (int step = 0; step < size - 1; step++) {
10         int min_idx = step;
11         for (int i = step + 1; i < size; i++) {
12             if (array[i] < array[min_idx])
13                 min_idx = i;
14         }
15         swap(&array[min_idx], &array[step]);
16     }
17 }
18 void printArray(int array[], int size) {
19     for (int i = 0; i < size; ++i) {
20         printf("%d ", array[i]);
21     }
22     printf("\n");
23 }
24 int main() {
25     int data[] = {20, 12, 10, 15, 2};
26     int size = sizeof(data) / sizeof(data[0]);
27     selectionSort(data, size);
28     printf("Sorted array in Ascending Order:\n");
29     printArray(data, size);
30 }
31 }
```

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

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