

**Recep Tayyip Erdogan University**

**Faculty of Engineering and Architecture**

**Computer Engineering**

CE103- Algorithms and Programming I

**Homework-3 (Week-11)**

**Fall Semester, 2020-2021**

| Instructor | Asst. Prof. Dr. Uğur CORUH |
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| Google Classroom Code | **ouw44uk** |
| Publish Date | **20.12.2020** |
| Due Date | **31.12.2020 23:59** |

**Complete the following homework requirements, prepare them in the format given in the link below until the deadline and time, and upload them to the related assignment in the classroom.**

<https://drive.google.com/file/d/1yqSXZZ3346iIqotb_e_yzaryfxEXE0fR/view?usp=sharing>

**Grades:**

| Problem-1 | 20 points |
| --- | --- |
| Problem-2 | 20 points |
| Problem-3 | 30 points |
| Problem-4 | 30 points |
| **Total** | **100** points |

*You will develop the following examples in C language. The examples with C ++ will not be accepted.*

NOTE: In the code, add the following information with printf. Put the description of each application in the problem part.

*int main(void)*

*{*

*printf("Build Time: %s %s\n", \_\_DATE\_\_, \_\_TIME\_\_);*

*printf("Owner: Name Surname\n");*

*printf("Student ID: 11111111\n");*

*printf("Course: CE-103\n");*

*printf("Homework: 1\n");*

*printf("Problem: “Printing the Text Entered on the Screen in Reverse \n");*

*... your codes...*

*}*

**Problem-1**: *Selection Sort Implementation (20 points)*

In this application you will develop a C program read inputs from console such as C:>sort.exe 1 2 45 4 56 9 and will show sorted array on the screen. But you will show each step with printf(“”)

**Problem-2**: *Insertion Sort Implementation (20 points)*

In this application you will develop a C program read inputs from console such as C:>sort.exe 1 2 45 4 56 9 and will show sorted array on the screen. But you will show each step with printf(“”)

**Problem-3**: *Merge Sort (Recursive) Implementation (30 points)*

In this application you will develop a C program read inputs from console such as C:>sort.exe 1 2 45 4 56 9 and will show recursive sorted array on the screen. But you will show each step with printf(“”)

**Problem-4**: *Binary Search Implementation (30 points) with Recursive Merge Sort*

In this application you will develop a C program read inputs from console such as C:>search.exe 1 2 45 4 56 9 and will take search input from scanf such 9 and application will return unsorted array index such as 6 for 9. If not exist then will write “not found” Remember 1=1 2=2 3=45 4=4 5=56 6=9. You cannot use binary search for unsortted array so you will use merge sort for this operation. Also you will show each step with printf(“”).

**Note : Please provide source code of applications with your reports**