# **Project 1 – 20 marks**

# Section 1.3 -Sorting algorithms

**Objectives**: The objectives of this project are:

1. Implement selectionSort and CountingSort algorithms of section 1.3 using C language. Use the given C template file.
2. Run the two algorithms to sort arrays of size *n* varying from 102 to 109.
3. The elements of the array should be generated randomly and stored in a text file in order to test both algorithms with the same data.
4. Measure the running times of the two algorithms to sort the arrays. Fill the given table.
5. Prepare a one-page report to analyze the obtained results.

|  |  |  |
| --- | --- | --- |
| ***n*** | **Time taken by Selection sort**  **(in seconds)** | **Time taken by Counting sort**  **(in seconds)** |
| 102 |  |  |
| 103 |  |  |
| 104 |  |  |
| 105 |  |  |
| 106 |  |  |
| 107 |  |  |
| 108 |  |  |
| 109 |  |  |

**Marking scheme**:

* Submit the C code file(s) (do not copy and paste in word or convert into pdf): **12 marks.**
* The report: **8 marks.**