**National University of Computer &**

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**Parallel Programming - Comparison of Sorting Algorithms**

**Project Report**

**Operating System**

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# Introduction

This project is dedicated to compare 3 sorting algorithms based on OpenMp, Pthreads and Serial. We will also be implementing all of this on three different flavors of Linux.

# Project Specification

**Algorithms.**

* Bubble Sort
* Insertion Sort
* Quick Sort

**Methods**

* OpenMp
* Pthreads
* Serial

**Tools, and Technologies:**

Programming Language: C language

Platforms:

* Kali Linux 2021.3
* Linux mint 20.02
* Ubuntu 20.04

Plotting tool: GNUPLOT

# Problem Analysis

**Problem:** comparing the difference in time complexities when sorting algorithms are implemented using different multiprogramming methods on different flavors of Linux

# Solution Design

All the sorting algorithms are written 3 times using OpenMp, Pthreads and serial. Then each one is compiled and run. The results are plotted using GNUPLOT so the time complexities of all the methods can be visualized through a graph.

# Implementation

Implemented the algorithms on Kali Linux, Linux mint and Ubuntu.

# Results

The end result can be found that the time taken for the algorithms is different on the different flavors of Linux.

# Acknowledgement

Different GitHub repositories were used to find the algorithms that are used in the project