**SAVEETHA SCHOOL OF ENGINEERING**

**SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Academic Year 2023-24**

**Operating Systems - CAPSTONE PROJECT**

**Course Code & Name:** CSA0491 & Operating Systems for Process Scheduling

**Course Faculty:** Dr G. Mary Valentina

**Distributed OS Chat: Developing a Distributed Multi-User Chat System for Operating Systems with Python**

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* 1. **Objective:**

The objective of this project is to design, implement, and evaluate Distributed OS Chat, a distributed multi-user chat system developed using Python. Our aim is to create a robust and scalable platform that facilitates seamless communication among users, irrespective of their operating systems. The key objectives include defining a scalable architecture for Distributed OS Chat, leveraging Python's networking capabilities to ensure real-time communication, and ensuring cross-platform compatibility to enable users on different operating systems to interact effortlessly. Additionally, we will evaluate the performance of Distributed OS Chat under various conditions to assess its scalability and reliability. Through comprehensive documentation, we aim to make Distributed OS Chat accessible to developers and end-users, fostering widespread adoption and understanding of the system's architecture, implementation, and usage..

* 1. **Introduction**

In an age defined by the interconnectedness of global networks and the pervasive integration of technology into everyday life, the need for efficient and seamless communication platforms has never been more pressing. From remote collaboration to real-time information sharing, the demand for robust, scalable, and user-friendly chat systems spans industries and communities worldwide. However, traditional centralized architectures often struggle to meet the demands of modern distributed environments, where users are dispersed across diverse operating systems and geographic locations. Recognizing these challenges, we introduce Distributed OS Chat-a pioneering solution designed to transcend the limitations of existing chat systems by harnessing the power of distributed computing and the versatility of the Python programming language. Distributed OS Chat is not merely another chat application; it represents a paradigm shift in how we conceive and implement real-time communication in distributed operating environments. By combining cutting-edge distributed computing principles with the simplicity and accessibility of Python, Distributed OSChat aims to redefine the landscape of multi-user chat systems, offering a scalable, reliable and platform-agnostic solution for the interconnected world of tomorrow.

* 1. **Literature Review:**

Distributed Systems and networking: Start by exploring foundational literature on distributed systems, including principles of distributed computing, network protocols, and architectures. This might include seminal texts like "Distributed Systems: Principles and Paradigms" by Andrew S. Tanenbaum and Maarten Van Steen.   
Developing and Implementation of Distributed Chat Applications using WPF and WCF - The development of distributed chat applications involves several tools and technologies. In particular, the researcher describes an application that provides multi chatting between computers on the Internet by [Daadoo, Motaz](https://scholar.ptuk.edu.ps/browse?type=author&value=Daadoo%2C+Motaz).

* 1. **Gantt Chart**