HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY

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Parallel and Distributed Programming

Course: IT4130E

Capstone Project Report

Topic: A Parallel Implementation of Gauss-Seidel Algorithm using MPI

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# Introduction

This report presents the use case diagrams and specifications of some notable use cases of our Capstone Project for the course Introduction to Software Engineering. We present the general use case diagram for our system, the BKFood platform, and some specific use case diagrams for each actor and functionality. We then provide specifications for five use cases of our system that we find to be most significant and distinctive.

# Gauss-Seidel Method

First, we go through briefly the requirements of our system. BKFood is a user-friendly platform that connects HUST students with dining establishments that meets their needs, providing a seamless and community-driven dining experience. It offers students with the options of:

# Sequential Algorithm Design

## 

# Parallel Algorithm Design

# Experiments and Results

To further describe the functionalities of the BKFood system, we present specifications for five selected use cases:

* *View Post List*
* *Edit Own Post*, as part of the *Manage Own Post* use case
* *View Other’s Profile*
* *Add Dish to Menu*, as part of the *Manage Menu* use case
* *Edit Sharer’s Post*, as part of the *Moderate Posts* use case

## Input Data

## Experimental Environment

## Results and Discussion

# Conclusion

In this study,