**Gebze Technical University**

**Computer Engineering**

**CSE 222 - 2018 Spring**

**HOMEWORK 5 REPORT**

**SEZER DEMİR**

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Course Assistant:

# INTRODUCTION

## Problem Definition

Reading pixels of an image file and holding them in max priority queues then deleting them by multi-threads.

## System Requirements

JDK 1.8 or high JDK version must be installed. OS is not important since program is written with Java.

# METHOD

## Class Diagrams

## Use Case Diagrams

How is this software supposed to be used? What is expected of the user? What is that button for? Is the user supposed to press it, click it, punch it? Explain step by step how the user(s) are supposed to/expected to use your software - with diagrams if necessary.

## Problem Solution Approach

## I have written 3 different comparator class for each comparasion method and Pixel class to hold red, green and blue rgb values of pixels of image file. I read the image file with BufferedImage class and create Pixel objects and save them in my own priority queues. Inserting is handled by thread1 and thread2,thread3,thread4 delete pixels from queues at the same time. I used synchronized keyword and notify, wait methods to handle multi-threading.

# RESULT

## Test Cases

How did you test your program? How did you validate that it’s actually working?

## Running Results

Provide examples of execution; screenshots, sample output, etc.

|  |  |  |  |
| --- | --- | --- | --- |
| Pixel | LEXComparator | EUCComparator | BMXComparator |
| getRed() = O(1) | compare() = O(1) | compare() = O(1) | compare() = O(1) |
| getGreen() = O(1) |  |  | binaryForm() = O(1) |
| getBlue() = O(1) |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| DeletionThread | PriorityQueue | ImageReading |  |  |
| run() = O(n) | insert() = O(n) | run() = O(n) |  |  |
|  | remove() = O(1) |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |