**INTERNATIONAL UNIVERSITY**

**VIETNAM NATIONAL UNIVERSITY – HO CHI MINH CITY**

**School of Computer Science and Engineering**

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Ảnh có chứa vòng tròn, biểu tượng, văn bản, Nhãn hiệu

Mô tả được tạo tự động

**PROJECT REPORT**

**STORE MANAGER**

**Advisor: Dr Tran Thanh Tung and Thai Trung Tin**

**Course: ALGORITHMS AND DATA STRUCTURES**

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**CHAPTER 1: INTRODUCTION**

1. **Objectives**

The goal of the project is to develop a system that analyzes Java source code using advanced data structures and algorithms. The key objectives are as follows:

* **Efficient Data Handling**: The system is designed to utilize suitable data structures, such as trees and linked lists, to effectively manage and organize the data under analysis. By employing a tree structure, it facilitates quick retrieval and storage of information related to products and purchase records.
* **Optimized Searching and Sorting**: A focus on implementing algorithms that enhance the speed of searching and sorting operations is paramount. The use of sorted linked priority queues enables efficient management and retrieval of data based on specific criteria, ensuring rapid access to relevant information.
* **Robust Exception Handling**: It is essential for the system to incorporate effective exception handling, particularly when managing file operations and user inputs. This capability guarantees that the analysis process remains reliable and robust, allowing for meaningful feedback even in the event of errors.
* **Scalability**: The algorithms and data structures are crafted to scale effectively with the increasing size of data. As the volume of the codebase or analyzed data expands, the system will maintain its performance without significant degradation.
* **User-Friendly Interaction**: By structuring data and algorithms to support clear outputs and interfaces, the system aims to enhance user interaction. This includes providing detailed explanations of code functionality and structure, thereby simplifying the interpretation of analysis results for developers.

1. **The Tools Used**

* IDE for programming and debugging: IntelliJ, VSCode.
* Design: Piskel, Simple2DTileEditor.
* Java Development Kit: 21.
* Mean of code version management: GitHub.
* Means of contacting: Facebook

Figure 1: GitHub statistics

**CHAPTER 2: TIME COMPLEXITY**

1. **List of Time Complexity**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Algorithm / DataStructure | Best Time Complexity | Average Time Complexity | Worst Time Complexity | Worst Space Complexity |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

*Table 1: List of class and responsibility*

**CHAPTER 3: DATA STRUCTURE**

1. **Binary Search Tree**
2. **Graph**
3. **Queue**

**CHAPTER 4: ALGORITHM**



**CHAPTER 5: DEMO**

[Click here to view:](https://drive.google.com/file/d/1CLsoQxugP8uQHXMjLca8d3_UI-HAwY3w/view?usp=sharing" \o "Click here to view)

**CHAPTER 7: CONCLUSION AND FUTURE WORKS**

1. **Conclusion**
2. **Future works**

1. **Acknowledgment**

We would like to convey our deepest appreciation to our instructor and individuals who assisted us in reaching the goals of this project:

* Dr. Tran Thanh Tung and MSc. Thai Trung Tin
* Original code from

**REFERENCES**