**Assignment 02**

Group T\_B\_T

Member list:

|  |  |  |
| --- | --- | --- |
| Name | Student ID | Main Focus |
| Nguyễn Mạnh Tiến | HE130912 | Main coder |
| Lê Bật Bảo | HE140354 | Supportive coder, tester |
| Đinh Bá Khánh Trung | HE140257 | UI and analyzing coder, reporter |

Binary search tree :

|  |  |
| --- | --- |
| Function | Complexity |
| 1. Load data from file 2. Input & insert data 3. In-order traverse 4. Breadth-first traverse 5. In-order traverse to file 6. Search by pcode 7. Delete by pcode by copying 8. Simply balancing 9. Count number of products | O(n)  O(log(n))  O(n)  O(n)  O(n)  O(log(n))  O(log(n))  O(log (n))  O(log (n)) |

Linked lists:

|  |  |
| --- | --- |
| Function | Complexity |
| 1. Load data from file 2. Input & insert data 3. Display data 4. Save customer list to file 5. Search by ccode 6. Delete by ccode 7. Sort  by pcode (bubble sort) | O(n)  O(1)  O(n)  O(n)  O(n)  O(1)  O() |

Compare to Array:

Insert: O(n)

Search: O(n)

Delete: O(n)

Solutions:

- Single linked list

- Binary search tree

- In function 1 we use createNewFile() method of the File class to create a new file if it doesn’t exist and RandomAccessFile to read data from .txt file.

Implementation:

- NetBeansIDE 8.0.2

- Link to GitHub: