

FACULTY OF APPLIED SCIENCES AND COMPUTING

TUNKU ABDUL RAHMAN UNIVERSITY COLLEGE

**BACS2063** Data Structures and Algorithms

**Assignment**

**Semester 1**

**2017/2018**

|  |  |  |
| --- | --- | --- |
| Programme | : | RSD2 |
| Tutorial Group | : | G2 |
| Date Submitted | : | 26/12/2017 |
| Tutors | : | [**Ms Kathleen**](https://classroom.google.com/u/2/c/ODY2MDk0ODU1NFpa/a/MTAzNDAxMTI4NDZa/details) **Tan Swee Neo** |

**Team Members:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Student Name** | **Student ID** | **Marks** | **Signature** |
| 1. | Chow Swee Tung |  |  |  |
| 2. | Ng Pei Xiang |  |  |  |
| 3. | Gan Zhen Jie |  |  |  |
| 4. | Lim Fang Chun |  |  |  |
| 5. | Chiong Yik Foong |  |  |  |

**Declaration**

**We confirm that we have read and shall comply with all the terms and conditions of TAR University College’s plagiarism policy.**

**We declare that this assignment is free from all forms of plagiarism and for all intents and purposes is my own properly derived work.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Signature | : |  |  |  |
| Name | : |  |  |  |
| Date | : |  |  |  |

**Table Content**

|  |  |  |
| --- | --- | --- |
| No | Title | Page(s) |
| 1 | Part 1 : ADT Specificication | 4 - 6 |
| 2 | Part 2: ADT Implementation | 7 |
| 3 | Part 3 : Soft Code | 8 |

**Part 1: ADT Specification**

ADT LINKED LIST

Linked list is an ordered set to store set of data elements which contains a link that an element data connects to other element data.

**Public void add(T newEntry)**

Description: Add the new entry into a set of list at the last.

Precondition: The new entry does not exist in the list.

Postcondition: The new entry has successfully added into the list at the last.

**Public void add(T newEntry, int newPosition)**

Description: Add the new entry into the list according to a given position.

Precondition: The given position cannot less than 1 and more than total of entries.

Postcondition: The new entry has successfully added into the list according to the given position.

**Public T remove(int givenPosition)**

Description: Remove the entry from the list according the given position.

Precondition: The current entry must exist in the list.

Postcondition: The current entry has successfully removed from the list and the list is connected back.

Return: Return the entry according to the given position, otherwise return null value.

**Public void replace(T newEntry,int givenPosition)**

Description: Replace the specified entry exists in the list according the given position.

Precondition: The current entry must exist in the list.

Postcondition: The new entry has successfully replaced from the list.

**Public T getFirst()**

Description: Get the first of the entry in the list.

Precondition: The list must consist of entry.

Postcondition: The list is remained unchanged.

Return: Return the first entry of data from the list, otherwise return null value.

**Public T getEntry(int givenPosition)**

Description: Get the entry in the list according the given position.

Precondition: The list must consist of entry.

Postcondition: The list is remained unchanged.

Return: Return the entry of data from the list according the given position, otherwise return null value.

**public T getLast()**

Description: Get the last of the entry in the list.

Precondition: The list must consist of entry.

Postcondition: The list is remained unchanged.

Return: Return the last entry of data from the list, otherwise return null value.

**public int getTotalEntries()**

Description: Get the total number of entries in the list.

Precondition: The list must consist of entry.

Postcondition: The list is remained unchanged.

Return: Return the total number of entries from the list.

**public boolean isEmpty()**

Description: Check the current entry has existed in the list.

Postcondition: The list is remained unchanged.

Return: Return true if the list is empty, otherwise return false.

**public void clear()**

Description: Clear all the entries exist in the list.

Postcondition: All the entries in the list have cleared and the list is empty.

**Part 2: ADT Implementation**

* ADTLinkedList
* ADTLinkedListInterface

**Part3: Soft Code**

I handle the module B.

Entity class:

* Executive
* Employee
* Routine Record

Client program:

* TestDeliveryMan(Client)