HO CHI MINH UNIVERSITY OF SCIENCE
FACULTY OF INFORMATION TECHNOLOGY
SOFTWARE ENGINEERING DEPARTMENT
ADVANCED PROGRAM IN COMPUTER SCIENCE
COURSE: **KTLT – CS162**
LECTURER: Dr. ĐINH BÁ TIẾN

WEEK 06

DOUBLY LINKED LIST

CIRCULAR LINKED LIST

- TRƯƠNG PHƯỚC LỘC
- HỒ TUẤN THANH

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1 Problem 1 – Doubly linked list

```
struct Node
{
   int data;
   Node *pPrev;
   Node *pNext;
};
class DLinkedList
{
   private: Node *pHead;
   Node *pTail;
};
```

Implement a doubly linked list of integer with the following functions:

1. Init a empty linked list
2. Print out the list
3. Allow user to enter an integer x. Find x in the list
4. Add an integer to the beginning of the list
5. Add an integer to the end of the list
6. Allow user to enter an integer x. Find x in the list. If found, allow user to enter another integer y and add y before x
7. Delete the first node of the list
8. Delete the last node of the list
9. Allow user to enter an integer x. Delete all x
10. Make the list empty

2 Problem 2 – Circular linked list

All students in our class want to go for a dinner with Ms. Huong. But they don't want to go together, maybe it's **a date** ☺. So they decide to play a game to choose the **luckiest guy**. They sit at a **round table**. A student will **toss a dice** and the ***ith* student** will **leave the table**. The game continues until there's **only one** student sit at table.

All attendees will enroll their information, including ***student id*** and ***full name***, in a text file. A ***log file*** will store the information about the dice value of each toss and the information of student leaving the table. An ***output file*** will store the information of the luckiest man

3 Problem 3 – Big Int

You are asked to implement a program to do some operations on big intergers using doubly linked list. Each digit in an integer is represented by a node of the list.

1. Add 2 integers
2. Subtract 2 integers
3. Multiply 2 integers
4. Divide 2 integers

4 A07

Problem 1

5 H07

Problem 1, 2, 3