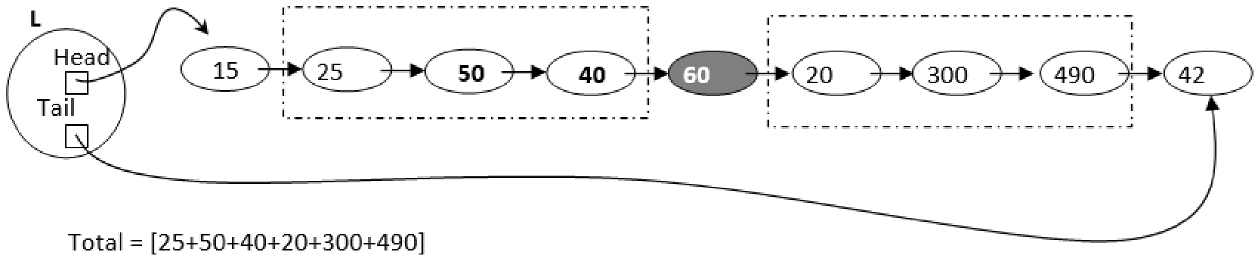
Aya Hesham 230489 CS213 Assignment 1

1) Write a program to do:
   - Read a linked list from the user.
   - Ask the user to select a target value (V).
   - Find the node which carries (V).
   - Display the total of the nodes in the interval
     - That precedes the (V) by 3 cells.
     - Also those nodes the follow the (V) by 3 cells

e.g → **V : 60**



Total = [25+50+40+20+300+490]

```
#include <iostream>
using namespace std;

class CNode
{
public:
	int info;
	CNode* pNext;
};

class CList
{
public:
	CNode* pHead;
	CNode* pTail;

	CList()
	{
		pHead = NULL;
		pTail = NULL;
	}

	void Attach(CNode* pnn)
	{
		if (pHead == NULL)
		{
			pHead = pnn;
			pTail = pnn;
		}
		else
		{
			pTail->pNext = pnn;
			pTail = pnn;
		}
	}

	~CList()
	{
		CNode* pTrav = pHead;
		while (pHead != NULL)
		{
			pHead = pTrav->pNext;
			pTrav->pNext = NULL;
			delete pTrav;
			pTrav = pHead;
		}
	}
};

void main()
{
	CList L;
	CNode* pnn;
	int N,V,pos=0,check=0,ctb=0,tot=0;

	cout << "Enter N \n";
	cin >> N;

	for (int i = 0; i < N; i++)
	{
		pnn = new CNode;
		cout << "enter info\n";
		cin >> pnn->info;
		pnn->pNext = NULL;
		L.Attach(pnn);
	}

	cout << "Enter value \n";
	cin >> V;

	CNode* pTrav = L.pHead;

	for (int i = 0; i < N; i++)
	{
		if (pTrav->info == V)
		{
			pos = i;
```

```
				check = 1;
			}

			if ((check==1 && i == pos + 1) ||(check==1 && i == pos + 2) 
||(check==1 && i == pos + 3))
			{
				tot+= pTrav->info;
			}

			pTrav = pTrav->pNext;
	}

	pTrav = L.pHead;

	for (int i = 0; i < pos; i++)
	{
			if (i == pos - 1 || i == pos - 2 || i == pos - 3)
			{
				tot+= pTrav->info;
			}

			pTrav = pTrav->pNext;
	}

	cout <<"total:"<< tot;

}
```

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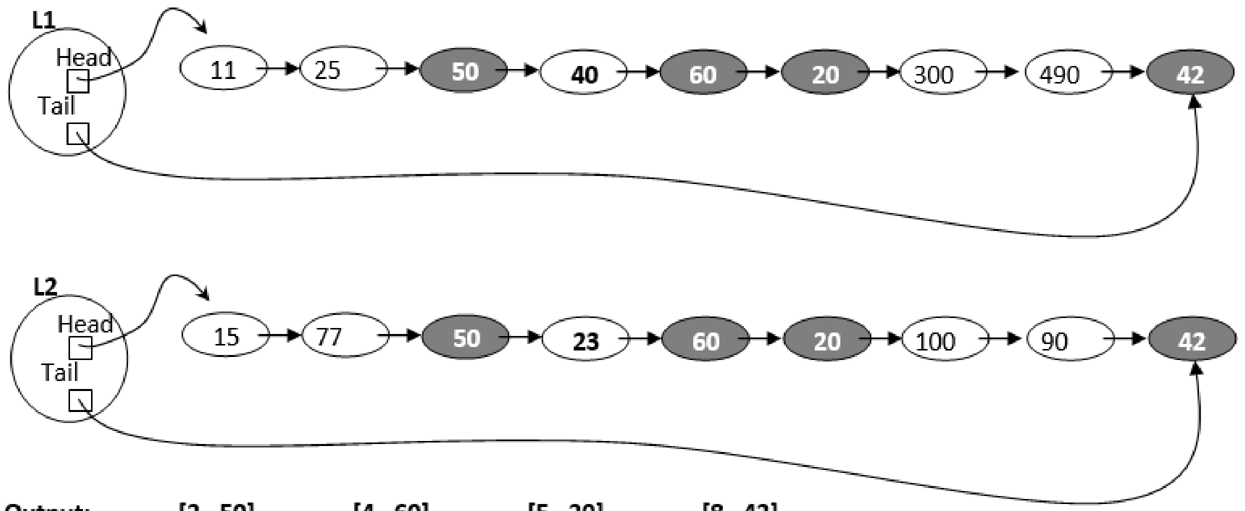
2) Write a program to do:
   - Read 2 linked lists from the user.
   - Display the position and the value for any 2 matched nodes.

e.g.



Output: **[2 , 50] , [4 , 60] , [5 , 20] , [8 , 42]**

```
#include <iostream>
using namespace std;

class CNode
{
public:
      int info;
      CNode* pNext;
};

class CList
{
public:
      CNode* pHead;
      CNode* pTail;

      CList()
      {
            pHead = NULL;
            pTail = NULL;
      }

      void Attach(CNode* pnn)
      {
            if (pHead == NULL)
            {
```

```
			pHead = pnn;
			pTail = pnn;
		}
		else
		{
			pTail->pNext = pnn;
			pTail = pnn;
		}
	}

	~CList()
	{
		CNode* pTrav = pHead;
		while (pHead != NULL)
		{
			pHead = pTrav->pNext;
			pTrav->pNext = NULL;
			delete pTrav;
			pTrav = pHead;
		}
	}
};

void main()
{
	CList L1;
	CList L2;
	CNode* pn1;
	CNode* pn2;
	int N;

	cout << "Enter N \n";
	cin >> N;

	for (int i = 0; i < N; i++)
	{
		pn1 = new CNode;
		cout << "enter info\n";
		cin >> pn1->info;
		pn1->pNext = NULL;
		L1.Attach(pn1);
	}

	for (int i = 0; i < N; i++)
	{
		pn2 = new CNode;
		cout << "enter info\n";
		cin >> pn2->info;
		pn2->pNext = NULL;
		L2.Attach(pn2);
	}

	CNode* pTrav1 = L1.pHead;
	CNode* pTrav2 = L2.pHead;

	for (int i = 0; i < N; i++)
	{
		if (pTrav1->info == pTrav2->info)
		{
			cout << "[ " << i << " , " << pTrav1->info << " ]\n";
		}
		pTrav1 = pTrav1->pNext;
		pTrav2 = pTrav2->pNext;
	}


}
```