ATMA RAM SANATAN DHARMA COLLEGE

UNIVERSITY OF DELHI

DSC 07: DATA STRUCTURES

SEM III

ASSIGNEMENT 08

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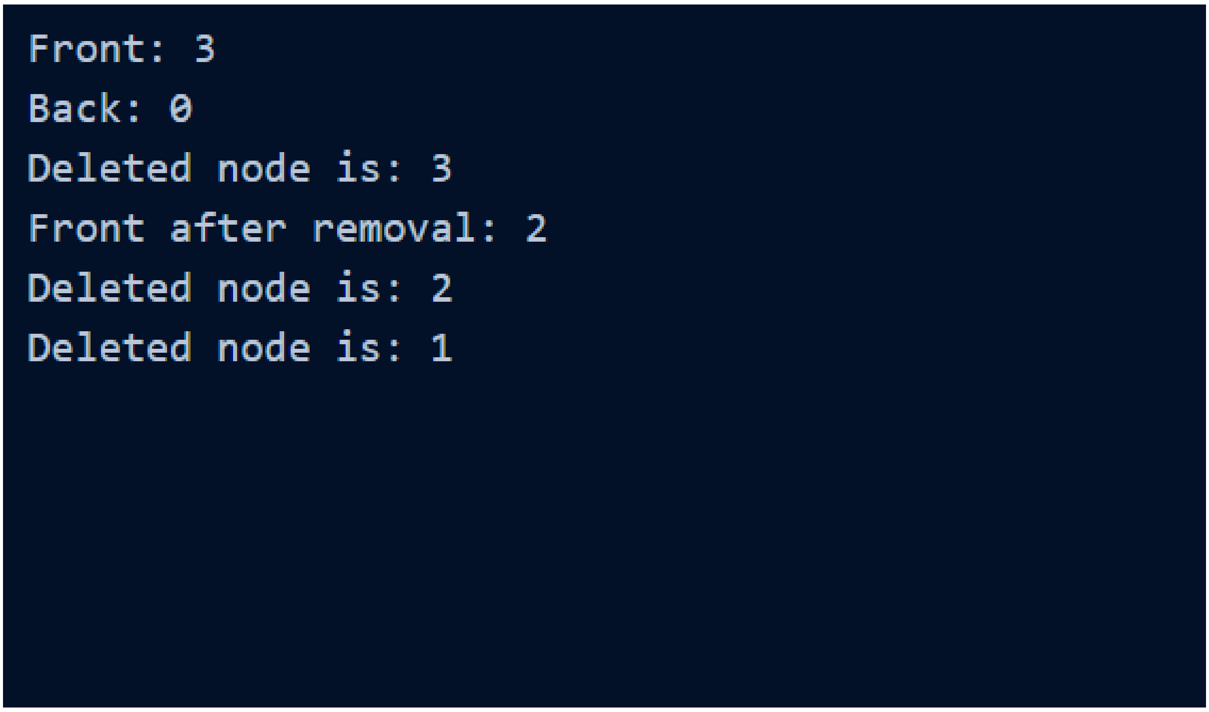
CIRCULAR LINKED LIST

CODE:

```
#include <iostream>
using namespace std;
class CNode {
private:
    int data;
    CNode* next;
    friend class CLL;
};
class CLL {
public:
    CLL();
    ~CLL();
    bool empty() const;
    const int front() const;
    const int back() const;
    void advance();
    void add(const int);
    void remove();
private:
    CNode* cursor;
};
CLL::CLL() {
    cursor = new CNode();
    cursor->next = cursor;
}
CLL::~CLL() {
    while (!empty()) {
        remove();
    }
}
bool CLL::empty() const {
    return (cursor->next == cursor);
}
const int CLL::front() const {
    return (cursor->next->data);
}
const int CLL::back() const {
    return (cursor->data);
}
void CLL::advance() {
    cursor = cursor->next;
}

void CLL::add(const int num) {
    CNode* newNode = new CNode();
    newNode->data = num;
    newNode->next = cursor->next;
    cursor->next = newNode;
}
void CLL::remove() {
    CNode* old = cursor->next;
    cout << "Deleted node is " << old->data;
    cursor->next = old->next;
    delete (old);
}
int main() {
    CLL myCircularList;
    myCircularList.add(1);
    myCircularList.add(2);
    myCircularList.add(3);
    cout << "Front: " << myCircularList.front() << endl;
    cout << "Back: " << myCircularList.back() << endl;
    myCircularList.remove();
    cout << "Front after removal: " << myCircularList.front()
<< endl;
    return 0;
}
```

OUTPUT:



```
Front: 3
Back: 0
Deleted node is: 3
Front after removal: 2
Deleted node is: 2
Deleted node is: 1
```