Université Abdelmalek Essaadi

Faculté des Sciences et Techniques de Tanger

Département Génie Informatique

IDAI-54

DEVOIR

final

Réaliser par :

- **ENNACIRI AHMED**

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

class Stack
{
private:
    int *data; //! Tableau dynamique pour stocker dans la pile
    int size;  //! Taille max de la pile
    int top;   //! Indice du sommet de la pile

public:
    Stack(int s = 20) : size(s), top(-1) //! constructor
    {
        data = new int[size];
    }

    ~Stack()
    {
        delete[] data; //! destructeur
    }

    Stack &operator<<(int n) //! surcharge operateur
    {
        if (top < size - 1)
        {
            data[++top] = n;
        }
        return *this;
    }

    Stack &operator>>(int &n) //! surcharge operateur
    {
        if (top >= 0)
        {
            n = data[top--];
        }
        return *this;
    }

    bool operator++() //! surcharge operator++
    {
        return top == size - 1;
    }
```

```
    // !Surcharge de l'opérateur --
    bool operator--()
    {
        return top == -1;
    }

    void display() //! Méthode pour afficher contenu de la pile
    {
        cout << "Stack: ";
        for (int i = top; i >= 0; --i)
        {
            cout << data[i] << " ";
        }
        cout << endl;
    }
};

int main()
{
    Stack p(5);
    int n1 = 10, n2 = 20, n3 = 30;

    p << n1 << n2 << n3;
    p.display();

    int num;
    p >> num; //! sommet de la pile
    cout << "top element: " << num << endl;
    p.display();

    if (++p)
    {
        cout << "Stack is full." << endl;
    }
    else
    {
        cout << "Stack is not full." << endl;
    }

    if (--p)
    {
        cout << "Stack is empty." << endl;
    }
    else
    {
```

```
        cout << "Stack is not empty." << endl;
    }

    return 0;
}
```