stack.h

```cpp
#include <iostream>

using namespace std;

#define top(s) s.top
#define info(s) s.info

typedef char infotype;
struct Stack {
    infotype info[15];
    int top;
};

void createStack(Stack &S);
bool isEmpty(Stack S);
bool isFull(Stack S);

void push(Stack &S, infotype x);
int pop(Stack &S);
void printInfo(Stack S);
```

stack.cpp

```cpp
#include "stack.h"

void createStack(Stack &S) {
    top(S) = -1;
}

bool isEmpty(Stack S) {
    return top(S) == -1;
}

bool isFull(Stack S) {
    return top(S) == sizeof(info(S))-1;
```

```cpp
}

void push(Stack &S, infotype x) {
    if (!isFull(S)) {
        info(S)[++top(S)] = x;
    }
}
int pop(Stack &S) {
    return info(S)[top(S)--];
}
void printInfo(Stack S) {
    if (!isEmpty(S)) {
        for (int i = top(S); i >= 0; i--) {
            cout << info(S)[i] << " ";
        }
        cout << endl;
    }
}
```

```cpp
#include "stack.h"

int main() {
    Stack S;

    createStack(S);

    string str = "PERCAYADIRI";
    for (int i = str.size()-1; i >= 0; i--)
        push(S, str[i]);

    printInfo(S);

    int nPop = 7;
```

```
    for (int i = 0; i < nPop; i++)

        pop(S);


    printInfo(S);
}
```

```
abd@zeroday:~/College/std/stack$ g++ *.cc
abd@zeroday:~/College/std/stack$ ./a.out
P E R C A Y A D I R I
D I R I
```