STACK USING ARRAY

```
#include <iostream>
#include <string>

using namespace std;

struct stack
{
    int s[5];
    int top = -1;
} st;

bool isEmpty()
{
    if (st.top == -1)
        return true;
    else
        return false;
}

bool isFull()
{
    if (st.top == 4)
        return true;
    else
        return false;
}

void push(int val)
{
    if (isFull())
        cout << "Stack Overflow" <<endl;
    else
    {
        st.top++;
        st.s[st.top] = val;
        cout << "value pushed\n";
    }
}
```

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```
int pop()
{
    if (isEmpty())
    {
        cout << "Stack underflow" << endl;
        return 0;
    }
    else
    {
        int popVal = st.s[st.top];
        st.top--;
        return popVal;
    }
}

int count()
{
    return (st.top + 1);
}

int peek(int pos)
{
    if (isEmpty())
    {
        cout << "Stack underflow!" << endl;
        return 0;
    }
    else
    {
        return st.s[pos];
    }
}

void change(int pos, int val)
{
    st.s[pos] = val;
    cout << "Value at " << pos << " changed to " << val;
```

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```
}

void display()
{
    if (isEmpty())
        cout << "Stack Underflow\n";
    else
    {
        cout<<"All the values in stack are:\n";

        for (int i = st.top; i >= 0; i--){
            cout<<st.s[i]<<endl;
        }
    }
}

int main()
{
    int option, position, value;

    do
    {
        cout << "\n\nWhat operation would you like to
perform ?\n";
        cout << "1. push\n";
        cout << "2. pop\n";
        cout << "3. isEmpty\n";
        cout << "4. isFull\n";
        cout << "5. peek\n";
        cout << "6. change\n";
        cout << "7. display\n";
        cout << "8. count\n";
        cout << "9. clear screen\n";

        cout << "Enter option: ";
        cin >> option;

        switch (option)
```

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```
        {
        case 1:
            cout << "Enter value to push: ";
            cin >> value;
            push(value);
            break;
        case 2:
            cout << "Popped value is: " << pop();
            break;
        case 3:
            if (isEmpty()) {
                cout<<"Stack is empty\n";
            } else {
                cout<<"Stack is not empty!\n";
            }

            break;
        case 4:
            if (isFull()){
                cout<<"Stack is full!\n";
            } else {
                cout<<"Stack is not full\n";
            }
            break;
        case 5:
            cout << "Enter the position you want to peek in
: ";
            cin >> position;
            cout << "Value at " << position << " is " <<
peek(position);
            break;
        case 6:
            cout << "Enter position of item you want to
change : ";
            cin >> position;
            cout << "\nEnter value: ";
            cin >> value;
            change(position, value);
```

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```
            break;
        case 7:
            cout<<"Display function called:\n";
            display();
            break;
        case 8:
            cout << "Total elements in stack are :" <<
count();
            break;
        case 9:
            system("cls");

        default:
            cout << "Enter proper option\n";
        }
    } while (option <= 9 && option > 0);

    return 0;
}
```