Experiment - 1.3

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Subject Name : Advance Programming Lab   **Subject Code:** 20CSV-334_20AML-4

1.Aim/Overview of the Practical

You are given a string containing characters A and B only. Your task is to change it into a string such that there are no matching adjacent characters. To do this, you are allowed to delete zero or more characters in the string. Your task is to find the minimum number of required deletions. For example, given the string s=AABAAB, remove an A at positions 0 and 3 to make s=ABAB in 2 deletions.

2.Task to be done

     a. Take input as the string from the user.

     b. Write a program to get the location of the elements to be removed.

     c. Output a string that is being generated after the removal of the positions.

3. Program Code:

```cpp
#include<bits/stdc++.h>
using namespace std;
string minimumDel(string s)
{
    vector<int> itemtodel;
    for(int i=1;i<s.size();i++)
    {
        if(s[i]==s[i-1])
        {
            itemtodel.push_back(i-1);
        }
    }
```
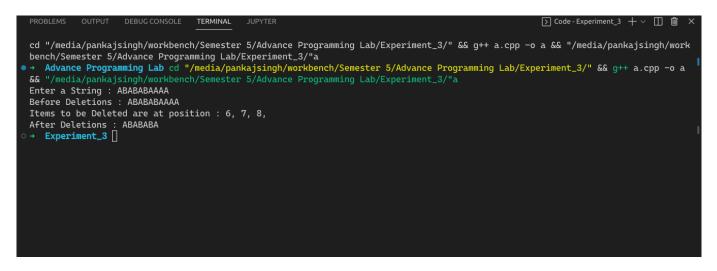
```cpp
    cout<<"Items to be Deleted are at position : ";
    for(auto i : itemtodel)
    {
        cout<<i<<", ";
    }cout<<endl;
    vector<char> result;
    for(int i=0;i<s.size();i++)
    {
    if(std::find(itemtodel.begin(), itemtodel.end(),i)!=itemtodel.end())
        {
            continue;
        }
        else{
            result.push_back(s[i]);
        }
    }
    std::string r (result.begin(), result.end());
    return r;
}
int main()
{

    cout<<"Enter a String : ";
    string s;
    cin>>s;
    cout<<"Before Deletions : "<<s<<endl;
    s = minimumDel(s);
    cout<<"After Deletions : "<<s<<endl;
}
```

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Output


```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    JUPYTER                        Code - Experiment_3  + ∨ ☐ 🗑 ✕
cd "/media/pankajsingh/workbench/Semester 5/Advance Programming Lab/Experiment_3/" && g++ a.cpp -o a && "/media/pankajsingh/work
bench/Semester 5/Advance Programming Lab/Experiment_3/"a
● → Advance Programming Lab cd "/media/pankajsingh/workbench/Semester 5/Advance Programming Lab/Experiment_3/" && g++ a.cpp -o a
&& "/media/pankajsingh/workbench/Semester 5/Advance Programming Lab/Experiment_3/"a
Enter a String : ABABABAAAA
Before Deletions : ABABABAAAA
Items to be Deleted are at position : 6, 7, 8,
After Deletions : ABABABA
○ → Experiment_3 ☐
```

Oberstion and Discussion

- The String will only contain 'A' and 'B' in the string.
- We have removed consecutively element which are equal and simplify the string.
- The position of removed elements from the string should be stored and displayed.
- The program show the resultant string successfully at the end.

Result

We have successfully implemented and created the program and displayed the output after removing the consecutively equal elements from the string.

7. **Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):**

Sno.	Parameters	Obtained Marks	Maximum marks
1.			
2.			
3.			
4.			