

# System Software

## Lab Assignment – 1

U20CS110

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Ques: 1. Write a program to convert Regular Expression to DFA.

Ans:

```
#include <bits/stdc++.h>
using namespace std;

void DFA(string str, int N)
{
    // If n <= 1, then print No
    if (N <= 1)
    {
        cout << "given string not belong to DFA";
        return;
    }

    int count = 0;

    if (str[0] == 'C')
    {
        count++;

        // Traverse the rest of string
        for (int i = 1; i < N; i++)
        {
            if (str[i] == 'A' || str[i] == 'B')
                count++;
            else
                break;
        }
    }
    else
    {
        cout << "given string not belong to DFA";
        return;
    }
}
```

```

}

if (count == N)
    cout << "given string belong to DFA";
else
    cout << "given string not belong to DFA";
}

int main()
{
    string str;
    cout << "Enter the input: ";
    cin >> str;
    int N = str.size();
    DFA(str, N);

    return 0;
}

```

## Output:

```

PS C:\Users\daddu\Desktop\cp> cd "c:\Users\daddu\Desktop\cp\System_software\assign1\" ; if ($?) { g++
1.cpp -o 1 } ; if ($?) { .\1 }
Enter the input: CABBBB
given string belong to DFA
PS C:\Users\daddu\Desktop\cp\System_software\assign1> cd "c:\Users\daddu\Desktop\cp\System_software\assign1\" ; if ($?) { g++ 1.cpp -o 1 } ; if ($?) { .\1 }
Enter the input: CAAAAAC
given string not belong to DFA
PS C:\Users\daddu\Desktop\cp\System_software\assign1> cd "c:\Users\daddu\Desktop\cp\System_software\assign1\" ; if ($?) { g++ 1.cpp -o 1 } ; if ($?) { .\1 }
Enter the input: CAAAAAA
given string belong to DFA
PS C:\Users\daddu\Desktop\cp\System_software\assign1> cd "c:\Users\daddu\Desktop\cp\System_software\assign1\" ; if ($?) { g++ 1.cpp -o 1 } ; if ($?) { .\1 }
Enter the input: CB BBBB
given string belong to DFA
PS C:\Users\daddu\Desktop\cp\System_software\assign1> cd "c:\Users\daddu\Desktop\cp\System_software\assign1\" ; if ($?) { g++ 1.cpp -o 1 } ; if ($?) { .\1 }
Enter the input: CBABABABA
given string belong to DFA
PS C:\Users\daddu\Desktop\cp\System_software\assign1> cd "c:\Users\daddu\Desktop\cp\System_software\assign1\" ; if ($?) { g++ 1.cpp -o 1 } ; if ($?) { .\1 }
Enter the input: AAAAA
given string not belong to DFA
PS C:\Users\daddu\Desktop\cp\System_software\assign1> cd "c:\Users\daddu\Desktop\cp\System_software\assign1\" ; if ($?) { g++ 1.cpp -o 1 } ; if ($?) { .\1 }
Enter the input: BBBB
given string not belong to DFA
PS C:\Users\daddu\Desktop\cp\System_software\assign1> cd "c:\Users\daddu\Desktop\cp\System_software\assign1\" ; if ($?) { g++ 1.cpp -o 1 } ; if ($?) { .\1 }
Enter the input: ABABABBA
given string not belong to DFA
PS C:\Users\daddu\Desktop\cp\System_software\assign1>

```