

.....re.h.....

```
#include <bits/stdc++.h>
```

```
using namespace std;
```

```
bool one(string input); // a*
```

```
bool two(string input); // a*b+
```

```
bool three(string input); // abb
```

.....re.cpp.....

```
#include "re.h"
```

```
bool one(string input)
```

```
{
```

```
    bool valid = false;
```

```
    for (int i = 0; i < input.size(); i++)
```

```
    {
```

```
        if (input[i] != 'a')
```

```
            return false;
```

```
    }
```

```
    return true;
```

```
}
```

```
bool two(string input)
```

```
{
```

```
    bool valid = false;
```

```
    int state = 1;
```

```
    for (int i = 0; i < input.size(); i++)
```

```
    {
```

```
        switch(state)
```

```
        {
```

```
            case 1:
```

```
                if (input[i] == 'b')
```

```
                {
```

```
                    state = 2;
```

```
                }
```

```
                else if (input[i] != 'a')
```

```
                {
```

```
                    return false;
```

```
                }
```

```
            else
```

```
                break;
```

```
        break;
```

```
            case 2:
```

```
                if (input[i] != 'b')
```

```
                {
```

```

        return false;
    }

    break;
}
}

if (state == 2)
    return true;

else
    return false;
}

bool three(string input)
{
    int i = 0;

    if (input.size() != 3)
        return false;

    if (input[0] == 'a' && input[1] == 'b' && input[2] == 'b')
        return true;

    return false;
}

```

.....re_m.cpp.....

```

#include "re.h"

int main()
{
    string input;

    cout << "Enter the input string: ";
    getline(cin, input);

    // if (input.size() == 0 || (input.size() == 1 && input[0] == 'a'))
    // {
    //     cout << "Accepted at a*" << endl;
    // }

    if (input.size() == 3)
    {
        if (three(input))
        {
            cout << "Accepted at abb" << endl;
        }
    }
    else //if (input[input.size() - 1] == 'b')

```

```

{
    if (two(input))
    {
        cout << "Accepted at a*b+" << endl;
    }
    else
    {
        cout << "There must be a '\b\' " << endl;
        cout << "Not_Accepted" << endl;
    }
}

// else
// {
//     if (one(input))
//         cout << "Accepted at a*" << endl;

//     else
//         cout << "Not_Accepted" << endl;

// }

return 0;
}

```

```

● pawan@pawan:~/Desktop/Code/CD/Regular_Expression$ ./r.out
Enter the input string: ab
Accepted at a*b+
● pawan@pawan:~/Desktop/Code/CD/Regular_Expression$ ./r.out
Enter the input string: aaaaaaaa
Accepted at a*
● pawan@pawan:~/Desktop/Code/CD/Regular_Expression$ ./r.out
Enter the input string: aaaaab
Accepted at a*b+
● pawan@pawan:~/Desktop/Code/CD/Regular_Expression$ ./r.out
Enter the input string: abb
Accepted at abb
● pawan@pawan:~/Desktop/Code/CD/Regular_Expression$ ./r.out
Enter the input string: b
Accepted at a*b+
● pawan@pawan:~/Desktop/Code/CD/Regular_Expression$ ./r.out
Enter the input string: abab
Not_Accepted
● pawan@pawan:~/Desktop/Code/CD/Regular_Expression$ g++ re.cpp re_m.cpp -o r.out
● pawan@pawan:~/Desktop/Code/CD/Regular_Expression$ ./r.out
Enter the input string: a
Accepted at a*
● pawan@pawan:~/Desktop/Code/CD/Regular_Expression$ g++ re.cpp re_m.cpp -o r.out
● pawan@pawan:~/Desktop/Code/CD/Regular_Expression$ ./r.out
Enter the input string: a
There must be a 'b'
Not_Accepted
● pawan@pawan:~/Desktop/Code/CD/Regular_Expression$ ./r.out
Enter the input string: b
Accepted at a*b+
○ pawan@pawan:~/Desktop/Code/CD/Regular_Expression$ 

```