```cpp
#include<bits/stdc++.h>
using namespace std;
int i=0,f=0,l;
string st;
void A() {
    if (st[i] == 'a') {
        i++;
        f=1;
    }
    else {
        f=0;
        return;
    }
    if (i<l-1) A();
}
void B() {
    if (st[i] == 'b') {
        i++;
        f=1;
        return;
    }
    else {
        f=0;
        return;
    }
}
void S() {
    if (st[i] == 'b'){
        i++;
        f = 1;
        return;
    }
    else {
        A();
        if (f) { B(); return;}
```

```cpp
    }
}
int main(){
    freopen("i1.txt","r",stdin);
    freopen("o1.txt","w",stdout);
    while(getline(cin,st)){
        f = 0;
        i = 0;
        l = st.size();
        S();
        if(l==i && f){
            cout<<"valid\n";
        }
        else{
            cout<<"invalid\n";
        }
    }
}
```