**ASSIGNMENT NO.**

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CLASS: BE COMP-1 ROLL NO.: 402006

PROGRAM:

#include <iostream>

#include <stack>

#include <map>

#include <cstdio>

using namespace std;

struct nd

{

nd \*l,\*r;

char op;

char a;

};

map<char,stack<nd\*>> fresh;

int main() {

int n;

cin>>n;

for(int i=0;i<n;i++) {

char op,a1,a2,res;

cin>>op>>a1>>a2>>res;

if(op=='=') {

fresh[res] = fresh[a1];

} else {

nd \*n1,\*n2;

bool fl=0;

for (auto it:fresh) {

bool b1=0,b2=0,b3=0;

nd\* tmpn=it.second.top();

b1 = tmpn->op==op;

if (tmpn->l!=NULL) b2=(tmpn->l->a==a1)&&(tmpn->l==fresh[tmpn->l->a].top());

if (tmpn->r!=NULL) b3=(tmpn->r->a==a2)&&(tmpn->r==fresh[tmpn->r->a].top());

if(b1&&b2&&b3) {

fl=1;

fresh[res] = fresh[tmpn->a];

break;

}

}

if (fl==0) {

if(fresh[a1].empty()) {

n1 = new nd;

n1 -> l = NULL;

n1 -> r = NULL;

n1 -> a = (a1);

fresh[a1].push(n1);

} else n1 = fresh[a1].top();

if(fresh[a2].empty()) {

n2 = new nd;

n2 -> l = NULL;

n2 -> r = NULL;

n2 -> a = (a2);

fresh[a2].push(n2);

} else n2 = fresh[a2].top();

nd \*resn = new nd;

resn -> l = n1;

resn -> r = n2;

resn -> op= (op);

resn -> a = (res);

fresh[res].push(resn);

printf("%c %c %c %c\n",op,fresh[a1].top()->a,fresh[a2].top()->a,res);

}

}

}

return 0;

}