

```

#include <iostream>
#include <cstring>

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using namespace std;

long long i,j,m,ok,x,y,t,b[3][5];
char a,c;

int main()
{for(t=1;t<=5;t++)
  {cin>>a>>c;
  if(a>='0' && a<='9')
    x=a-48;
  else
    x=a-55;
  if(c>='0' && c<='9')
    y=c-48;
  else
    y=c-55;
  for(j=4;j>=1;j--)
    {b[1][j]=x%2;
    x=x/2;
    }
  for(j=4;j>=1;j--)
    {b[2][j]=y%2;
    y=y/2;
    }
ok=0;
if(b[1][1] && b[1][2] && b[1][3] && b[1][4])
  {if(ok)

```

```

    cout<<" ";
ok=1;
b[1][1]=0;
b[1][2]=0;
b[1][3]=0;
b[1][4]=0;
cout<<"B";
}
if(b[2][1] && b[2][2] && b[2][3] && b[2][4])
{if(ok)
    cout<<" ";
ok=1;
b[2][1]=0;
b[2][2]=0;
b[2][3]=0;
b[2][4]=0;
cout<<"~B";
}
if(b[1][2] && b[1][1]&& b[2][1] && b[2][2])
{if(ok)
    cout<<" ";
ok=1;
b[1][1]=0;
b[1][2]=0;
b[2][1]=0;
b[2][2]=0;
cout<<"A";
}
if(b[1][3] && b[1][2] && b[2][3] && b[2][2])

```

```
{if(ok)
    cout<<"+";
ok=1;
b[2][3]=0;
b[1][2]=0;
b[1][3]=0;
b[2][2]=0;
cout<<"C";
}
```

```
if(b[1][3] && b[1][4] && b[2][3] && b[2][4])
```

```
{if(ok)
    cout<<"+";
ok=1;
b[2][4]=0;
b[2][3]=0;
b[1][3]=0;
b[1][4]=0;
cout<<"~A";
}
```

```
if(b[1][1] && b[1][4] && b[2][1] && b[2][4])
```

```
{if(ok)
    cout<<"+";
ok=1;
b[1][1]=0;
b[2][4]=0;
b[2][1]=0;
b[1][4]=0;
cout<<"~C";
}
```

```
if(b[1][1] && b[1][2])
```

```
    {if(ok)
```

```
        cout<<"+";
```

```
    ok=1;
```

```
    b[1][1]=0;
```

```
    b[1][2]=0;
```

```
    cout<<"AB";
```

```
    }
```

```
if(b[1][2] && b[1][3])
```

```
    {if(ok)
```

```
        cout<<"+";
```

```
    ok=1;
```

```
    b[1][3]=0;
```

```
    b[1][2]=0;
```

```
    cout<<"BC";
```

```
    }
```

```
if(b[1][3] && b[1][4])
```

```
    {if(ok)
```

```
        cout<<"+";
```

```
    ok=1;
```

```
    b[1][3]=0;
```

```
    b[1][4]=0;
```

```
    cout<<"~AB";
```

```
    }
```

```
if(b[2][1] && b[2][2])
```

```
    {if(ok)
```

```
        cout<<"+";
```

```
    ok=1;
```

```
b[2][1]=0;
b[2][2]=0;
cout<<"A~B";
}
if(b[2][3] && b[2][2])
{if(ok)
    cout<<"+";
ok=1;
b[2][3]=0;
b[2][2]=0;
cout<<"~BC";
}
if(b[2][3] && b[2][4])
{if(ok)
    cout<<"+";
ok=1;
b[2][3]=0;
b[2][4]=0;
cout<<"~A~B";
}
if(b[1][1] && b[2][1])
{if(ok)
    cout<<"+";
ok=1;
b[1][1]=0;
b[2][1]=0;
cout<<"A~C";
}
if(b[1][2] && b[2][2])
```

```
{if(ok)
    cout<<" ";
ok=1;
b[1][2]=0;
b[2][2]=0;
cout<<"AC";
}
if(b[1][3] && b[2][3])
{if(ok)
    cout<<" ";
ok=1;
b[1][3]=0;
b[2][3]=0;
cout<<"~AC";
}
if(b[1][4] && b[2][4])
{if(ok)
    cout<<" ";
ok=1;
b[1][4]=0;
b[2][4]=0;
cout<<"~A~C";
}
if(b[1][1] && b[1][4])
{if(ok)
    cout<<" ";
ok=1;
b[1][1]=0;
b[1][4]=0;
```

```
cout<<"B~C";  
}
```

```
if(b[2][1] && b[2][4])
```

```
{if(ok)  
    cout<<"+";  
  
ok=1;  
b[2][1]=0;  
b[2][4]=0;  
    cout<<"~B~C";  
}
```

```
if(b[1][1])
```

```
{if(ok)  
    cout<<"+";  
  
cout<<"AB~C";  
ok=1;}
```

```
if(b[1][2])
```

```
{if(ok)  
    cout<<"+";  
  
cout<<"ABC";  
ok=1;}
```

```
if(b[1][3])
```

```
{if(ok)  
    cout<<"+";  
  
cout<<"~ABC";  
ok=1;}
```

```
if(b[1][4])
```

```
{if(ok)  
    cout<<"+";
```

```
    cout<<"~AB~C";
    ok=1;}
if(b[2][1])
    {if(ok)
        cout<<" ";
    cout<<"A~B~C";
    ok=1;}
if(b[2][2])
    {if(ok)
        cout<<" ";
    cout<<"A~BC";
    ok=1;}
if(b[2][3])
    {if(ok)
        cout<<" ";
    cout<<"~A~BC";
    ok=1;}
if(b[2][4])
    {if(ok)
        cout<<" ";
    cout<<"~A~B~C";
    ok=1;}

cout<<" "<<"\n";
}
}
```