

Original Program

```

for(i=0;i<=M;i++)
{
    r1 = in[i];
    if(r1 == 0)
    {
        r2 = r1*r0;
        out2[i] = r2;
    }
}

```

Process 1

```

for(i=0;i<=M;i++)
{
    r1 = in[i];
    push(r1Q, r1);
    if(r1 == 0)
    {
        r2 = r1*r0;
        push(r2Q, r2);
    }
}

```

Process 2

```

for(i=0;i<=M;i++)
{
    pop(r1Q, r1);
    if(r1 == 0)
    {
        pop(r2Q, r2);
        out2[i] = r2;
    }
}

```

r1Q

r2Q

(0)r1 = in[i]

(1)r1 = in[i]

(2)r1 = in[i] (0)cmp(r1,0)

(0)push(r1Q, r1)

(3)r1 = in[i] (1)cmp(r1,0) (0)r2 = r1*r0 (1)push(r1Q, r1)

(4)r1 = in[i] (2)cmp(r1,0) (2)push(r1Q, r1)

(5)r1 = in[i] (3)cmp(r1,0) (2)r2 = r1*r0 (3)push(r1Q, r1)

(6)r1 = in[i] (4)cmp(r1,0) (3)r2 = r1*r0 (4)push(r1Q, r1) (0)push(r2Q, r2)

(7)r1 = in[i] (5)cmp(r1,0) (4)r2 = r1*r0 (5)push(r1Q, r1)

(8)r1 = in[i] (6)cmp(r1,0) (5)r2 = r1*r0 (6)push(r1Q, r1) (2)push(r2Q, r2)

(0)cmp(r1,0): comparison evaluates to equal

(1)cmp(r1,0): comparison evaluates to not equal