

The while loop: (pre-test loop):

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while (condition)

```
{
    statements;
}
```

Adding up numbers to find sum;

while loop style:

```
int sum;
int i;
```

```
sum = 0;
i = 1;
```

```
while (i <= n)
{
    sum = sum + i;
    i = i + 1;
}
```

For loop style:

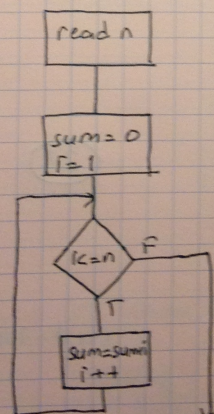
```
int x;
int sum;
```

```
sum = 0;
```

```
for (x = 0; x <= n; x++)
```

```
{
    sum = sum + x;
}
```

Flow chart;



Rewrite;

```
sum = 0;
i = 1;
```

// boolean ^{continue} condition

```
boolean contCond;
```

```
contCond = (i <= n);
```

```
while (contCond)
```

```
{
    sum = sum + i;
    i = i + 1;

```

```
    contCond = (i <= n);
}
```

if we don't write this
it will be infinite loop.

→ Find the summation of input numbers (only even numbers), stop if the user input is zero.

Java + pseudo code:

```
sum = 0;
Read i;
while (i > 0)
{
    if (i % 2 == 0)
    {
        sum = sum + i;
    }
    read i;
}
```

$$\# \quad \text{sum} = \sum_{i=1}^n \sum_{j=1}^i j$$

For style;

```
for (i = 1; i <= n; i++)
{
    for (j = 1; j <= i; j++)
    {
        sum = sum + j;
    }
}
```

Trace:

i	j
1	1
2	1
	2
3	1
	2
	3
4	1
	2
	3
	4

(22)

