

To convert a for loop into a while loop, we need to separate the three parts in the parentheses after “for”.

We will put the first part, the initialization expression, before the while loop. We have to initialize the variable before the loop otherwise there will be an error. Then, make the second part, the conditional expression, as the conditional expression of the while loop. This is the expression that will be evaluated before each iteration. Finally, put the third part, the iteration expression, as the last line of the loop body. So that the looping variable is changed every iteration and we will not have an infinite loop.

Example:

for loop:

```
for (int i = 0; i <= 10; i+=2)
{
    // do something
}
```

while loop:

```
int i = 0;
while (i <= 10)
{
    // do something
    i += 2;
}
```

To convert a do..while loop to a while loop, we can simply make a copy of the loop body, excluding the line of manipulating the looping variable, and put it in front of the loop. Then change the do..while loop into a simple while loop. This way, the body of the loop is executed at least once before checking the conditional expression. However, it is not a good idea to copy paste code in the same module. So we could also make the loop body block into a new function.

Example:

do..while:

```
int i = 0;
do
{
    // do something
    i++;
} while (i <= 20);
```

while loop:

```
int i = 0;
// do something
while (i <= 20)
{
    // do something
    i++;
}
```