

LOOPS

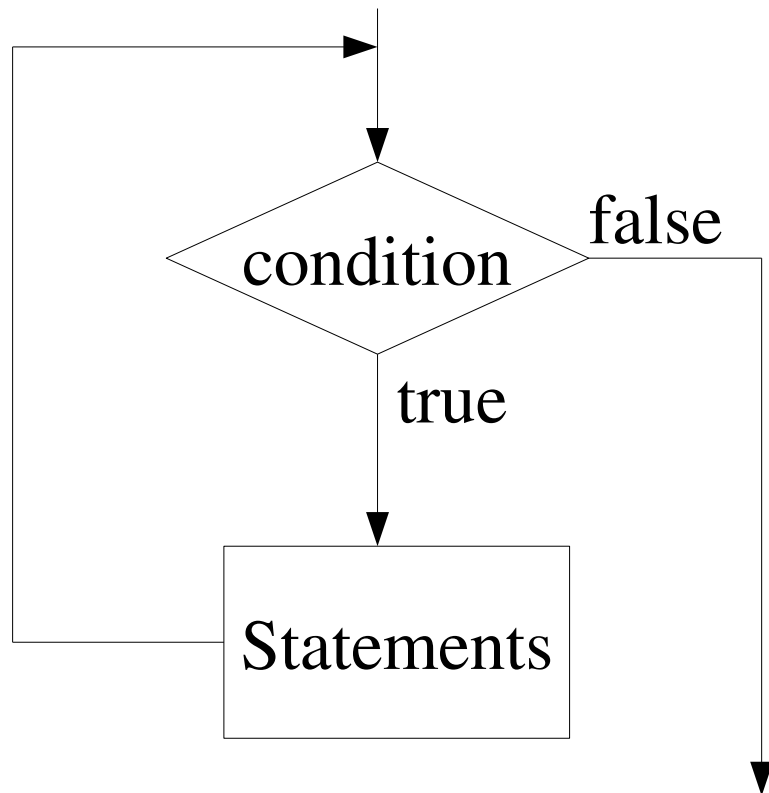
Loops allow a block of instructions to be repeated several times.
There are two types of loops:

- Indeterminate loops: The number of times the loop will be repeated is not known before the loop starts.
- Determinate loops: The number of times the loop will be repeated is known before the loop starts.

INDETERMINATE LOOPS:

Java supports two instructions for indeterminate loops:

1) While:



Java:

```
while (condition){  
    STATEMENTS  
}
```

condition is a boolean expression.
If condition is true then STATEMENTS are executed and the condition is evaluated.
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HELP!!! When do we stop?

While:

```
while (condition){  
    STATEMENTS  
}
```

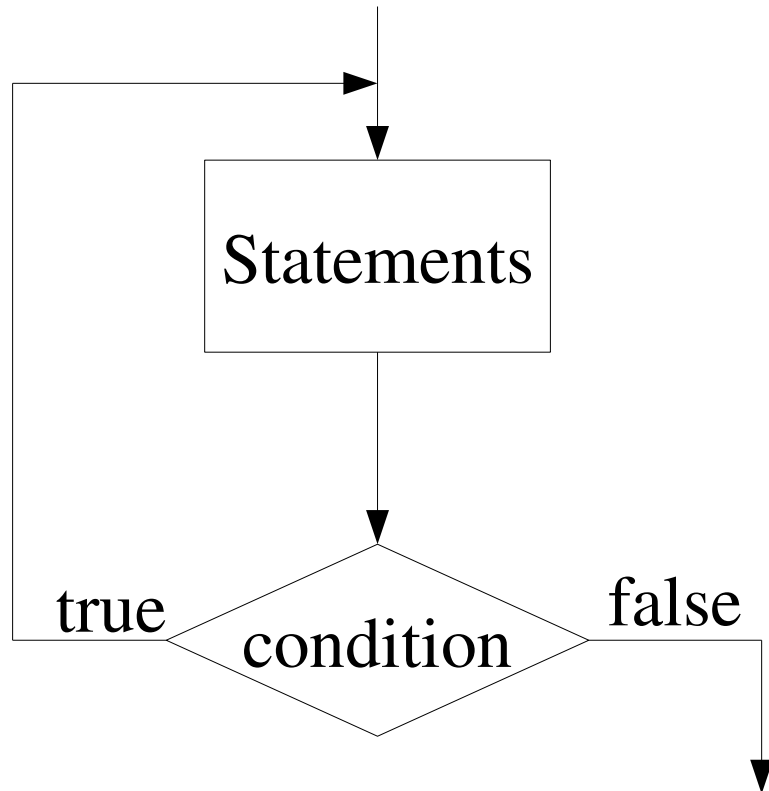
The STATEMENTS will be repeatedly evaluated and will stop when the condition is false.

The STOPPING condition is: !condition
this is, the condition that causes the while to stop looping.

In the while loop, STATEMENTS might not be executed at all if the condition is false before the loop starts.

INDETERMINATE LOOPS:

2) do while:



Java:

```
do{  
    STATEMENTS  
}  
while (condition);
```

condition is a boolean expression.

STATEMENTS are executed and the condition is evaluated.

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HELP!!! When do we stop?

do while:

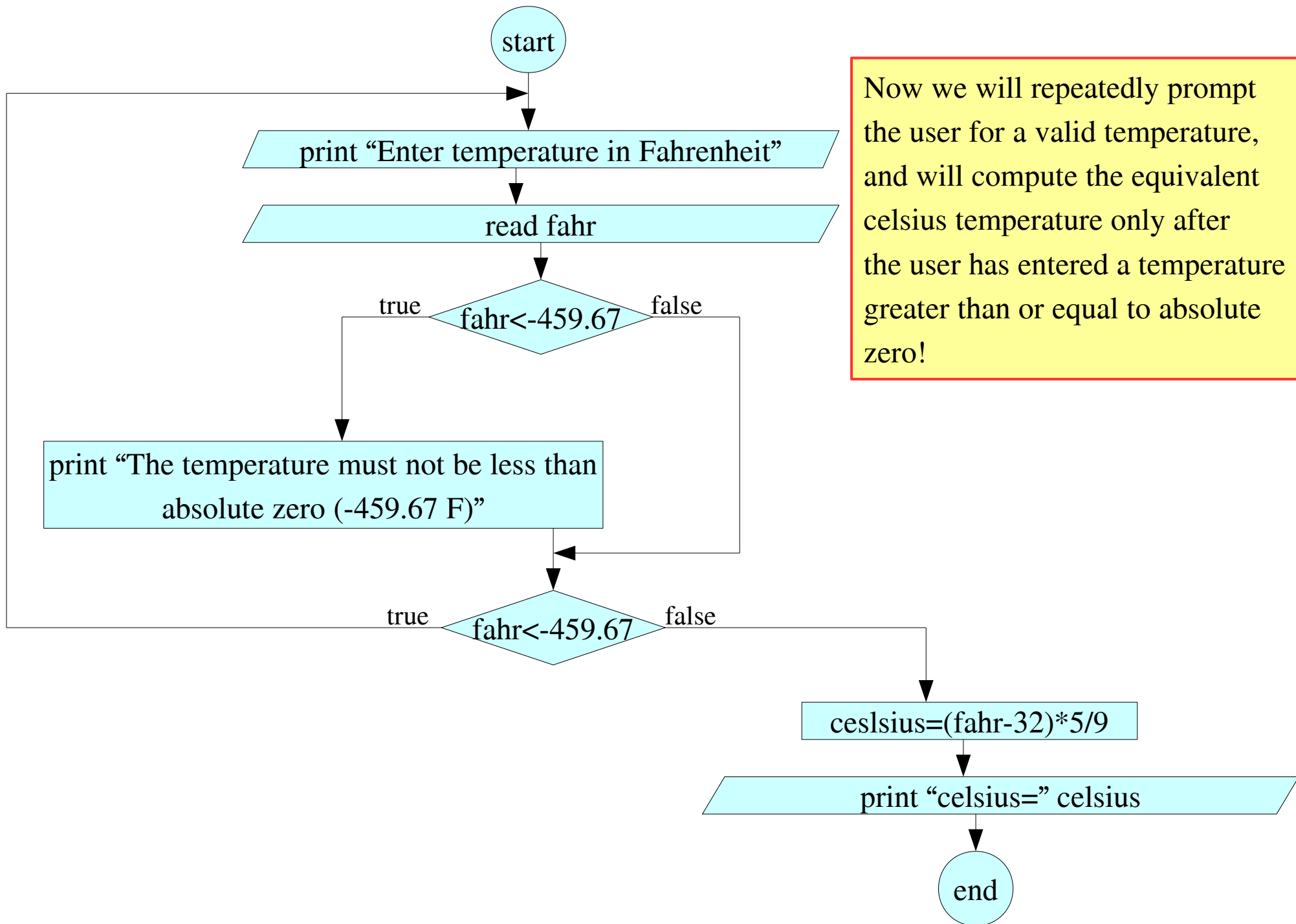
```
do{  
    STATEMENTS  
}  
while (condition);
```

The STATEMENTS will be repeatedly evaluated and will stop when the condition is false.

The STOPPING condition is: !condition

this is, the condition that causes the while to stop looping.

In the do while loop, STATEMENTS are always executed first before the first time the condition is evaluated.



Here is the complete program:

```
public class F2Cwhile {  
    public static void main(String[] args) {  
        double fahr;  
        double celsius;  
  
        do{  
            System.out.print("Enter Temperature in Fahrenheit : ");  
            fahr=IO.readDouble();  
            if (fahr<-459.67){  
                System.out.println("Temperature must be >= 459.67 ");  
            }  
        }  
        while (fahr<-459.67);  
        celsius=(fahr-32)*5/9;  
        IO.outputDoubleAnswer(celsius);  
    }  
}
```

The loop condition is `fahr<-459.67`

The stopping condition is `!(fahr<-459.67)` which is: `fahr>=-459.67`