

Iteration

The **while** loop

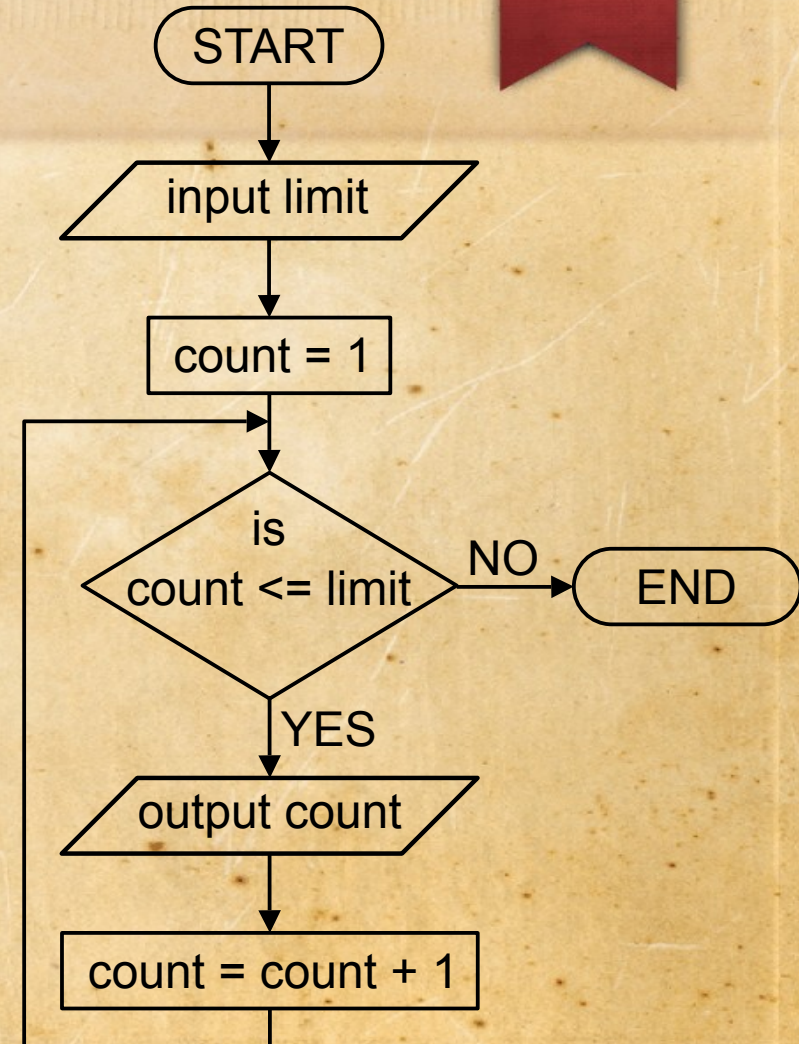
Lecture Contents

- The `while` statement
- Practice

while loop

- Iteration is the process of repeating a set of instructions or actions.
- In programming, iteration repeats a block of code until a condition is met.
- Consider the algorithm represented by this flowchart.
 - What is the result of following this algorithm?

Subprocess: count

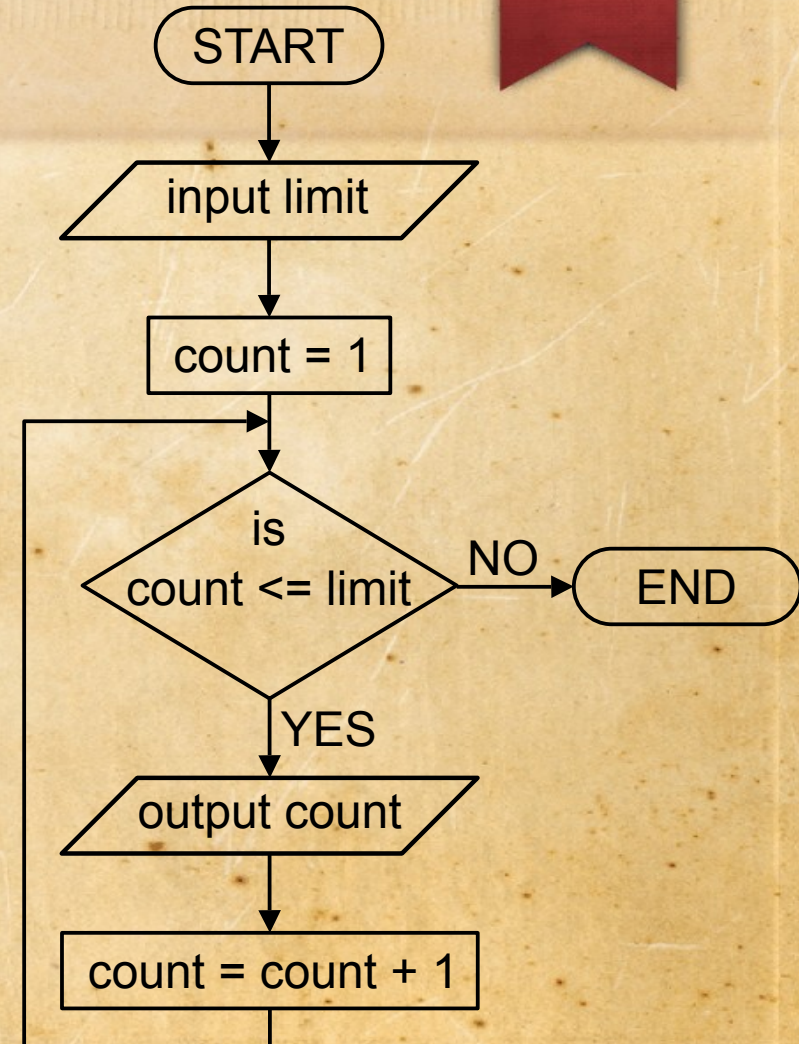


while loop

- The algorithm represented in the flowchart can be converted into the following Java code:

```
public static void count(int limit) {  
    int count = 1;  
    while(count <= limit) {  
        System.out.println(count);  
        count += 1;  
    }  
}
```

Subprocess: count



while loop

- Adding a main process and executing the Java code gives us the following output:

```
public static void main(String[] args) {  
    count(5);  
}
```

```
public static void count(int limit) {  
    int count = 1;  
    while(count <= limit) {  
        System.out.println(count);  
        count += 1;  
    }  
}
```

1
2
3
4
5

Practice

- Write a method
 - That repeatedly prints a character a variable number of times

```
public static void main(String[] args) {  
    printCharRepeatedly('a',5);  
}  
public static void printCharRepeatedly(char c, int numTimes) {  
    //TODO: Write the code for this method.  
}
```

aaaaaa

Practice

- Write a method
 - That repeatedly prints a character in a grid of size x,y

```
public static void main(String[] args) {  
    printCharGrid('b',10,4);  
}  
public static void printCharGrid(char c, int x, int y) {  
    //TODO: Write the code for this method.  
}
```

```
bbbbbbbbbbb  
bbbbbbbbbbb  
bbbbbbbbbbb  
bbbbbbbbbbb
```

Iteration

The **while** loop