

# Java - While

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# Organization

1 While

2 Summary

# While

- Play a musical note forever.

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```
while (true) {  
    note.setMessage(ShortMessage.NOTE_ON, 0, 60, 100);  
    rcvr.send(note, timeStamp);  
    Thread.sleep(1000);  
}
```

# While

- Play a musical note 100 times .

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```
int count = 1;
while (count <= 100) {
    note.setMessage(ShortMessage.NOTE_ON, 0, 60, 100);
    rcvr.send(note, timeStamp);
    Thread.sleep(100);
    count ++;
}
```

# While

- Play all musical notes (“supported by the computer”).

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```
int freq = 0;
while (freq < 128) {
    note.setMessage(ShortMessage.NOTE_ON, 0, freq, 100);
    rcvr.send(note, timeStamp);
    Thread.sleep(100);
    freq ++;
}
```



# Exercises

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- 2 Write a program that prints the Fibonacci sequence up to 1000. That is: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, ...
  - Tip:  $F_0 = 0$ ,  $F_1 = 1$ ,  $F_n = F_{n-2} + F_{n-1}$ , for  $n > 1$

# While Grammar Rules

```
while (⟨Boolean condition⟩) {  
    ...  
}
```

# Exercises

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- 1 Write a program that tells whether a number is prime or not. A prime number is a natural number greater than 1 that is only divisible by 1 and by itself.
- 2 Write a program that reads the grades of ten students and print at the end the greatest note, the least note, the average note (arithmetic mean) and how many students passed ( $grade \geq 7$ ).

# Exercises

- 1 Write a program that calculates the factorial of a number. The factorial of a positive integer  $n$ , denoted by  $n!$ , is  $n \cdot n - 1 \cdot n - 2 \cdots 1$ . Additionally,  $0! = 1$ .

# Summary

- While allows you to execute the same code several times
- Next Lesson: For



# References

- W3C Tutorial:
  - [https://www.w3schools.com/java/java\\_while\\_loop.asp](https://www.w3schools.com/java/java_while_loop.asp)
- Exercises:
  - <https://www.w3schools.com/java/exercise.asp>
  - Java Loops