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Week 6

February 26 2023

Week 6 Lecture Notes

## Repeating sequences

Repeating sequences are sequences or chunks of code that repeat themselves. In programming, they are represented by loops, which repeatedly execute their body while their condition is true.

Ex:

While hungry → eat

## For loops

For loops are one type of loop in Java. All elements of the loop are inside the loop header, and the body is separate. For loops have a condition to stop execution, a variable to define the condition, and a modifier, to modify the variable.

Ex:

```
for(int i = 0; i < 3; i++) {
```

```
//Looped code
```

```
}
```

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### Nested loops

When a loop is put in the body of another, the entirety of that nested loop is executed per each cycle of the outer loop.

Ex:

```
for(int i = 0; i < 3; i++) {  
  for(int x = 0; x < 3; x++) { //Repeats 3 times for i < 3  
    //Repeats 3 times for x < 3, then loop runs again from beginning. Outputs 9 times total  
  }  
}
```

### While loops

While loops are another form of loop, however unlike for loops, not all of its elements are inside the header. The only element inside the header is the condition, making it similar to an if statement, and the variable and modifier must be declared elsewhere. Typically, the variable is declared in the global scope, then the modifier is placed inside the loop so it updates after every repetition.

Ex:

```
Int i = 0;  
While (i < 3) {  
  i++;  
}
```