

CMSC131

Iteration

Sequential Code

In terms of the code that we've seen up until now, each "unit of code" essentially executes once.

We've seen that there are ways to have conditional execution of code by using an **if** or **if-else** as a guard to specific lines or blocks of code.

We've also seen that if we invoke a method multiple times, then the code within the method is invoked the same number of times, but it's just once per invocation.

Iteration

Sometimes we want some code executed multiple times where the number of iterations is controlled by the data given to the program.

- Sum up all the integers from 1 to 100 (inclusive).
- Ask the user for input until they provide valid input.

Approaches to Iteration

There are several types of iteration:

- for loop
- while loop
- do-while loop
- recursion

We will see that some are better suited for certain tasks either for ease or for efficiency, while in other situations it's just a matter of the preference of the designer of the algorithm.

Consider the following code...

```
do {  
    System.out.print(  
        "Enter your age in years:"  );  
    personAge = sc.nextInt();  
} while (personAge>0 && personAge<200);  
  
//What is this code segment trying to accomplish?  
//Any issues with the logic?
```

Where else do you think iteration is used?

Think about the programs you use and where iteration might have a role.

Share your thoughts with your neighbor.

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