

CSE 121 Lesson 4: for Loops

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Autumn 2024



[sli.do #cse121](https://sli.do/#cse121)

TAs:

Abby	Afifah	Ailsa	Alice	Aliyan	Arohan
Chloë	Christopher	Dalton	Derek	Elizabeth	Ethan
Hanna	Hannah	Heather	Hibbah	Janvi	Jasmine
Judy	Julia	Kelsey	Lucas	Luke	Mahima
Maitreyi	Maria	Merav	Minh	Neha	Ronald
Ruslana	Sahej	Sam	Samrutha	Sushma	Vivian
Yijia	Zachary				

Today's playlist:
[121 24au lecture tunes](#)

Announcements & Reminders

- P0 due last night– congratulations!!
- C1 releasing later today (due Tuesday, October 15th)
- Feedback for Creative Project 0 released yesterday!
- Resubmission Cycle 0 (R0) opening tomorrow (due Thursday, October 17th)
- Reminder: [IPL](#) is open!
 - in-person at MGH 334, uses a tool called “MyDigitalHand”
 - many hours: e.g. 12:30-9:30 today! (see [schedule](#) for more)

Resubmissions (or “resubs”)

Each week, you may resubmit one Programming Assignment or Creative Project with **no penalty**. The grade of your resubmission will completely replace your previous grade.

This is a huge opportunity: you get to resubmit your work after we grade it and give you feedback! Please take advantage of this :)

(if you miss an assignment and/or only finish it late – use a resub!)

Resubmissions (or “resubs”)

Some logistics:

- there are 8 total resub cycles this quarter (and... 8 assignments...)
- an assignment is only eligible for resubmission for 3 cycles after feedback is released

To resubmit, you should:

- set the submission you want to be graded as “Final”
- **submit a Google form** to confirm your resubmission
 - you must fill out the form before the deadline for your resub to count!

Last Time...

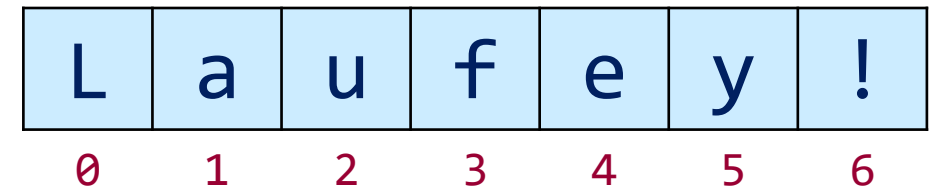
- Variables

- Container that stores a specific data type
- Must declare & initialize!
- Manipulate, modify, reuse ♻️

```
// declare AND initialize  
int version = 5;
```

- Strings

- Sequence of characters treated as one, yet can be indexed as individual parts
- char, represents a single character



Poll in with your answer!



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Suppose `s` contains the String "bubble gum". Which option below would result in `s` containing "Gumball" instead?

b	u	b	b	l	e		g	u	m
0	1	2	3	4	5	6	7	8	9

- A. `s.substring(7) + "ball";`
- B. `s = s.substring(7, 9) + "ball";`
- C. `s = s.charAt(7).toUpperCase() + "ball";`
- D. `s = s.substring(7, 8).toUpperCase() + s.substring(8) + "ball";`



Debugging – Live!

In P0, we asked you to do some debugging.

This is arguably the most important skill when programming – especially because programming is a social activity!

Let's do some live debugging :)

(PCM) for loops!

For loops are our first *control structure*

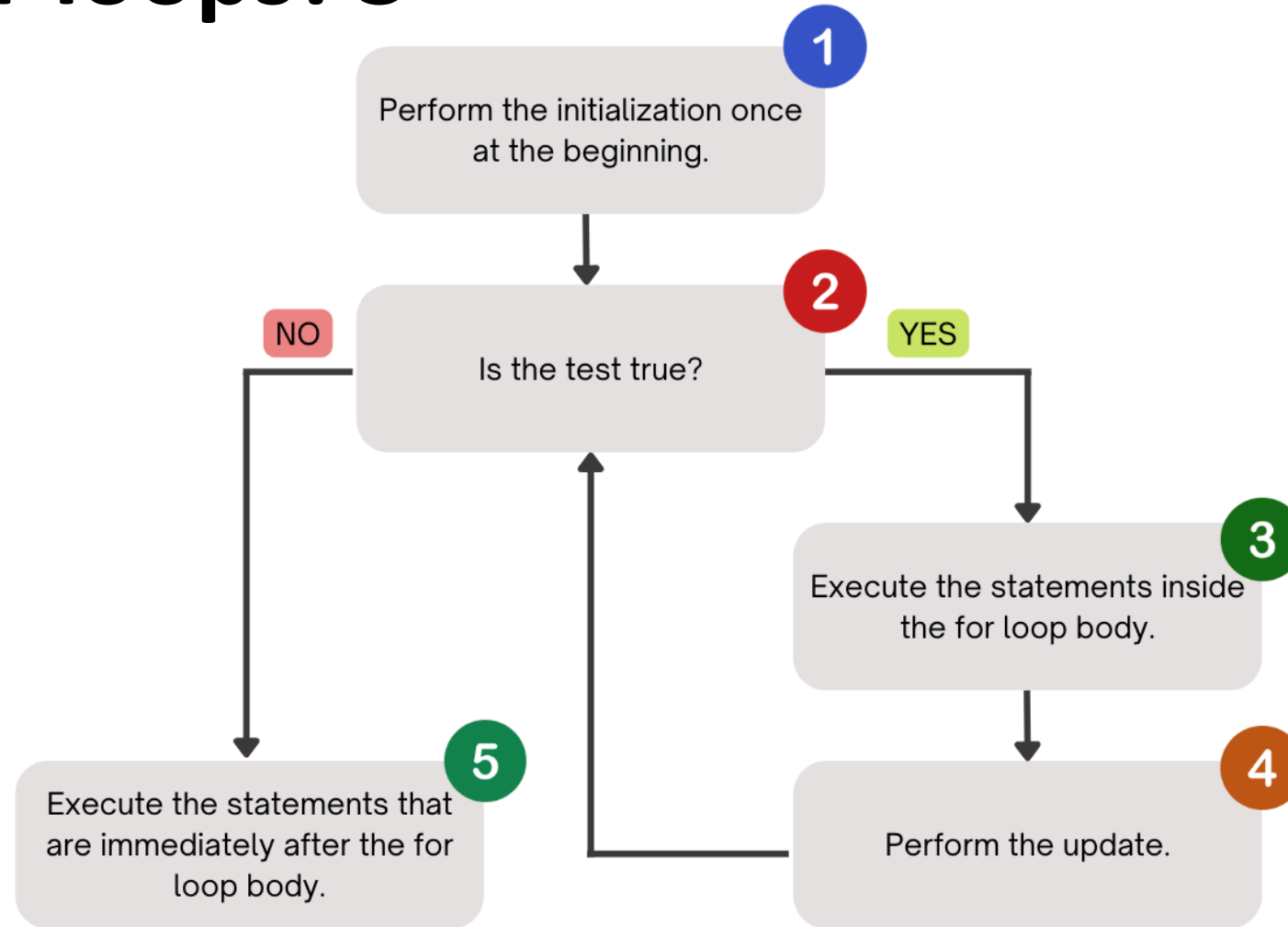
A syntactic structure that *controls* the execution of other statements.

```
for ( initialization ; test ; update ) {  
    body (statements to be repeated)  
}
```


(PCM) for loops! 2

```
for (int counter = 1; counter <= 5; counter++) {  
    System.out.println("I love CSE 121!");  
}
```

(PCM) for loops! 3



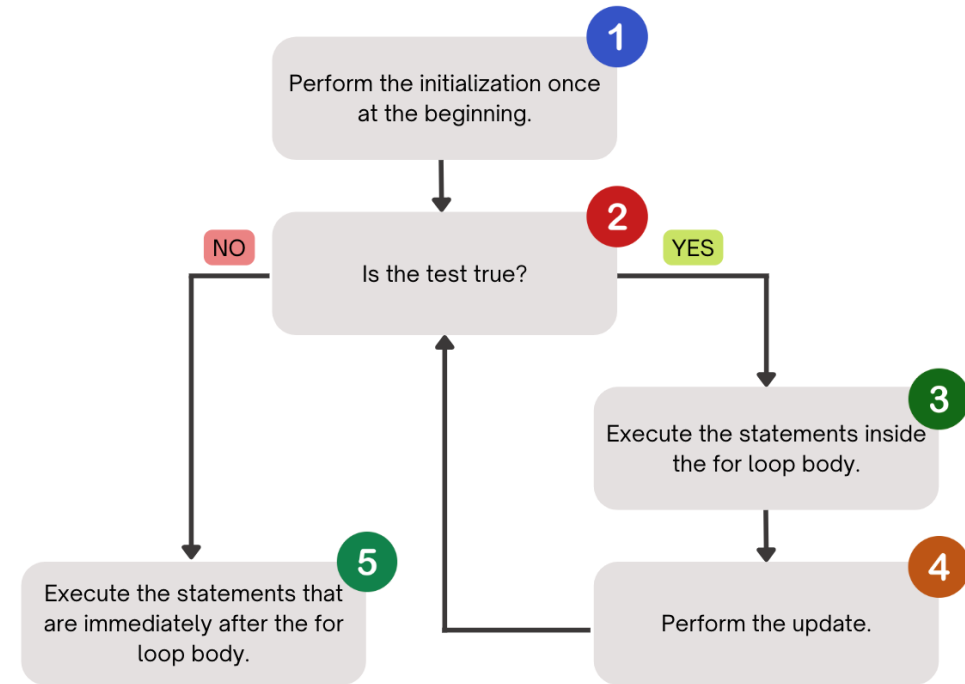
(PCM) for loops! 4

```
for (int counter = 1; counter <= 5; counter++) {  
    System.out.println("I love CSE 121!");  
}
```

counter
6

5

```
I love CSE 121!  
I love CSE 121!  
I love CSE 121!  
I love CSE 121!  
I love CSE 121!
```



Poll in with your answer!



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What output does the following code produce?

```
for (int i = 1; i <= 6; i++) {  
    System.out.println(i + " squared = " + i * i);  
}
```

A.

```
i squared = i * i  
i squared = i * i  
i squared = i * i  
i squared = i * i  
i squared = i * i  
i squared = i * i
```

B.

```
i squared = i * i  
i squared = i * i  
i squared = i * i  
i squared = i * i  
i squared = i * i  
i squared = i * i  
i squared = i * i
```

C.

```
1 squared = 1  
2 squared = 4  
3 squared = 9  
4 squared = 16  
5 squared = 25  
6 squared = 36
```

D.

```
1 squared = 1  
2 squared = 4  
3 squared = 9  
4 squared = 16  
5 squared = 25  
6 squared = 36  
7 squared = 49
```

(PCM) String traversals

```
// For some String s  
for (int i = 0; i < s.length(); i++) {  
    // do something with s.charAt(i)  
}
```

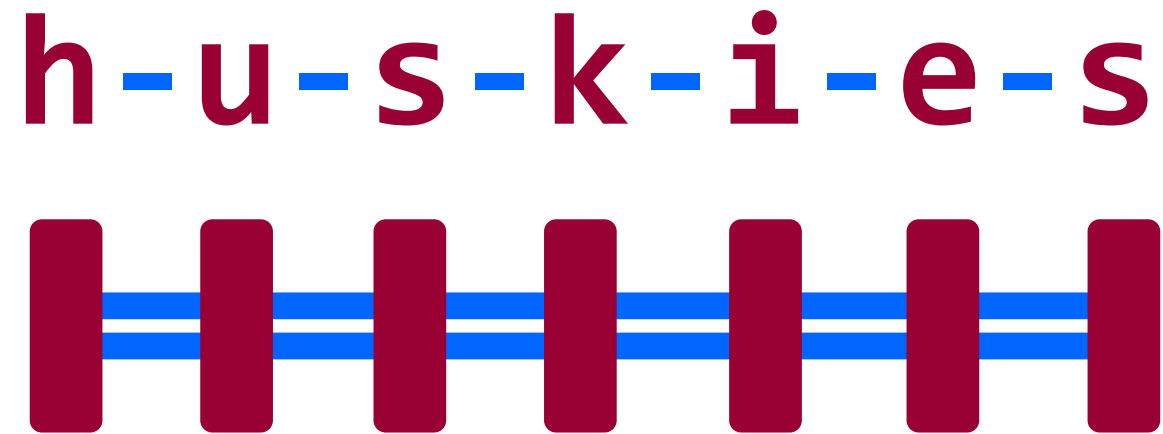
Fencepost Pattern 1

Some task where one piece is repeated n times, and another piece is repeated $n-1$ times and they alternate

h-u-s-k-i-e-s

Fencepost Pattern 2

Some task where one piece is repeated n times, and another piece is repeated $n-1$ times and they alternate



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