

RECURSION



Problem Solving with Computers-I

<https://ucsb-cs16-wi17.github.io/>

C++

```
#include <iostream>
using namespace std;

int main(){
    cout<<"Hola Facebook!";
    return 0;
}
```



Announcements

- Please register your clickers on Gauchospace
- No lecture Thursday: 03-09 (I will be away that day). Please watch the video on C strings by my colleague Michelle Craig: https://c-programming.onlinelearning.utoronto.ca/Strings_and_Files.shtml
- HW 13 and 14 are due next week on Tuesday!
- Check your latest grades on Gauchospace!

Review: Iterating through sequences

name	'B'	'o'	'n'	'd'	'0'	'0'	'7'
------	-----	-----	-----	-----	-----	-----	-----

```
void printElements(char *arr, int len){  
    for(int i =0; i< len; i++)  
        cout<<arr[i];  
    cout<<endl;  
}
```

```
int main(){  
    char name[]={'B','o','n','d','0','0','7'};  
    printElements(name, 7);  
}
```

Recursion

name	'B'	'o'	'n'	'd'	'0'	'0'	'7'
------	-----	-----	-----	-----	-----	-----	-----

```
void printElementsRecursive(char *arr, int len){  
  
}  
int main() {  
    char name[]={'B','o','n','d','0','0','7'};  
    printElementsRecursive(name, 7);  
}
```

Print Backwards

name

'B'	'o'	'n'	'd'	'0'	'0'	'7'
-----	-----	-----	-----	-----	-----	-----

```
void printElementsBackwards(char *arr, int len) {
```

```
    if (len <= 0) {  
        _____ (1) _____
```

```
        return;
```

```
    }
```

```
    _____ (2) _____
```

```
    _____ (3) _____
```

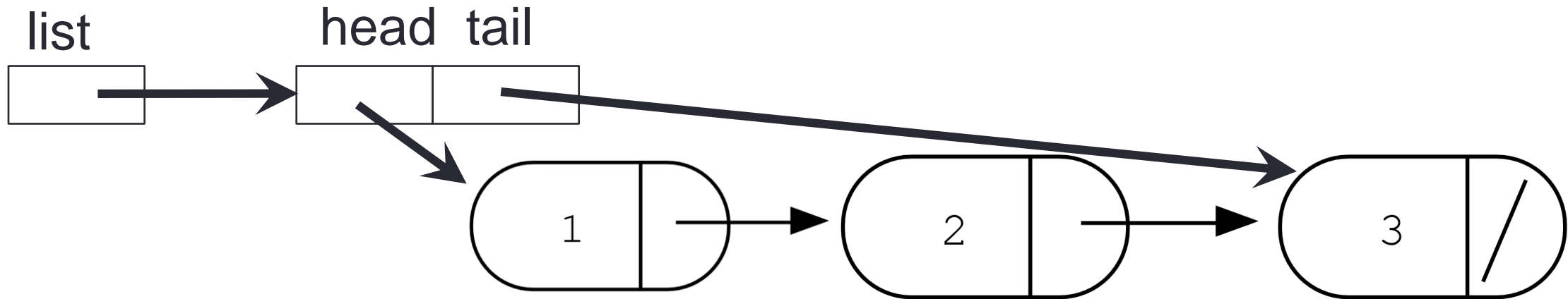
```
}
```

Choose the correct order of statements

	(1)	(2)	(3)
A.	cout<<endl;	cout<<*arr;	Print*
B.	;	cout<<*arr;	Print*
C.	;	Print*	cout<<*arr;
D.	cout<<*arr;	Print*	cout<<endl;

Print=>printElementsBackwards(arr+1,len-1);

Printing elements of a list (iteratively, recursively, backwards)



Under the hood of recursion

name

'B'	'o'	'n'	'd'	'0'	'0'	'7'
-----	-----	-----	-----	-----	-----	-----

```
void printElementsBackwards(char *arr, int len) {  
    if(len<=0) { //Base case  
        return;  
    }  
    printElementsBackwards(arr+1, len-1);  
}
```

Next time

- Wrap up and review