

$n = 348 \rightarrow 334488$

```
public int stutter(int n) {  
    if (n < 10) {  
        return n * 11;  
    } else {  
        return stutter(n/10)*100  
            + stutter(n%10);  
    }  
}
```

3 4	8	334400
/ 10	% 10	+ 88

$n = 5 \rightarrow 55$

list: 

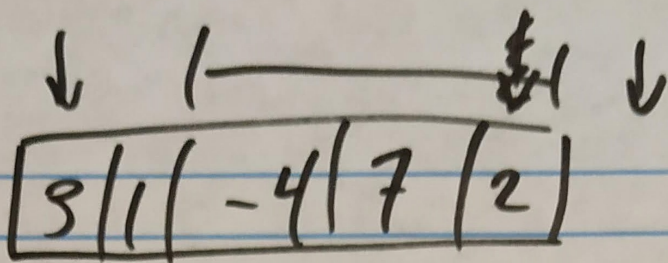
3	1	-4	7	2
---	---	----	---	---

list ✓  
sum ✓  
①

```
public int sum(int[] list) {  
    int sum = 0;  
    for (int i = 0; i < list.length; i++) {  
        sum = sum + list[i];  
    }  
    return sum;  
}
```

```
public int sum(int[] list) {  
    return sum(list, 0);  
}
```

public / private pair



private

```

public int sum(int[] list, int index) {
    if (index == list.length) {
        return 0;
    } else {
        return list[index] +
            sum(list, index + 1);
    }
}

```

"recursion Zen"

```

if (index == list.length - 1) {
    --
}

```

0

$$list[0] + \text{sum}(\text{of the rest})$$

$$list[1] + \text{sum}(\text{starting at } 2)$$

index ++                      index = index + 1