

# 1st project

## Make it short



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# count1.c

```
1  #include <stdio.h>
2
3  int main(){
4      int i;
5      for (i=1;i<10000;i++){
6          printf("%d,",i);
7      }
8  }
```

Includes <stdio.h> library

Prints integers from 1 to 9999 with commas

Output format: 1,2,3,...,9999,  
using for loop and printf.

# count2.c

```
1  main(i){printf("%d,", i++); i<1e4&&main(i);} }
```

Removed `#include <stdio.h>`

Replaced for loop with recursion

Used parameter `i`, no separate declaration

Combined `printf` and increment into one line:  
`printf("%d,", i++);`

Simplified `int main()` to `main(i)`  
by omitting the return type

Replaced `10000` with `1e4` for concise notation.

# Code Review

## 1 . Open the code

- count1.c

```
oh030@localhost:/mnt/c/Users/oh030/Downloads$ cat count1.c
#include <stdio.h>
int main()
{
    int i;
    for(i=1; i<10000; i++)
    {
        printf("%d,", i);
    }
} oh030@localhost:/mnt/c/Users/oh030/Downloads$
```

- count2.c

```
oh030@localhost:/mnt/c/Users/oh030/Downloads$ cat count2.c
main(i){printf("%d,", i++); i<1e4&&main(i);} oh030@localhost:/mnt/c/Users/oh030/Downloads$
```

# Code Review

## 2 . Compile the code

- count1.c

```
oh030@localhost:/mnt/c/Users/oh030/Downloads$ gcc -o count1 count1.c -std=c90
```

- count2.c

```
oh030@localhost:/mnt/c/Users/oh030/Downloads$ gcc -o count2 count2.c -std=c90
count2.c: In function 'main':
count2.c:1:9: warning: incompatible implicit declaration of built-in function 'printf' [-Wbuiltin-declaration-mismatch]
   1 | main(i){printf("%d,",i++);i<1e4&&main(i);}
     |         ^~~~~~
count2.c:1:1: note: include '<stdio.h>' or provide a declaration of 'printf'
+++ |+#include <stdio.h>
   1 | main(i){printf("%d,",i++);i<1e4&&main(i);}
```

# Code Review

## 3. run the executable

- count1.c

```
oh030@localhost:/mnt/c/Users/oh030/Downloads$ ./count1
1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,
26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,
48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,
70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,
...
9910,9911,9912,9913,9914,9915,9916,9917,9918,9919,9920,9921,9922,9
923,9924,9925,9926,9927,9928,9929,9930,9931,9932,9933,9934,9935,99
36,9937,9938,9939,9940,9941,9942,9943,9944,9945,9946,9947,9948,994
9,9950,9951,9952,9953,9954,9955,9956,9957,9958,9959,9960,9961,9962
,9963,9964,9965,9966,9967,9968,9969,9970,9971,9972,9973,9974,9975,
9976,9977,9978,9979,9980,9981,9982,9983,9984,9985,9986,9987,9988,9
989,9990,9991,9992,9993,9994,9995,9996,9997,9998,9999,oh030@localh
ost:/mnt/c/Users/oh030/Downloads$
```

- count2.c

```
oh030@localhost:/mnt/c/Users/oh030/Downloads$ ./count2
1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,
26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,
48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,
70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,
92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,11
...
911,9912,9913,9914,9915,9916,9917,9918,9919,9920,9921,9922,9923,99
24,9925,9926,9927,9928,9929,9930,9931,9932,9933,9934,9935,9936,993
7,9938,9939,9940,9941,9942,9943,9944,9945,9946,9947,9948,9949,9950
,9951,9952,9953,9954,9955,9956,9957,9958,9959,9960,9961,9962,9963,
9964,9965,9966,9967,9968,9969,9970,9971,9972,9973,9974,9975,9976,9
977,9978,9979,9980,9981,9982,9983,9984,9985,9986,9987,9988,9989,99
90,9991,9992,9993,9994,9995,9996,9997,9998,9999,oh030@localhost:/m
nt/c/Users/oh030/Downloads$
```

# Code Review

## 4. Compare the result of Original source code

```
oh030@localhost:/mnt/c/Users/oh030/Downloads$ ./count1 > c1 && ./count2 > c2  
oh030@localhost:/mnt/c/Users/oh030/Downloads$ diff c1 c2  
oh030@localhost:/mnt/c/Users/oh030/Downloads$
```

# Checklist

- ☐ Code size must be less than or equal to 53 bytes  
(*Bonus: 42 bytes or less!*)

```
oh030@localhost:/mnt/c/Users/oh030/Downloads$ wc -m count2.c
42 count2.c
```

- ☐ No while or for loops allowed
- ☐ Explain how you simplified the source code
- ☐ Describe how you implemented looping without while or for loops

```
1  main(i){printf("%d,",i++);i<1e4&&main(i);} }
```



# Thank you



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