

# Bloomberg interview

1.

1. what is wrong with:

```
char *foo (int value)
{
```

```
    char buf [50];
```

```
    switch (value)
```

```
    {
```

```
        case 0: strcpy strcpy (buf, "ten");
```

```
        case 1: strcpy (buf, "thirty");
```

```
        case 2: strcpy (buf, "fifty");
```

```
        case 3: strcpy (buf, "one hundred");
```

```
        default: strcpy (buf, "two hundred");
```

```
    }
```

```
    return &buf;
```

```
}
```

2. logic problem: 3 bins, one containing apples, one containing oranges, one containing mixture. ~~each~~ each is labelled (apples, oranges, mixture), but all labels are incorrect. allowed to pick one fruit from one of the bins, to determine contents of all three.

3. programming problem: have file containing 7 digit numbers, one per line - so each line consists of ~~7~~ 8 chars (7 digits + newline). have 2MB of RAM available. how to write program that ~~reads~~ copies numbers to another file, sorted into order.

what if will fit in RAM? won't fit in RAM?

how many numbers will fit in the 2MB RAM?

how big could the file be, if all numbers distinct?

if you had to program your own sort algorithm, could you do it? how?

how would you input the data?

4. what are some grep options?

5. name some Unix signals? are they all trappable?

6. if doing I/O in C, what sort of returns can you get? what conditions might you have to deal with, unrelated to actual I/O?

7. what utilities does Unix provide to help understand what's happening with IPC? what other IPC utility might be useful.

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2.

8. if your program crashes, how can you find out where it failed? if `gdb` doesn't provide mapping of stack trace back to source, ~~then~~ how could you find where (in source file) it failed?
9. logic problem: have gold bar with which to pay employee. pay  $1/7$  of gold bar for each of 7 days. only allowed to cut gold bar twice.
10. have collection of tasks that run overnight, but have been taking longer and longer 'cos of increased amount of data handled. how would you investigate speeding up the overnight processing. (tasks are already distributed over several machines).
11. what ~~is~~ is `chroot`? can anyone use it? does it affect everyone?
12. what are `iostat` and `vmstat` ~~and~~ utilities?
13. what is 2 to the power 16?
14. what is `xargs`?
15. have program that repeatedly reads a chunk of data, processes it, and outputs the result of processing. what facilities does `Unix` provide that would help do this efficiently?
16. how does OO design differ from ~~then~~ procedural design?
17. what is difference between hard and soft links?
18. have file containing lots of words, one per line (e.g. might be all the words from a dictionary). want to produce another file containing same words but with words which are anagrams of each other grouped together on same line. ~~but what~~ what thoughts do you have about doing this?  
example: `opts stop post pots` <sup>tops</sup> should all be on same line.
19. do you have any database experience?
- 20.