

## Q1 Thinking about pointers...

```
1: int ***** ptr;
```

## Q2. Using read():

```
ssize_t read(int fd, void *buf, size_t count);
```

...what type of call is read?

...how would we use it?

```
1:
2:
3:
```

## Q3. Using scanf():

```
int scanf(const char * format, ...);
```

In **scanf**, the format string is the same as **printf** except that every type must be passed by reference to be written into by **scanf**:

Specifier:	d i	u o x	f	c s	p
Type:					

**scanf** return value (and why is it useful)?

Example:

```
1: int num; char c;
2: int result = scanf("%d %c", &num, &c);
3: printf("Values: %d %c\n", num, c);
4: printf("Return value: %d\n", result);
```

...what is the return value for the input: 7 hello

...what is the return value for the input: 6 (...followed by an EOF)

## Q4 fscanf, scanf, sscanf?

```
10,23
20,25
30,37
...
```

How can I read and process my data?

```
1: FILE *file = fopen("mydata.csv", "r");
2:
3:
```

## Q5. Using getline():

```
ssize_t getline(char **lineptr, size_t *n, FILE *stream);
```

The C-string passed by reference as **lineptr** will store the line; the size of the memory allocated in **lineptr** must be stored in **n** (to avoid overflow).

Additionally:

If **\*lineptr** is set to **NULL** and **\*n** is set 0 before the call, then **getline()** will allocate a buffer for storing the line. This buffer should be freed by the user program even if **getline()** failed.

...found in man **getline**

Example usage:

```
1: char *s = NULL;
2: int n = 0;
3: getline(&s, &n, stdin);
4: getline(&s, &n, stdin);
5:
...
n: free(s);
```

**Q6. Processes: What are they? Can I have new one?**

A process is the base computation container on Linux; multiple processes allow for multiple separate (and parallel) execution.

Is there a system call to make a new process?

**Q7. Environmental Variables**

A process-specific dictionary that stores information about the execution environment:

- Command line:
- C programming:

**Q8. String Puzzle 1 What will the following print?**

1:	char * mesg = "ABCDEF";
2:	mesg[3] = '\0';
3:	
4:	printf("%s", mesg + 1);

**Q9. String Puzzle 2, what is wrong with the following?**

1:	char* domain = strchr("ABC@illinois.edu", '@');
2:	// strchr returns the memory location of the @
3:	char *user = getenv("USER");
4:	strcat(user, domain);

**How would create a new string `user@illinois.edu`? (There's more than one way)**