Week 2 Assignment

Student name(s):

Read the syllabus and answer the following questions.

1. (30 points) The following diagram is a representation of a particular memory region in your program, with annotated variable names, addresses, and values.

Address	Value	Variable name
300	6	`perf`
301	341	`best`
302	2	`even`
303	306	`p`
304	307	`tmp`
305	5	`oh`
306	301	`pp`
307	13	`lucky`

   In this memory region of memory, we can observe the following.

   - `best` evaluates to `341`.
   - `*tmp` evaluates to `13`.
   - `&perf` evaluates to `300`.

   What do the following evaluate to?

   - `p`
   - `*p`
   - `**p`

2. (40 points) Implement the function `swap` that swaps the value of two `int`s, given their pointers as arguments. The values should remain swapped after returning from this function.

```
void swap(int *a, int *b){




}
```

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3. (30 points) The following `sum` function is buggy. It is intended to return the sum of all elements in an array that is passed as an argument. (1) Find the error, (2) describe why it is incorrect, and (3) suggest how to correct it.

   The `sizeof` operator returns the size of its operand.

```
int sum(int *arr){
    int i;
    int sum = 0;
    for (i = 0; i < sizeof(arr); i++) {
        sum += *(arr + i);
    }
    return sum;
}
```