Homework 1 – CS 0449

Question 1:

Shawn Green made a similar mistake in the Doom source code. We will modify Doom to add our own game data... so we will copy and paste. Hmm. Without altering any string literals, fix the following code: (You will edit the existing code below)

```
const char* doomwaddir = "/home/wilkie/doom";

char* doomwad = malloc(strlen(doomwaddir)+1+8+1);
sprintf(doomwad, "%s/doom.wad", doomwaddir);

doomwad[strlen(doomwaddir)+1+8+1] = 0;

char* wilkiedoomwad = malloc(strlen(doomwaddir)+1+12+1);
sprintf(wilkiedoomwad, "%s/wilkdoom.wad", doomwaddir);

wilkiedoomwad[1+12+1] = 0;
```

Question 2:

How many times is memory read in the marked line of the following code:

```
int data = 42;
int* dataptr = &data;
int** dataptrptr = &dataptr;

// The following line:
int data_copy = **dataptr;
```

Answer: 3

Question 3:

What is printed on the first line in the following code:

```
int data[10] = {5, -4, 9, 10, 4, 8, -3, 7, 3, -2};
int* ptr = &data[1]; // The address of data is 0x8004
printf("%p\n", ptr + 2);
printf("%d\n", *(ptr - 1));
```

Answer: **0x800c**

Question 4:

What is printed on the second line in the prior code?

Answer: **5**

Question 5:

Update this code to avoid the problems potentially caused by how the array is returned by `numbers`:

```
int main(void) {
    int ret[10] = {0, 1, 2, 3, 4, 5, 6, 7, 8, 9};
    int* values = numbers();
    for (int i = 0; i < 10; i++) {
        printf("%d\n", values[i]);
    }
    return 0;
//Made code one method to avoid stack deallocation
}
```

Submission:

Please modify this document and answer in the provided spaces and submit your completed document to Gradescope.