CSCI 2330 – Struct Exercises

Consider the struct definition below and a **main** function that uses this struct:

```
typedef struct {
    int x;
    int y;
    int z;
} thing;
```

```
int main() {
    thing s1;
    thing s2 = s1;
    thing *s3 = malloc(sizeof(thing));
    thing *s4 = s3;
    ...
```

1. Assuming this struct type is stored in 12 bytes, how many distinct 12-byte structs are created when the above function is executed?

2. Below is a Java method called **zero** that initializes the fields of a given **JavaThing** object to 0:

```
public void zero(JavaThing t) {
    t.x = 0;
    t.y = 0;
    t.z = 0;
}
```

Rewrite the **zero** method as a C function that operates on a **thing** struct as defined above.

3. Write a snippet of C code that initializes all the structs created in the **main** function given previously (using variables **s1**, **s2**, **s3**, **s4**) by calling your **zero** function. Note that the number of calls to **zero** that you write should be equal to your answer to Q1 — i.e., you might not actually need to use all four of the variables.