CSCI 2330 – Struct Exercises

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

```
typedef struct {              void main() {
    int x;                        thing s1;
    int y;                        thing s2 = s1;
    int z;                        thing* s3 = malloc(sizeof(thing));
} 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.