COMP500 / ENSE501: Week 11 – Exercise:

EXERCISE NAME: *Broken Binary Read*

Given the following source code:

```c
#include <stdio.h>

struct Superhero
{
    char hero_name[20];
    char alter_ego[20];
};

void read_superhero_from_file(char* p_filename,
                                struct Superhero output)
{
    FILE* p_file = fopen(p_filename, "rb");

    fread(output.hero_name, sizeof(char), 20, p_file);
    fread(output.alter_ego, sizeof(char), 20, p_file);

    fclose(p_file);
}

void print_hero(struct Superhero who)
{
    printf("%s is %s\n", who.alter_ego, who.hero_name);
}

int main(void)
{
    struct Superhero batman;
    struct Superhero superman;

    read_superhero_from_file("batman.bin", batman);
    read_superhero_from_file("superman.bin", superman);

    print_hero(batman);
    print_hero(superman);

    return 0;
}
```

Download the two files, **batman.bin** and **superman.bin**, from Blackboard and place them in the project directory.

The program crashes at runtime. Correct the program such that a **Superhero** structure variable is passed into the **read_superhero_from_file** function by reference. At present it is incorrectly passed by value.