Homework 4

All the following assignments are selected from Gaddis edition 7. The purpose is that you practice with pointers and structures. This homework requires more programming, and probably more time, compared to former ones. Run your code, submit the output and code too. Submit code in a separate, compliable file, do NOT include it in your pdf or tex file.

1. Check point 10.8 [1 point]
2. Programming challenges 10.7, Movie Statistics. [1 points]
3. Write a structure called *Circle* that has *radius* and *color* as its *double* and *string* fields, respectively [1 point]. Write a function with the following prototype that takes the number of circles as an int, creates that many circles using dynamic memory allocation, get the radius of each circle from the user, and returns the sum of the area of all circles. Test your function with a main program and 2 circles [1point].

   double sumArea (int);

Like always:
Run your code, submit the output and code too. Submit code in a separate, compliable file, do NOT include the code in your pdf or tex file. Submit only 1 compressed (.gz.tar or .zip NOT .rar) file for this HW.

10.8 For each of the following variable definitions, determine whether the statement is valid or invalid. For those that are invalid, explain why.

A)
```
int ivar;
int *iptr = &ivar;
```
B)
```
int ivar, *iptr = &ivar;
```
C)
```
float fvar;
int *iptr = &fvar;
```
D)
```
int nums[50], *iptr = nums;
```
E)
```
int *iptr = &ivar;
int ivar;
```

7. Movie Statistics

Write a program that can be used to gather statistical data about the number of movies college students see in a month. The program should ask the user how many students were surveyed and dynamically allocate an array of that size. The program should then allow the user to enter the number of movies each student has seen. The program should then calculate the average, median, and mode of the values entered.