CS 2213 Advanced Programming Recitation - Exercise

Structures - functions

- Write a program using structures that manipulates pairs.
- Write functions for Addition and multiplication of pairs that are defined as

(a,b)+(c,d)=(a+c,b+d)	p3=add(p1, p2);
(a,b)*(c,d)=(a*c,b*d)	p3=multiply(p1, p2);

- Update the program to support the following on pairs

  c*(a,b) = (c*a,c*b) // scalar multiplication operator

  (a,b)^c = (a^c,b^c) // scalar power operator

Following slides from Lecture notes will be helpfull

- Store two integers to represent the first and second number of pair

```
struct pair
{
  int first;
  int second;
};
```

```
struct pair add(struct pair p1, struct pair p2)
{
  struct pair temp;
  temp.first = p1.first + p2.first;
  temp.second = p1.second + p2.second;
  return temp;
}
```

```
struct pair multiply(struct pair p1, struct
  pair p2)
{
   struct pair temp;
   temp.first = p1.first * p2.first;
   temp.second = p1.second * p2.second;
   return temp;
}


struct pair mp1,mp2,mp3,mp4;

printf("Enter first pair\n");
scanf("%d %d",&mp1.first, &mp1.second);

printf("Enter second pair\n");
scanf("%d %d",&mp2.first, &mp2.second);

mp3 = add(mp1, mp2);
printf("Addition result =
   (%d,%d)\n",mp3.first,mp3.second);

mp4 = multiply(mp1,mp2);
printf("Multiplication result =
   (%d,%d)\n",mp4.first,mp4.second);
```

You must submit your work using Blackboard Learn and respect the following rules:

1) All assignments must be submitted as either a zip or tar archive file unless it is a single pdf file.
2) Assignments must include all source code.
3) Assignments must include an output.txt file which demonstrates the final test output run by the student.
4) If your assignment does not run/compile, the output.txt file should include an explanation of what was accomplished, what the error message was that prevented the student from finishing the assignment and what the student BELIEVES to be the underlying cause of the error.
