EE 251: Homework 3

All programs must be emailed. Please follow the following steps

1. It is probably easier if you create a directory for each homework set, e.g., `hw3`

2. Name each problem as `prob_x_y.c`, where `x` is the problem number and `y` is the subproblem if any, e.g., `prob_1_a.c` If there are no subpart to the problem then just use the format `prob_x.c`

3. Zip all the files (or the directory for that homework if you made one) using the following command

   ```
   tar -czvf lastname_firstname_hw3.tar.gz prob_1.c prob_2_a.c
   ```

   or if you put all the files for a particular homework in its own directory

   ```
   tar -czvf lastname_firstname_hw3.tar.gz hw2
   ```

   Don't forget to change `lastname_firstname` with your last and first name

4. Email me you .tar.gz file with EXACTLY the following as the subject

   ```
   spring 2015 ee251 hw3
   ```

1. Record the output of the following program below

```c
#include<stdio.h>

int test_fn(int, int *, int a[]);


int main(){
    int i = -24;
    int l = -24, j;
    int *k = &i;
    int a[10]={1,2,3,4,5,6,7,8,9,10};

    printf("———————— Before function call ——————————\n");
    printf("i  = %d\n", i);
    printf("*k = %d\n", *k);

    for (j=0; j<10; j++)
        printf("a[%d] = %d\n", j, a[j]);

    test_fn(i, k, a);

    printf("\n———————— After function call ——————————\n");

    printf("i  = %d\n", i);
    printf("*k = %d\n", *k);

    for (j=0; j<10; j++)
        printf("a[%d] = %d\n", j, a[j]);


    return(0);
}

int test_fn(int i, int *k, int a[]){
    int j;

    for (j=0; j<10; j++)
        a[j] = j*2;

    i = 0;
    *k = 100;

    return(0);
}
```

2. Using the same program in problem 1 as a start, make `i` a global variable. How does the output change?

3. Using the same program in problem 1 as a start, replace line 9 with

   ```
   int *k = &l;
   ```

   How does the output chnage?

4. What conclusion can you make regarding the way the function handles and processes its parameters?. Which parameters are *passed by value* and which are *passed by reference*? What is the difference?

5. Write a program that

   (a) allows the user to enter two 3 × 3, `A` and `B`

(b) reprint the two matrics formatted, for example

```
                -         -
              | 1  2  3 |
      A =     | 4  5  6 |
              | 0  2  9 |
                -         -
```

(c) output A * B (you should write this as a function and call it in your pgoram)

(d) print the output formatted similar to the example above