CSE 1320.002

Name: _____

Exam 2   Date: 10-18-2013

Student ID: _____

Note:

A. 4 problems in total. Write as much explanation as you can, you can get partial credit for incorrect answers.
B. CLEARLY indicate your answer on the exam. Scratch papers will NOT be graded.
C. All scratch papers must be returned.

stdio.h

```
int fclose( FILE *stream );
int fgetc( FILE *stream );
char *fgets( char *str, int num, FILE *stream );
FILE *fopen( const char *fname, const char *mode );
int fprintf( FILE *stream, const char *format, ... );
int fputc( int ch, FILE *stream );
int fputs( const char *str, FILE *stream );
int fscanf( FILE *stream, const char *format, ... );
int sprintf( char *buffer, const char *format, ... );
```

string.h

```
char *strcat( char *str1, const char *str2 );
int strcmp( const char *str1, const char *str2 );
char *strcpy( char *to, const char *from );
size_t strlen( char *str );
char *strtok( char *str1, const char *str2 );
```

strcmp() returns an int that represents the relationship between str1 and str2. The values returned are:

Relationship strcmp()	Returns
if str1 == str2	0
if str1 < str2	negative value
if str1 > str2	positive value

1. (25 points) Write a program that uses pointers to pass a variable x by reference to a function where its value is doubled. The return type of the function should be void. The value of the variable should be printed from `main()` after the function call. The original value of x is 5.

2. (25 points) What does the following program print?

```c
#include <stdio.h>

int main(void)
{
    int data[] = {1, 2, 3, 4, 5, 6, 7};
    int *ptr = data;
    int i;
    printf(" i *ptr\n--------\n");
    for(i = 2; i > -4; i--)
    {
        printf("%2d, %2d\n", i, *ptr);
        ptr+=i;
    }
}
```

3. (25 points) Write a program that can read a file, `names.txt`, that contains a single name on each line. If the name begins with a capital letter, print the name. If it begins with a lowercase letter, don't print it. Each name contains less than 20 letters. You don't need to do any error checking.

   For example, `names.txt` has the following lines:
   David
   mike
   Jim

   For array char line[20], you can use loop `while ( fgets ( line, sizeof line, fp ) != NULL ) {}` to read a file line by line.

4. (25 points) Write a program that stores the following information in an array of structures (use `stcpy` to initialize the struct array) and then print the names of the mammals in the array:

```
zebra, mammal
shark, fish
vulture, bird
```

Your program should use the string library function `strcmp` to determine which animals are mammals.