

## CMPE 312- OPERATING SYSTEMS

### EXERCISE 4A(Monday 9-11)

#### *Pointer and Functions*

In C, when we pass arguments to functions, we pass them by value. We might be in some cases to wish to change the passed arguments' value in the function and receive the new value back once to function has finished. To do this, we can make of use of pointers.

We can use functions with pointers to pass the address of the variables to the functions and access address of function.

Example:

```
#include <stdio.h>
void swap(int *ptr_x, int *ptr_y); //Prototype of swap function declared here
int main(void) {
    int a = 15, b=25;
    swap(&a,&b);
    printf("%d, %d",a,b);
    return 0;
}

void swap(int *ptr_x, int *ptr_y){
    int temp;
    temp = *ptr_x;
    *ptr_x = *ptr_y;
    *ptr_y = temp;
}
```

## *Structs and Pointers*

C is not an object oriented programming language, so we do not have classes and objects.

However, we have Struct type to create and to hold different type of information altogether.

Example:

```
#include <stdio.h>
#include <stdlib.h>
typedef struct student {
    char name[30];
    int age;
    float gpa;
} students;

int main(void) {
    students *my_students;
    int number_of_students, i;
    printf("How many students would you like to record?");
    scanf("%d",&number_of_students);
    my_students = malloc(number_of_students*sizeof(students));
    for(i = 0; i < number_of_students; ++i)
    {
        printf("Enter first name and age respectively: ");
        scanf("%s%d", (my_students+i)->name, &(my_students+i)->age);
    }
    return 0;
}
```

***TASK:*** You are expected to record also the gpa info of the students and display information of the students one by one.