EEE101 C Programming and Software Engineering
Solutions to Lab Practice 8

Exercise 1

Example a

The value of *ptr and *(ptr+2) are 2 and 4 respectively.

Example b

The value of *ptr and *(ptr+2) are 2 and 0 (uninitialized value) respectively.

Exercise 2

```
#include<stdio.h>
int main(){
float t[3][4];
float *ptr;
float sum=0.0;
int i,j;

srand(time(0));
ptr=&(t[0][0]);          /*use a pointer to initialize the array t and calculate the sum*/

for(i = 0; i < 3 * 4; i++){
        sum += *(ptr + i) = ((float) rand()/(rand()+1)); /*fill with random float*/
        printf("The pointed value %f  and  index i:%d\n",*(ptr +  i), i);
        }

printf("\nPrinting the first sum %f\n",sum);
return 0;
}
```

Exercise 3

```
#include<stdio.h>

int index(int a[], int n);

int main(){
int a[1000];
int i, size;

printf("Please enter the size of the array.\n");
scanf("%d", &size);
printf("Please enter array elements.\n");

for(i=0; i<size; i++){
        scanf("%d",&a[i]);
        if(i!=size-1)
                printf("Next element.\n");
        else
                printf("Thanks for the inputs.\n");
        }

printf("\nThe index of the largest value in the array is %d.\n",index(a, size));
return 0;
}

int index(int a[], int n){
        int i, j, largest=0;

        for(i=0;i<n;i++){
                if(a[i]>largest){
                        largest = a[i];
                        j=i;
                        }
                }
        return j;
        }
```

Exercise 4

```
#include<stdio.h>

double difference(double a[], int size);

int main(){
double a[1000];
int i, size;

printf("Please enter the size of the array.\n");
scanf("%d",&size);
if(size == 1){
        printf("The size must be at least 2 and try it later.\n");
        return 0;
        }
printf("Please enter array elements.\n");

for(i=0; i<size; i++){                          /*fill the array from the keyboard*/
        scanf("%lf",&a[i]);
        if(i != size-1)
                printf("Next element.\n");
        else
                printf("Thanks for the inputs.\n");
        }

printf("\nThe difference between the largest and smallest elements in the array is
                                                        %lf.\n",difference(a,size));
return 0;
}

double difference(double a[], int size){
        int i;
        double largest=0.0, smallest;

        for(i=0; i<size; i++){                  /*determine the largest number*/
                if(a[i]>=largest){
                        largest =  a[i];
                        }
                }

        smallest=a[0];
        for(i=0; i<size; i++){                  /*determine the smallest number*/
                if(a[i] <= smallest){
                        smallest = a[i];
                        }
                }
        return (largest-smallest);
        }
```

Exercise 5

```
#include<stdio.h>

void addArrray(float a1[], float a2[], float a3[], int n);

int main(){
float a1[1000], a2[1000], a3[1000];
int i, size ;

printf("Please enter the size for both arrays.\n");
scanf("%d", &size);
printf("Please enter array elements for the first array.\n");

for(i=0; i<size; i++){
        scanf("%f",&a1[i]);
        if(i != size-1)
                printf("Next element.\n");
        else
                printf("Thanks for the inputs for the first array.\n");
        }

printf("\n\n");
printf("Please enter array elements for the second array.\n");

for(i=0; i<size; i++){
        scanf("%f", &a2[i]);
        if(i != size-1)
                printf("Next element.\n");
        else
                printf("Thanks for the inputs for the second array.\n");
        }

addArrray(a1, a2, a3, size);
}

void addArrray(float a1[], float a2[], float a3[], int n){
        int i;

        for(i=0;i<n;i++){
                a3[i]=  a2[i] + a1[i];
                printf("\nThe value is %f for the element in the first array with index %d\n",
                                                                        a1[i], i);
                printf("\nThe value is %f for the element in the second array with index
                                                                %d\n", a2[i], i);
                printf("\nThe value is %f for the element in the third array with index
                                                                %d\n", a3[i], i);
                }
        }
```