Pionter Solution:

1. Implement the following function which takes the radius of a circle as one of its parameters and stores the circumference and area using the other two parameters.

   void calcCircleInfo(int radius, float *circumference, float *area)

```
#include <stdio.h>
#include <math.h>
#define PI 3.1416

void calcCircleInfo(int radius, float *circumference, float *area);

int main(){

   int r;
   float a , c;

   printf("Enter the radius of the circle: ");
   scanf("%d", & r);

   calcCircleInfo(r , &c , &a);

   printf("The area of the circle is: %.2f\n", a);
   printf("The circumference of the circle: %.2f\n", c);

   return 0;
}
```

```
void calcCircleInfo(int radius, float *circumference, float *area){

   *circumference=2*PI*radius;

   *area=PI*pow(radius,2);
}
```

2. Implement the following function which accepts a string as parameter and reverses it, without using any function from the string library.

```
void strReverse(char *str)
```

```
#include <stdio.h>

void strReverse(char *str){

   int i,j;
   char temp[30];

   for(i=0 ; *(str+i)!=0 ; i++){
   }
   i--;
   for(j=0 ; i>=0 ; j++,i--){
      temp[j]=*(str+i);
   }
```

```
    temp[j]=0;

    for(i=0 ; temp[i]!=0 ; i++){
        *(str+i)=temp[i];
    }
    *(str+i)=0;
}

int main(){

    char str[30];

    printf("Enter a string:");
    scanf("%s", str);

    strReverse(& str[0]);

    printf("The string in reverse order:%s", str);

    return 0;
}
```

3. (i) Write a function that takes the length and width of a rectangle and store the perimeter, area of the rectangle.

(ii) Then write another function that swap the values of perimeter and area.

(iii) Write a function that to find the factorial of the length of the rectangle.

(iv) Write a function to find string length.

(v) Write a function to find the maximum number in an array.

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```
#include <stdio.h>


void periArea(int length , int width , float *perimeter , float *area);
void swapValue(int *length , int *width);
void fact(int x , int *factorial);
int strLength(char *str);
int maxValue(int *num);


int main(){


  int l,w , f,i;
  float a, peri;
  int n[5];
  char s[30];


  printf("Enter the length of the rectangle :");
  scanf("%d", &l);
  printf("Enter the width of the rectangle :");
```

```
    scanf("%d", &w);

    printf("Enter the array:\n");
    for(i=0 ; i<5 ; i++ ){
        printf("Enter n[%d]", i);
        scanf("%d", &n[i]);
    }

    printf("Enter a string:");
    scanf("%s", s);

    periArea(l , w , &peri , &a);

    printf("The area of the rectangle :%.2f\n", a);
    printf("The perimeter of the rectangle :%.2f\n", peri);

    fact(l , &f);

    printf("The factorial of length:%d\n", f);

    swapValue(&l , &w);
    printf("After swap : length:%d  and width:%d \n", l,w);

    printf("The string length:%d\n", strLength(&s[0]));

    printf("The maximum value in the array is:%d", maxValue(&n[0]));
}

void periArea(int length , int width , float *perimeter , float *area){
    *perimeter=2*(length+width);
    *area=length*width;
}


void swapValue(int *length , int *width){

    int temp;

    temp=*width;
    *width=*length;
    *length=temp;
}

void fact(int x , int *factorial){

    *factorial=1;

    for(int i=1 ; i<=x ; i++){
        *factorial=*factorial*i;
    }
}

int maxValue(int *num){

   int i, max=-9999;

    for(i=0 ; i<5 ; i++){
        if(*(num+i)>max)
            max=*(num+i);
    }
    return max;
}

int strLength(char *str){
    int i;

    for(i=0 ; *(str+i)!=0 ; i++){
    }
    return i;
}
```

4.Write a function to swap two numbers using pointer.

____

```
#include <stdio.h>

void swapValue(int *x , int *y);

int main(){

    int num_1,num_2;
    printf("Enter the first number :");
    scanf("%d", &num_1);

    printf("Enter the second number : ");
    scanf("%d", & num_2);

    swapValue(&num_1,&num_2);

    printf("\nAfter swap: 1st num:%d  and  2nd num:%d ",num_1,num_2);

    return 0;
}

void swapValue(int *x , int *y){

    int temp;
    temp=*x;
    *x=*y;
    *y=temp;
}
```

5.Write a C program to reverse an array using pointers.

```
#include <stdio.h>

void reverseArray(int *arr , int n){

    int i,j,temp[n];

    for(j=0 ,i=n-1 ; i>=0 ; j++,i--){
        temp[j]=*(arr+i);
    }
    for(i=0 ; i<n ; i++){
        *(arr+i)=temp[i];
    }
}

int main(){

    int num[20];
    int n,i;

    printf("Enter how many numbers to store in the array:");
    scanf("%d", &n);

    for(i=0 ; i<n ; i++){
        printf("Enter num[%d]:", i);
        scanf("%d", &num[i]);
    }

    reverseArray(&num[0] , n);

    printf("The array after reverse:");

    for(i=0 ; i<n ; i++){
        printf("%d", num[i]);
    }

    return 0;
}
```

6.Write a function to find maximum number in an array.

```
#include <stdio.h>

void reverseArray(int *arr , int n){

    int i,j,temp[n];

    for(j=0 ,i=n-1 ; i>=0 ; j++,i--){
        temp[j]=*(arr+i);
    }
    for(i=0 ; i<n ; i++){
        *(arr+i)=temp[i];
    }
}
```

```
int main(){

    int num[20];
    int n,i;

    printf("Enter how many numbers to store in the array:");
    scanf("%d", &n);

    for(i=0 ; i<n ; i++){
        printf("Enter num[%d]:", i);
        scanf("%d", &num[i]);
    }

    reverseArray(&num[0] , n);

    printf("The array after reverse:");

    for(i=0 ; i<n ; i++){
        printf("%d", num[i]);
    }

    return 0;
}
```