Q1) Write program that contains the following functions:

* + A function called ***reverse\_string***. It will take a string as a parameter. Then it will reverse its content.

**Example:** “Hello” → “olleH”

The function signature should look like this:

* + - void reverse\_string(char \*str)
	+ A function called ***isPalindrome***. It will take a string as a parameter. The function should return 1 if the string is a palindrome. False otherwise. A palindrome is a word that reads the same forward or reversed.

**Example:** “mom” → 1

“hello” → 0

 “Dad” → 0

The methods signature should look like this:

* + - int isPalindrome(char \*str)
* In The main function should do the following:

Print the input string in to reverse order. Tell the user if they were palindrome or not.

**Sample run:**

$ ./isPalendorme

Input a string

mom

reserve string is : "mom"

"mom" is a palindrome string.

admin@VAIO /cygdrive/c/Users/admin/Desktop/csc215

$ ./isPalendorme

Input a string

Dad

reserve string is : "daD"

"daD" is not a palindrome string.

Name your file using the following naming convention:

* “Lab5Q1\_YourFirstName\_YourLastName.c"
* Don’t forget to move to your own directory
* Compile your code and execute it.
* Show the program to your lab instructor before you leave.

**Answer:**

#include<stdio.h>
#include <string.h>

void reverse\_string(char \*str);
int is\_palindrome(char \*str);

int main()
{
 char str[100];
 int result;
 printf("Input a string\n");
 gets(str);
 reverse\_string(str);
 result = is\_palindrome(str);
 printf("reserve string is : \"%s\" \n",str);

 if ( result == 1 )
 printf("\"%s\" is a palindrome string.\n", str);
 else
 printf("\"%s\" is not a palindrome string.\n", str);

 return 0;
}
int is\_palindrome(char \*str)
{
 int check = 0, length,i;
 length = strlen(str);
 for(i=0;i < length ;i++)
 {
 if(str[i] != str[length-i-1])
 {
 check = 1;
 break;
 }
 }
 if ( check == 0 )
 return 1;
 else
 return 0;
}
void reverse\_string(char \*str)
{
 int length, c;
 char \*begin, \*end, temp;

 length = strlen(str);

 begin = str;
 end = str;

 for ( c = 0 ; c < ( length - 1 ) ; c++ )
 end++;
 for ( c = 0 ; c < length/2 ; c++ )
 {

 temp = \*end;
 \*end = \*begin;
 \*begin = temp;

 begin++;
 end--;
 }
}

Q2) Write a Program that computes the average of students grades stored in an array using pointers.

**Sample Run**

Enter the number of students:5

Enter the grdae of Student# 1:88

Enter the grdae of Student# 2:98

Enter the grdae of Student# 3:100

Enter the grdae of Student# 4:90

Enter the grdae of Student# 5:70

The average of array elements : 89.00

Name your file using the following naming convention:

* “Lab5Q2\_YourFirstName\_YourLastName.c"
* Don’t forget to move to your own directory
* Compile your code and execute it.
* Show the program to your lab instructor before you leave.

**Answer:**

#include<stdio.h>
void main() {
 int grdaes[10];
 int i, sum = 0,size;
 int \*ptr;
 double avg=0;
 printf("Enter the number of students:");
 scanf("%d",&size);
 for (i = 0; i < size; i++)
 {
 printf("\nEnter the grdae of Student# %d:",(i+1));
 scanf("%d", &grdaes[i]);
 }
 ptr = grdaes;
 for (i = 0; i < size; i++) {
 sum = sum + \*ptr;
 ptr++;
 avg = sum/size;
 }
 printf("The average of array elements : %.2f", avg);
}