**ASSIGNMENT 5: FUNCTION AND POINTER**

1. Write recursive functions for following tasks.
2. Binary equivalent of a number.
3. Sum of individual digits of a number passed as argument.

Code:

#include<stdio.h>

int main(){

void Binary(int n){

int d=n%2;

if (n>=2)

Binary(n/2);

printf("%d",d);

}

int sum=0;

void Sum(int n){

sum+=n%10;

if (n>=10)

Sum(n/10);

else

printf("%d",sum);

}

int a;

printf("Enter a number: ");

scanf("%d",&a);

Binary(a);

printf("\n");

Sum(a);

printf("\n");

return 0;

}

Output:

Enter a number: 123

1111011

6

1. Write a C program using functions which accepts a string from the user and performs the following tasks.
2. Counts the number of characters in the string without using string library functions.
3. Prints the reverse of the string without using string library functions.

Code:

#include<stdio.h>

int main(){

//Counting charecters

char str[1000];

scanf("%[^\n]s",str);

int count=0;

for (int i=0;str[i]!='\0';i++){

if (str[i]!=' ')

count++;

}

printf("Total number of chars : %d\n",count);

//finding the length of the string

int len=0;

for (int i=0;str[i]!='\0';i++)

len++;

//reversing the string

for (int j=len-1;j>-1;j--){

putchar(str[j]);

}

printf("\n");

return 0;

}

Output:

hello world

Total number of chars : 10

dlrow olleh

1. Write a C program which accepts a full name from the user prints the initials. Eg. SRT for Sachin Ramesh Tendulkar.

Code:

#include<stdio.h>

int main(){

char str[1000];

scanf("%[^\n]s",str);

printf("The initials are: ");

putchar(str[0]);

for (int i=0;str[i]!='\0';i++){

if (str[i]==' ')

putchar(str[i+1]);

}

printf("\n");

return 0;

}

Output:

Mario Lucius Andretti

The initials are: MLA

1. Write a program to count the number of occurrences of any two vowels in succession in a line of text.

Code:

#include<stdio.h>

int main(){

char str[1000];

scanf("%[^\n]s",str);

int count=0;

char s,t;

for (int i=0;str[i]!='\0';i++){

s=str[i];

if (s=='A' || s=='a' || s=='E' || s=='e' || s=='I' || s=='i' || s=='O' || s=='o' || s=='U' || s=='u'){

t=str[i+1];

if (t=='A' || t=='a' || t=='E' || t=='e' || t=='I' || t=='i' || t=='O' || t=='o' || t=='U' || t=='u')

count++;

}

}

printf("Occurences : %d\n",count);

return 0;

}

Output:

aehiou

Occurences : 3

1. Write a program that converts (Do not use any string library function):
2. A string like “123” to integer 123.
3. An integer like 123 to string “123”.

Code:

#include<stdio.h>

int main(){

//string to integer

char str[1000];

printf("Enter a string : ");

scanf("%[^\n]s",str);

int num=0,temp;

for (int i=0;str[i]!=0;i++){

temp=str[i]-'0';

num=num\*10+temp;

}

printf("%d\n",num);

//integer to string

int n;

printf("Enter a number : ");

scanf("%d",&n);

char s[100];

int a[100];

int i;

for (i=0;n>0;i++){

a[i]=n%10;

n=n/10;

}

for (int j=0;j<i;j++){

s[j]=a[i-1-j]+'0';

}

s[i]='\0';

puts(s);

return 0;

}

Output:

Enter a string : 123

123

Enter a number : 123

123

1. Write a C program which accepts a string from the user and performs the following tasks. (Do not use any string library function. )
2. Check whether it is palindrome or not. [Example of a palindrome string: "abcba", "abba"]
3. Counts the number of characters and words in it.

Code:

#include<stdio.h>

int main(){

char str[1000];

printf("Enter a string : ");

scanf("%[^\n]s",str);

//finding the length of the string

int len=0;

for (int i=0;str[i]!='\0';i++)

len++;

//reversing the string

char s[1000];

int i=0;

for (int j=len-1;j>-1;j--){

s[i]=str[j];

i++;

}

s[i]='\0';

//finding palindrome

int palin=0;

for (int k=0;str[k]!='\0';k++){

if (str[k]==s[k])

palin=1;

else {

palin=0;

break;

}

}

if (palin) printf("Palindrome\n");

else printf("Not Palindrome\n");

//Counting number of charecters in the string

printf("Number of charecters: %d",len);

printf("\n");

//Counting number of words in the string

unsigned word=0;

for (int k=0;s[k]!='\0';k++){

if (s[k]==' ')

word++;

}

word++;

printf("Number of words: %u",word);

printf("\n");

return 0;

}

Output:

Enter a string : abcba

Palindrome

Number of charecters: 5

Number of words: 1

Enter a string : ab ab ba

Not Palindrome

Number of charecters: 8

Number of words: 3

1. Write a program in C to store n numbers in an array and print the elements using pointers. Also compute the sum of all elements of that array using pointers.

Code:

#include<stdio.h>

int main(){

int n;

printf("Enter the value of n ");

scanf("%d",&n);

int a[n];

printf("Enter elements of the array ");

for (int i=0;i<n;i++){

scanf("%d",&a[i]);

}

int \*p;

p=a;

//printing the array

for (int i=0;i<n;i++){

printf("%d ",\*(p+i));

}

printf("\n");

//computing sum

int sum=0;

for (int i=0;i<n;i++){

sum+=\*(p+i);

}

printf("Sum of elements is %d\n",sum);

return 0;

}

Output:

Enter the value of n 4

Enter elements of the array 3 5 7 8

3 5 7 8

Sum of elements is 23

1. Write a C function which accepts a string str1 and returns a new string str2 which is str1 with each word reversed. Do not use any string library function.

Code:

#include<stdio.h>

void reverse(char \*str,int a){

if (str[a]!='\0')

reverse(str,a+1);

printf("%c",str[a]);

}

int main(){

char s[1000];

fgets(s,1000,stdin);

char temp[1000][100];

int j=0,k=0;

for (int i=0;s[i]!='\0';i++){

if (s[i]==' ' || s[i]=='\n'){

temp[j][k]='\0';

k=0;

reverse(temp[j],0);

printf(" ");

j++;

}

temp[j][k]=s[i];

k++;

}

printf("\n");

return 0;

}

Output:

hello world

olleh dlrow

1. Write a function squeeze(s,c) which removes all occurrences of the character c from the string s.

Code:

#include<stdio.h>

int main(){

void squeeze(char \*s,char c){

for (int i=0;s[i]!='\0';i++){

if (s[i]==c){

continue;

}

else

printf("%c",s[i]);

}

printf("\n");

}

char s[1000];

printf("Enter the string ");

fgets(s,1000,stdin);

printf("Enter the charecter to remove ");

int c;

while ((c=getchar())!=EOF && c != '\n'){

squeeze(s,c);

}

return 0;

}

Output:

Enter the string abracadabra

Enter the charecter to remove a

brcdbr

1. Write the function strend(s,t), which returns 1 if the string t occurs at the end of the string s, and zero otherwise.

Code:

#include<stdio.h>

int main(){

int len(char \*str){

int count=0;

for (int i=0;str[i]!='\0';i++){

count++;

}

return count;

}

int strend(char \*s,char \*t){

//check is the boolean variable

int check=0;

int len1=len(s);

int len2=len(t);

int i=len1-1;

for (int j=len2-1;j>-1;j--){

if (s[i]==t[j]){

check=1;

}

else{

check=0;

break;

}

i--;

}

if (check){

return 1;

}

else

return 0;

}

char str1[1000],str2[1000];

printf("Enter the string ");

fgets(str1,1000,stdin);

printf("Enter the end string to check ");

fgets(str2,1000,stdin);

int res =strend(str1,str2);

printf("Result is %d\n",res);

return 0;

}

Output:

Enter the string hello

Enter the end string to check lo

Result is 1

Enter the string hello

Enter the end string to check ol

Result is 0