***Exercise 1 –*** *Write a program which will count number of vowels, consonants and digits from any given string. An example would be as follows:*

Enter a string: My ph. No. is 1234567890.

Number of vowels: 2

Number of consonants: 6

Number of digits: 10

*Program –*

#include <stdio.h>

#include <string.h>

int main()

{

char str[100];

int vowels=0,consonants=0,digits=0,i,length;

printf("Enter a string: ");

scanf("%[^\n]%\*c", &str);

length=strlen(str);

for(i=0;i<length;i++)

{

if(str[i]=='a' || str[i]=='A' || str[i]=='e' || str[i]=='E' || str[i]=='i' || str[i]=='I' || str[i]=='o' || str[i]=='O' || str[i]=='u' || str[i]=='U')

{

vowels++;

}

else if((str[i]>='A' && str[i]<='Z') || (str[i]>='a' && str[i]<='z'))

{

consonants++;

}

else if(str[i]>='0' && str[i]<='9')

{

digits++;

}

else

{

continue;

}

}

printf("\nNumber of vowels: %d\n", vowels);

printf("Number of consonants: %d\n", consonants);

printf("Number of digits: %d\n", digits);

return 0;

}

*Output –*

Enter a string: My ph. No. is 1234567890.

Number of vowels: 2

Number of consonants: 6

Number of digits: 10

***Exercise 2 –*** *Write a program to check whether a given string is palindrome or not. An example would be as follows:*

Enter a word: Madam

Given word is palindrome.

Enter a word: Hello

Given word is not palindrome.

*Program –*

#include <stdio.h>

#include <string.h>

#include <ctype.h>

int main()

{

char str[100];

int flag=0,i,length;

printf("Enter a word: ");

scanf("%s", &str);

length=strlen(str);

for(i=0;i<length;i++)

{

if((str[i] == str[length-i-1]) || (str[i] == toupper(str[length-i-1])) || (str[i] == tolower(str[length-i-1])))

{

continue;

}

else

{

flag = 1;

break;

}

}

if(flag == 1)

{

printf("Given word is not palindrome.");

}

else

{

printf("Given word is palindrome.");

}

return 0;

}

*Output –*

Enter a word: Madam

Given word is palindrome.

Enter a word: Hello

Given word is not palindrome.

***Exercise 3–*** *Write a program to abbreviate name. An example would be as follows:*

Enter the full name: Rabindra Nath Tagore

R.N.Tagore

*Program –*

#include <stdio.h>

#include <string.h>

int main()

{

char str[100];

int vowels=0,consonants=0,digits=0,i,length,a;

printf("Enter the full name: ");

scanf("%[^\n]%\*c", &str);

printf("%c.",str[0]); *//First Name*

length=strlen(str);

for(i=0;i<length;i++) *//To find last null place*

{

if(str[i] == ' ')

{

a=i;

}

}

for(i=0;i<a;i++) *//Middle Name*

{

if(str[i] == ' ')

{

printf("%c.",str[i+1]);

}

}

for(i=a+1;i<length;i++) *//Last Name*

{

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

}

return 0;

}

*Output –*

Enter the full name: Rabindra Nath Tagore

R.N.Tagore

***Exercise 4–*** *Write the following user defined function to perform the corresponding job.*

|  |  |
| --- | --- |
| Function | Job |
| xStrlen(): | Find the length of a string. |
| xStrcpy(): | Copy a string from a source to target. |
| xStrcmp(): | Compare two strings whether they are identical or not. |
| xStrcat(): | Merge two strings. |

*Solution –*

|  |  |  |
| --- | --- | --- |
| **Function** | **Function Definition** | **Example** |
| **xStrlen():** | int xStrlen(char \*str1)  {  int length=0,i;  for(i=0;str1[i]!='\0';i++)  {  length++;  }  return length;  } | #include <stdio.h>  int xStrlen(char \*str1)  {      int length=0,i;      for(i=0;str1[i]!='\0';i++)      {          length++;      }      return length;  }  void main()  {      char str1[100];      int length = 0;      printf("Enter a string: ");      scanf("%[^\n]%\*c", str1);      length=xStrlen(str1);      printf("\nLength = %d\n", length);  } |
| **xStrcpy():** | char xStrcpy(char \*str2, char \*str1)  {  int i;  for(i=0;str1[i]!='\0';i++)  {  str2[i] = str1[i];  }  str2[i] = '\0';  } | #include <stdio.h>  char xStrcpy(char \*str2, char \*str1)  {      int i;      for(i=0;str1[i]!='\0';i++)      {          str2[i] = str1[i];      }      str2[i] = '\0';  }  void main()  {      char str1[100],str2[100];      printf("Enter a string1: ");      scanf("%[^\n]%\*c", str1);      xStrcpy(str2,str1);      printf("\nString 1: %s\nString 2: %s\n",str1,str2);  } |
| **xStrcmp():** | int xStrcmp(char \*str1, char \*str2)  {  int flag=0,i;  for(i=0;str1[i]!='\0';i++)  {  if(str1[i] != str2[i])  {  flag = 1;  break;  }  }  return flag;  } | #include<stdio.h>  int xStrcmp(char \*str1, char \*str2)  {      int flag=0,i;      for(i=0;str1[i]!='\0';i++)      {          if(str1[i] != str2[i])          {              flag = 1;              break;          }      }      return flag;  }  int main()  {      char str1[100],str2[100];      int flag;      printf("Enter a string1: ");      scanf("%[^\n]%\*c", str1);      printf("Enter a string2: ");      scanf("%[^\n]%\*c", str2);      flag=xStrcmp(str1,str2);      if(flag == 1)      {          printf("\nMismatched.\n");      }      else      {          printf("\nMatched.\n");      }      return 0;  } |
| **xStrcat():** | char \*xStrcat(char \*str1,char \*str2)  {  int i,j;  for(i=0;str1[i]!='\0';i++)  {  }  for(j=0;str2[j]!='\0';j++)  {  str1[i++] = str2[j];  }  str1[i] = '\0';  return str1;  } | #include <stdio.h>  char \*xStrcat(char \*str1,char \*str2)  {      int i,j;      for(i=0;str1[i]!='\0';i++)      {      }      for(j=0;str2[j]!='\0';j++)      {          str1[i++] = str2[j];      }      str1[i] = '\0';      return str1;  }  void main()  {      char str1[100],str2[100];      printf("Enter a string1: ");      scanf("%[^\n]%\*c", str1);      printf("Enter a string2: ");      scanf("%[^\n]%\*c", str2);      xStrcat(str1,str2);      printf("\n%s\n",str1);  } |