********** String **********

1 Find no. of Vowel , Consonants & Digits in the given string?

```
#include<stdio.h>
#include<string.h>
void main()
{
   char str[200];
   int i,vowels=0,consonants=0,digits=0,spaces=0,specialCharacters=0;



   printf("Enter a string\n");
   gets(str);
   for(i=0;str[i]!='\0';i++)
   {
      if(str[i]=='a' || str[i]=='e' || str[i]=='i' ||str[i]=='o' || str[i]=='u' || str[i]=='A' ||str[i]=='E' || str[i]=='I'
|| str[i]=='O' ||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++;
      }
```

```
   }


   printf("\nVowels = %d",vowels);
   printf("\nConsonants = %d",consonants);
   printf("\nDigits = %d",digits);



}
```

2) Accept a no from user, when user enters that in many no. sum all the no and display result in string format?

```
#include<stdio.h>
#include<string.h>
#include<stdlib.h>
void main()
{
   char *firstno[]={"zero","ten","eleven","twelve","thirteen", "fourteen","fifteen","sixteen","seventeen",
"eighteen","nineteen"};
  char *secondno[]={"twenty","thirty","forty","fifty","sixty", "seventy","eighty","ninty"};
  char *thirdno[]={"one","two","three","four","five","six","seven","eight","nine"};
            int i ;
            int* a;
              int num ;
              int sum = 0;
              int no;
   printf("Enter a array size is : \n");
   scanf("%d",&num);
```

```
  a = (int*)malloc(num*sizeof(int));


   for(i=0;i<num;i++)
   {
           printf("enter the number %d : ",i);
           scanf("%d",&a[i]);
           }
           for(i=0;i<num;i++)
           {
                   sum = sum + a[i];


           }
           no = sum  ;
            printf("sum is : %d",no);
           printf("\n");
if(no<0 || no>99)
{
printf("\nenter number is not a two digit number\n");
}else
           {
            if(no==0)
                   {
                           printf("\nthe enter no is:%s\n",firstno[no]);
                   }else
                           {
                            if(no>=10 && no<=19)
                                   {
                                   printf("the enter no is:%s\n",firstno[no-10+1]);
```

```
                                        }else{
                                                if(no>=20 && no<=90)
                                                        {
                                                                if(no%10 == 0)
                                                                        {
                                                                        printf("the enter no
is:%s\n",secondno[no/10 - 2]);
                                                                        }
                                                                         else{
    printf("the enter no is:%s %s\n",secondno[no/10-2],thirdno[no%10-1]);
}

                                                        }

                                                }

                                                }
}
}
```

3.Accept a sentence from user and count total no. of words and also total no. of letters in that words?

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

int main()
```

```
{
        char str[100];
        int i, totalwords ,tl;
        totalwords = 1;
        tl = 1 ;

        printf("\n Please Enter any String :  ");
        gets(str);

        for(i = 0; str[i] != '\0'; i++)
        {
                if(str[i] == ' ' || str[i] == '\n' || str[i] == '\t')
                {
                        totalwords++;
                }
        }
        printf("\n The Total Number of Words in this String = %d ",totalwords);

        for(i = 0; str[i] != '\0'; i++)
                {
                        if(str[i] != '\0')
                        {
                                tl++;
                        }

                }
                        tl--;
        printf("\n The Total Number of letter  in this String  = %d ",tl);
```

}

---------- Function ----------

1) Encryption and Decryption ?

```
//function  1) Encryption and Decryption ?
#include<stdio.h>
#include<string.h>
void Encrypted(char*);
void Decrypted(char*);
void main()
{
  int i, x;
  char str[100];

  printf("\nPlease enter a string:\t");
  gets(str);

  printf("\nPlease choose following options:\n");
  printf("1 Encrypt the string.\n");
  printf("2 Decrypt the string.\n");
  scanf("%d",&x);


        if(x==1)
        {
        Encrypted(str);
        }
        else{
        if(x==2)
        {
        Decrypted(str);
        }
        else
        {
        printf("\nError\n");
        }
        }

}

void Encrypted(char* str )
{
   int i ;
for(i = 0; (i < 100 && str[i] != '\0'); i++)
      str[i] = str[i] + 3; //the key for encryption is 3 that is added to ASCII value
```

```
    printf("\nEncrypted string: %s\n", str);

}

void Decrypted(char* str)
{
   int i ;
for(i = 0; (i < 100 && str[i] != '\0'); i++)
      str[i] = str[i] - 3; //the key for encryption is 3 that is subtracted to ASCII value

    printf("\nDecrypted string: %s\n", str);
}
```

2) Check whether the number is pallindrome or not?

```
//2) Check whether the number is pallindrome or not?
#include<string.h>
#include<stdio.h>
int palindrome(int);
void main()
{
int num;
int p;
      printf("enter the number here: ");
      scanf("%d",&num);
      p = palindrome(num);
      if(p==num)
      {
      printf("%d Number is palindrome \n",p);
      }else{
      printf("%d Number is not palindrome \n",p);
      }
}

int palindrome(int num)
{
   int value ;
   int rev=0;
   int rem;
   value = num;
   for (value!=0;rem=value%10; value/=10)
   {
   rev= rev*10+rem;
   }
   return rev;
}
```

3) Check whether the string is pallindrome or not?

```
#include<string.h>
#include<stdio.h>
void palindrome(char*);
void main()
{
        char str[100];
        int len;
        printf("enter the sentence here : ");
        gets(str);
        len = strlen(str);
         palindrome(str);


}

void  palindrome(char* str)
{
int l = 0;
   int h = strlen(str) - 1;

   // Keep comparing characters while they are same
   while (h > l)
   {
      if (str[l++] != str[h--])
      {
         printf("%s is not a palindrome\n", str);
         return;
      }
   }
   printf("%s is a palindrome\n", str);

}
```

4) Accept a number from user and print the * pattern?

```
#include<stdio.h>
#include<string.h>
void main (){
          int i,j ;
for(i=1;i<=5;i++)
 {
    for(j=1;j<=i;j++)
  {
    printf("* ");
  }

    printf("\n");
 }
```

}

---------- Arrays Assignments ----------

1) Find max and min element of array?

```
#include<stdio.h>
void MIN (int *,int);
void Max(int*,int);
void main()
{
                                        int s,i;
                                        int mm[20];
                                        int c;
                                        printf("how many number you enter :   ");
                                        scanf("%d",&s);

                                         for(i=0;i<s;i++)
                                        {
                                                printf("\nEnter the %d) value :   ",i);
                                                scanf("%d",&mm[i]);
                                        }
                                        printf("\n what u want to choose:  \n1 Max     \n2  Min \n type
here :    ");
                                        scanf("%d",&c);

                                        if(c == 1)
                                        {
                                        MAX(mm,s);
                                        }else{
                                        MIN(mm,s);
                                        }

}

void MAX (int* mm,int s)
{
        int i;

        int max=0 ;
                                                for(i=0;i<s;i++)
                                        {
                                                if(mm[i]>max)
                                                {
                                                        max=mm[i];
                                                }
                                        }
                                        printf("max number is : %d \n",max);
}
```

```
void MIN (int* mm , int s)
{
        int i;
        int min;
                                        for(i=0;i<s;i++)
                                {
                                        if(mm[i]<min)
                                        {
                                                min=mm[i];
                                        }
                                }
                                printf("minimum number is : %d \n",min);
}
```

2) Accept the elements of array from user and sum all the elements?

```
#include <stdio.h>
 void add(int* ,int );
void main()
{
        int a[4];
        int ans;
        int i;
        int p;
        printf(":\n Enter the array size : \n");
        scanf("%d",&p);
        for(i=0;i<p;++i)
        {
                printf("\nEnter number %d :  " ,i);
                scanf("%d",&a[i]);

        }
        add(a,p);
 }

 void add(int*a,int t )
 {
  int ans;
        int i;
  for(i=0;i<t;++i)
  {
                ans = ans  + a[i];

  }
        printf("Addition is :  %d \n",ans );
 }
```

3) Find all odd and even no.'s in array?

```
#include <stdio.h>
void evenodd(int*,int);
void main()
{           int i;
            int arr[10];
            int s;
            printf("how many number you enter :   ");
                                        scanf("%d",&s);

                                         for(i=0;i<s;i++)
                                        {
                                                    printf("\nEnter the %d) value :   ",i);
                                                    scanf("%d",&arr[i]);
                                        }

            oddeven(arr,s);
}

void oddeven(int* arr,int t)
{
            int i;


                        for(i=0;i<t;i++)
            {
             printf("\nEven numbers in the array are :     ");
      for (i = 0; i < t; i++)
      {
         if (arr[i] % 2 == 0)
         {
            printf("%d \t", arr[i]);
         }
      }

      printf("\n Odd numbers in the array are :     ");
      for (i = 0; i <t; i++)
      {
         if (arr[i] % 2 != 0)
         {
            printf("%d \t", arr[i]);
         }
      }

            }
}
```

4) Find all prime no.'s in array?

```
#include <stdio.h>
void prime(int* ,int );
void main()
{
	int arr[10];
	int i,s;
	printf("how many number you enter :   ");
				scanf("%d",&s);

				 for(i=0;i<s;i++)
				{
					printf("\nEnter the %d) value :   ",i);
					scanf("%d",&arr[i]);
				}


	prime(arr,s);
}

void prime(int* arr ,int s )
{
	int i;

		for(i=0;i<s;i++)
	{
				int j=2;
		int flag = 1 ;
			while (j < arr[i]) {
			 if (arr[i] % j == 0) {
			    flag = 0;
			    break;
			 }
			 j++;
			}
			if (flag == 1) {
			   printf("\tPrime number is :  %d \n", arr[i]);
			}
				else{

					printf("\tNon-prime is:  %d \n",arr[i]);
```

```
                                    }
                                }
}
```

---------- if-else and Operators Assignments ----------

1) Accept PCM marks from user and find percentage,division and total?

```
#include<stdio.h>

void main()
{
   int physics;
   int chemistry;
   int math;
   int op;
   float Percentage;
   int total;

   printf("enter the physics mark : ");
   scanf("%d",&physics);
   printf("enter chemistry mark : ");
   scanf("%d",&chemistry);
   printf("enter Maths  mark : ");
   scanf("%d",&math);
  printf("******************************");
   printf("\n Total : ");
   total = physics + chemistry + math;
   printf(" %d ", total);

 printf("\n Percentage :  ");
     Percentage = total / 3;
     printf(" %f",Percentage);
  printf("\n Division :  ");

              if(Percentage> 60 )
              {
                 printf("First class Division ");
              }else{
                 if(Percentage<60&&Percentage>48)
                 {
                    printf("Second class Division ");
                 }else{
                    if(Percentage<48&&35>Percentage)
                    {
                       printf("Pass");
                    }else{
```

```
                printf("Fail !!!");
              }
            }
          }
          printf("\n*****************************");
}
```

2) Accept 2 no. from user for division if second no. is zero then print an error?

```
#include<stdio.h>
void main()
{
   int num1 ;
   int num2 ;
   float div;
   printf("\nEnter the first number :  ");
   scanf("%d",&num1);
   printf("\nEnter the Second number :  ");
   scanf("%d",&num2);
   if(num2==0)
   {
      printf("\t \n!!error ");
   }else{
      div = num1 / num2 ;
      printf("\ndivision is : %f ",div);
   }

}
```

3) Accept no. from user and check if it is 2 digit no and if it is 2 digit no then is it a prime no or not?

```
#include<stdio.h>
void main()
{
   int num1 ;
   printf("\nEnter the  number :  ");
   scanf("%d",&num1);
   if(num1<=99)
   {
      printf("\n its two digit number ");
            int j=2;
                                          int flag = 1 ;
                                    while (j < num1) {
                                     if (num1 % j == 0) {
                                        flag = 0;
                                        break;
                                     }
                                     j++;
                                   }
                                   if (flag == 1) {
```

```
                                    printf("\n its Prime number  :  %d \n", num1);
                                }else {
                                    printf("\n Non-prime :  %d \n",num1);
                                      }
  }else{
     printf("\n its not two digit number ");
   }

}
```

4) Accept 3 no.'s from user and find which is greater and also find that is it divisible by other two and if yes then by whom?

```
//4) Accept 3 no.'s from user and find which is greater and also find that is it divisible by other two and if yes then by whom?
#include<stdio.h>
void main()
{
   int num1 ;
   int num2 ;
   int num3 ;
   int div1;
   int div2;
   int div3;
   printf("\nEnter the first number :  ");
   scanf("%d",&num1);
   printf("\nEnter the Second number :  ");
   scanf("%d",&num2);
   printf("\nEnter the Second number :  ");
   scanf("%d",&num3);

if(num1>num2 &num1>num3)
{
   printf("max number is : %d", num1);
    div1 = num2%num1;
   div2 = num3%num1;
   if(div1==0&&div2==0)
   {
      printf("\n %d is divisible by both the number ",num1);
   }else
   {
      div1 = num1%num2;
      div2 = num3%num2;
      if(div1==0&&div2==0)
      {
         printf("\n %d is divisible by both the number ",num2);
      }else{
            div1 = num1%num3;
            div2 = num2%num3;
```

```
            if(div1==0&&div2==0)
      {
         printf("\n %d is divisible by both the number ",num3);
      }else{
         printf(" \n none of one is divisible ");
      }
      }

   }

}else{
   if(num2>num3)
   {

   printf("max number is : %d", num2);
    div1 = num2%num1;
   div2 = num3%num1;
   if(div1==0&&div2==0)
   {
      printf("\n %d is divisible by both the number ",num1);
   }else
   {
      div1 = num1%num2;
      div2 = num3%num2;
      if(div1==0&&div2==0)
      {
         printf("\n %d is divisible by both the number ",num2);
      }else{
            div1 = num1%num3;
            div2 = num2%num3;
            if(div1==0&&div2==0)
      {
         printf("\n %d is divisible by both the number ",num3);
      }else{
         printf(" \n none of one is divisible ");
      }
      }

   }


}else{

printf("max number is : %d", num3);
    div1 = num2%num1;
   div2 = num3%num1;
   if(div1==0&&div2==0)
   {
```

```
    printf("\n %d is divisible by both the number ",num1);
  }else
  {
    div1 = num1%num2;
    div2 = num3%num2;
    if(div1==0&&div2==0)
    {
      printf("\n %d is divisible by both the number ",num2);
    }else{
        div1 = num1%num3;
        div2 = num2%num3;
        if(div1==0&&div2==0)
    {
      printf("\n %d is divisible by both the number ",num3);
    }else{
      printf(" \n none of one is divisible ");
    }
    }
}
}
}
}
```

5) Decimal to binary and Binary to decimal conversion?

```
#include<stdio.h>
void main ()
{
int a[10],n,i;
printf("Enter the number to convert: ");
scanf("%d",&n);
for(i=0;n>0;i++)
{
a[i]=n%2;
n=n/2;
}
printf("\nBinary of Given Number is=");
for(i=i-1;i>=0;i--)
{
printf("%d",a[i]);
}
}
```

6) Take binary input from user and perform following operations
AND,
OR,
NOT,
XOR?(only done addition)

```
#include <stdio.h>

#include <string.h>

#include <stdlib.h>


int bin_verify(char*);

void sum(char*, char*, char*);


int main()

{

   char bin1[33], bin2[33], result[33];

   int len1, len2, check;


   printf("Enter binary number 1: ");

   scanf("%s", bin1);

   printf("Enter binary number 2: ");

   scanf("%s", bin2);

   check = bin_verify(bin1);

   if (check)

   {

      printf("Invalid binary number %s.\n", bin1);

      exit(0);

   }

   check = bin_verify(bin2);

   if (check)
```

```
    {
        printf("Invalid binary number %s.\n", bin2);
        exit(0);
    }
    sum(bin1, bin2, result);
    printf("%s + %s = %s\n", bin1, bin2, result);

    return 0;
}

int bin_verify(char str[])
{
    int i;

    for (i = 0; i < strlen(str); i++)
    {
        if ((str[i] - '0' != 1 ) && (str[i] - '0' != 0))
        {
            return 1;
        }
    }

    return 0;
}
```

```
void sum(char bin1[], char bin2[], char result[])
{
   int i = strlen(bin1) - 1;
   int j = strlen(bin2) - 1;
   int carry = 0, temp, num1, num2;

   while (i > -1 && j > -1)
   {
      num1 = bin1[i] - '0';
      num2 = bin2[j] - '0';
      temp = num1 + num2 + carry;
      if (temp / 2 == 1)
      {
         carry = 1;
         temp %= 2;
      }
      if (i > j)
      {
         result[i + 1] = temp + '0';
         result[strlen(bin1) + 1] = '\0';
      }
      else
      {
         result[j +1] = temp + '0';
         result[strlen(bin2) + 1] = '\0';
      }
```

```
    i--;
    j--;
}
while (i > -1)
{
    temp = bin1[i] + carry - '0';
    if (temp / 2 == 1)
    {
        carry = 1;
        temp %= 2;
    }
    result[i + 1] = temp + '0';
    i--;
}
while (j > -1)
{
    temp = bin2[j] + carry - '0';
    if (temp / 2 == 1)
    {
        carry = 1;
        temp %= 2;
    }
    result[j + 1] = temp + '0';
    j--;
}
if (carry)
{
    result[0] = '1';
```

```
    }
    else
    {
        result[0] = '0';
    }
}
```