TECH ASSIGNMENT SOLUTIONS #01

1.

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

#define str_size 100 //Declare the maximum size of the string
#define chr_no 255 //Maximum number of characters to be allowed

void main()
{
   char str[str_size];
   int ch_fre[chr_no];
   int i = 0, max;
   int ascii;

      printf("\n\nFind maximum occurring character in a string :\n");
      printf("-------------------------------------------------\n");
      printf("Input the string : ");
      gets(str);


   for(i=0; i<chr_no; i++)  //Set frequency of all characters to 0
   {
       ch_fre[i] = 0;
   }


   /* Read for frequency of each characters */
   i=0;
   while(str[i] != '\0')
   {
       ascii = (int)str[i];
       ch_fre[ascii] += 1;

       i++;
   }

   max = 0;
   for(i=0; i<chr_no; i++)
   {
```

```
      if(i!=32)
      {
      if(ch_fre[i] > ch_fre[max])
         max = i;
      }
   }
   printf("The Highest frequency of character '%c' appears number of times : %d
\n\n", max, ch_fre[max]);
}
```

Output:

```
Find maximum occurring character in a string :
-------------------------------------------------
Input the string : Welcome to KnowledgeGate
The Highest frequency of character 'e' appears number of times : 5
```

```
2. #include <stdio.h>
void main()
{
   char str[100], sstr[100];
   int pos, l, c = 0;

        printf("\n\nExtract a substring from a given string:\n");
        printf("-----------------------------------------\n");

        printf("Input the string : ");
        gets(str);

   printf("Input the position to start extraction :");
   scanf("%d", &pos);

   printf("Input the length of substring :");
   scanf("%d", &l);

   while (c < l)
   {
      sstr[c] = str[pos+c-1];
      c++;
   }
   sstr[c] = '\0';

   printf("The substring retrieve from the string is : \" %s\ "\n\n", sstr);

}
```

Output:

```
Extract a substring from a given string:
-----------------------------------------
Input the string : This is test string
Input the position to start extraction :9
Input the length of substring :4
The substring retrieve from the string is : " test "
```

```
3. #include <stdio.h>
#include <string.h>
void main()
{
        int ctr=0,i,freq=0;
        int t,h,e,spc;
        char str[100];


      printf("\n\nFind the number of times the word 'the ' in any combination
appears :\n");
      printf("-------------------------------------------------------------------
---\n");

        printf("Input the string : ");
        gets(str);

        ctr=strlen(str);

        /*Counts the frequency of the word 'the' with a trailing space*/
        for(i=0;i<=ctr-3;i++)
        {
                t=(str[i]=='t'||str[i]=='T');
                h=(str[i+1]=='h'||str[i+1]=='H');
                e=(str[i+2]=='e'||str[i+2]=='E');
                spc=(str[i+3]==' '||str[i+3]=='\0');
                if ((t&&h&&e&&spc)==1)
                   freq++;
        }
        printf("The frequency of the word \'the\' is : %d\n\n",freq);
}
```

Output:

```
Find the number of times the word 'the ' in any combination
appears :
-------------------------------------------------------------------
--------
Input the string : The string where the word the present more
then once.
The frequency of the word 'the' is : 3
```

```
4. #include <stdio.h>
void main(){
   char str[1000],choice;
   int i,ctr=0;

       printf("\n\nFind the Frequency of Characters :\n");
       printf("---------------------------------------\n");

     printf("Input the string : ");
```

```
    gets(str);

   printf("Input the character to find frequency: ");
   scanf("%c",&choice);
   for(i=0;str[i]!='\0';++i)
   {
       if(choice==str[i])
           ++ctr;
   }
   printf("The frequency of '%c' is : %d\n\n", choice, ctr);

}
```

Output:

```
Find the Frequency of Characters :
-------------------------------------
Input the string : This is a test string
Input the character to find frequency: i
The frequency of 'i' is : 3
```

5.
```
#include <stdio.h>
#include <string.h>
#include <ctype.h>

void main()
{
    char str[100], word[20], mx[20], mn[20], c;
    int i = 0, j = 0, flg = 0;

       printf("\n\nFind the largest and  smallest word in a string
:\n");
       printf("-----------------------------------------------------
\n");

     printf("Input the string : ");
    i = 0;
    do
    {

        c = getchar();
        str[i++] = c;

    } while (c != '\n');
    str[i - 1] = '\0';
    for (i = 0; i < strlen(str); i++)
    {
       while (i < strlen(str) && !isspace(str[i]) && isalnum(str[i]))
        {
```

```
            word[j++] = str[i++];
        }
        if (j != 0)
        {
            word[j] = '\0';
            if (!flg)
            {
                flg = !flg;
                strcpy(mx, word);
                strcpy(mn, word);
            }
            if (strlen(word) > strlen(mx))
            {
                strcpy(mx, word);
            }
            if (strlen(word) < strlen(mn))
            {
                strcpy(mn, word);
            }
            j = 0;
        }
    }
    printf("The largest word is '%s' \n and the smallest word is '%s' \n in the
string : '%s'.\n", mx, mn, str);
 }
```

OUTPUT:

```
Find the largest and  smallest word in a string :
-------------------------------------------------
Input the string : It is a string with smallest and largest
word.
The largest word is 'smallest'
and the smallest word is 'a'
in the string : 'It is a string with smallest and largest
word'.
```