LAB-1 : SAMPLE C PROGRAMS

1. A sample program is given below that calculated the factorial of a given numbers (using loop):

```
#include <stdio.h>
void main(){
  int i,f=1,num;

  printf("Input the number : ");
  scanf("%d",&num);

  for(i=1;i<=num;i++)
      f=f*i;

  printf("The Factorial of %d is: %d\n",num,f);
}
```

Sample output:

```
Input the number : 5
The Factorial of 5 is: 120
```

2. A sample program is given below that calculated the factorial of a given numbers (using loop and user defined function with no return type):

```
#include <stdio.h>
void main(){
  int num;

  printf("Input the number : ");
  scanf("%d",&num);

  fact(num);


}

void fact(int n){
  int i, f=1;
  for(i=1;i<=n;i++)
      f=f*i;

  printf("The Factorial of %d is: %d\n",n,f);
}
```

Sample output:

```
Input the number : 5
The Factorial of 5 is: 120
```

- **Task-1: Now, convert the above sample program is given below that calculated the factorial of a given numbers into using loop and user defined function with return type:**

String related Programs:

Here we will discuss about some program with strlen(), strcmp().

1. Example: C strlen() function

```
#include <stdio.h>
#include <string.h>
int main()
{
    char a[20]="Program";
    char b[20]={'P','r','o','g','r','a','m','\0'};

    printf("Length of string a = %d \n",strlen(a));
    printf("Length of string b = %d \n",strlen(b));

    return 0;
}
```

2. Example: C strcmp() function

```
Example: C strcmp() function
#include <stdio.h>
#include <string.h>

int main()
{
    char str1[] = "abcd", str2[] = "abCd", str3[] = "abcd";
    int result;

    result = strcmp(str1, str2);
    printf("strcmp(str1, str2) = %d\n", result);

    result = strcmp(str1, str3);
    printf("strcmp(str1, str3) = %d\n", result);

    return 0;
}
```

File related problems:

1. Open, Read and close a file: reading string by string

```
# include <stdio.h>
int main()
{
          FILE *fp ;
          char data[100] ;
          printf( "Opening the file test.txt in read mode" ) ;
          fp = fopen( "test.txt", "r" ) ;
          if ( fp == NULL )
          {
                  printf( "Could not open file test.txt" ) ;
                  return 1;
          }
          printf( "Reading the file test.txt\n" ) ;
          while( fgets ( data, 50, fp ) != NULL )
             printf( "%s" , data ) ;
          printf("Closing the file test.txt") ;
          fclose(fp) ;
          return 0;
}
```

test.txt

```
hello,how are you?
i am fine, thank you.
```

2. To create a .txt file that will store some student names and obtained marks.

```
#include <stdio.h>
int main()
{
   char name[50];
   int marks, i, num;

   printf("Enter number of students: ");
   scanf("%d", &num);

   FILE *fptr;
   fptr = (fopen("student.txt", "w"));
   if(fptr == NULL)
   {
       printf("Error!");
       exit(1);
   }

   for(i = 0; i < num; ++i)
   {
      printf("For student%d\nEnter name: ", i+1);
      scanf("%s", name);

      printf("Enter marks: ");
```

```
       scanf("%d", &marks);

       fprintf(fptr,"\nName: %s \nMarks: %d \n", name, marks);
   }

   fclose(fptr) ;


}
```

⇨ **Task-2: To create a .txt file that will store some student names and obtained marks and read them.**

3. Example of Append

```
# include <stdio.h>
int main( )
{
   char name[50];
   int marks, i, num;

   FILE *fptr;
   fptr = (fopen("test.txt", "a"));
   printf("Enter number of students: ");
   scanf("%d", &num);
   if(fptr == NULL)
   {
       printf("Error!");
       exit(1);
   }

for(i = 0; i < num; ++i)
   {
      printf("For student%d\nEnter name: ", i+1);
      scanf("%s", name);

      printf("Enter marks: ");
      scanf("%d", &marks);

      fprintf(fptr,"\nName: %s Marks: %d \n", name, marks);
   }


   fclose(fptr);


         FILE *fop ;
         char data[500] ;
         printf( "Opening the file test.txt in read mode" ) ;
         fop = fopen( "test.txt", "r" ) ;
```

```
        if ( fop == NULL )
        {
                printf( "Could not open file test.txt" ) ;
                return 1;
        }
        printf( "Reading the file test.txt\n" ) ;
        while( fgets ( data, 500, fop ) != NULL )
        printf( "%s" , data ) ;
        printf("Closing the file test.txt") ;
        fclose(fop) ;
        return 0;
}
```