EXPERIMENT NO 1

Aim : To create user defined library in open source environment and use it for particular functions.

Program code :

>>> main.c

```c
#include <stdio.h>
#include "palindrome.h"        // User defined library
#include "substring.h"         // User defined library

int main()
{
    char ar[100000];
    char main[10000];
    char sub[10000];
    int status=0,option=0;
      while(1)
       {
            printf("1. Palindrome    2.Substring     3.Exit \n");
            scanf("%d",&option);

            switch(option)
            {
                case 1:
                        printf("Enter the string for palindrome : ");
                        scanf("%s",ar);
                        if (palindrome(ar)==1)
                        printf("Not Palindrome\n");
                        else
                        printf("Palindrome    \n");
                        break;
                case 2:
                        printf("Enter the main string : ");
                        scanf("%s",main);
                        printf("Enter the sub string : ");
                        scanf("%s",sub);
                        status=substring(main,sub);
                        if (status==1)
                        printf("No Substring detected\n");
                        else if(status==0)
                        printf("Yes Substring present\n");
                        else
                        printf("Substring exceeds main string \n");
                        break;

            }
```

```c
            if(option==3)
            break;

    }

    return 0;
}
```

>>> palindrome.h

```c
int palindrome(char ar[10000])
{
    int length=0,i=0,status=0,k=0;
    char br[10000];
    for(i=0;ar[i]!='\0';i++)
    length++;
    for(i=length-1,k=0;i>=0;i--,k++)
    br[k]=ar[i];

    for(i=0;i<length;i++)
    {
            if(ar[i]!=br[i])
            {
            status=1;
            break;
            }

    }


    return status;

}
```

>>> substring.h

```c
int substring(char main_str[10000],char sub_str[10000])
{

    int length1=0,length2=0,i=0,status=0,k=0,temp=0;

    for(i=0;main_str[i]!='\0';i++)
    length1++;

    for(i=0;sub_str[i]!='\0';i++)
    length2++;

    if(length1 >= length2)
    {
            for(i=0;i<=length1-length2;i++)
            {
                temp=i;
                status=0;
            for(k=0;k<length2;k++)
            {
                    if(main_str[temp++]!=sub_str[k])
```

```
                                  {
                                  status=1;
                                  break;
                                  }

                      }
                      if(k==length2)
                      return status;

              }
              return status;

      }
      else
      return -1;

}
```

Output of the code:

```
rstar@ubuntu:~/Desktop/SPCC/EXP1$ gcc main.c
rstar@ubuntu:~/Desktop/SPCC/EXP1$ ./a.out
1. Palindrome    2.Substring    3.Exit
1
Enter the string for palindrome : aba
Palindrome

1. Palindrome    2.Substring    3.Exit
1
Enter the string for palindrome : asd
Not Palindrome

1. Palindrome    2.Substring    3.Exit
2
Enter the main string : rstar
Enter the sub string : star
Yes Substring present

1. Palindrome    2.Substring    3.Exit
2
Enter the main string : rstar
Enter the sub string : mac
No Substring detected

1. Palindrome    2.Substring    3.Exit
2
Enter the main string : asd
Enter the sub string : asdfgh
Substring exceeds main string
1. Palindrome    2.Substring    3.Exit
3
rstar@ubuntu:~/Desktop/SPCC/EXP1$
```

Conclusion of the experiment: From this experiment I got to know how to create user defined library in open source environment and use it for particular functions. By using this knowledge we can make such user defined libraries for various subjects like in Science, Maths, Finance etc and publish it online for general masses.