Daffodil International University

LAB REPORT

COURSE CODE: CSE 332

COURSE TITLE: COMPILER DESIGN LAB

Submitted To:

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Problem No. 01

Name of the Problem: Write a C program to implement the design of a Lexical analyzer to recognize the tokens defined by the given grammar.

Lexical analysis reads the characters in the source program and groups them into stream of tokens in which each token represents a logically cohesive sequence of characters such as an identifier, keyword, and punctuation character. The character sequence forming a token is called lexeme of the token.

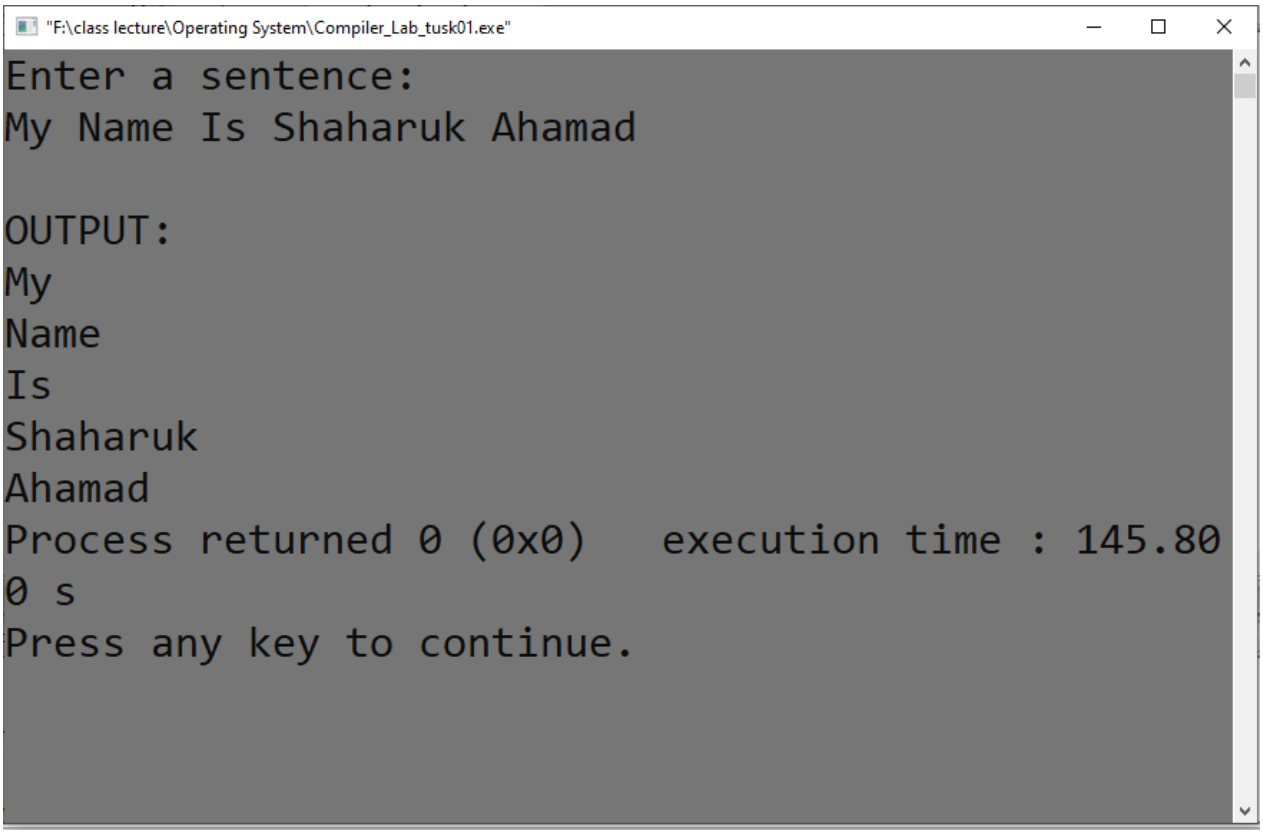
Solution of the problem:

```
#include<stdio.h>
int main()
{
  char input[100];
printf("e:Enter a
Sentence\n");
 gets(input);
printf("\nOUTPUT:\n
");
int len,i=0;
len = strlen(input);
for(i=0; i<=len; i++)
  {
```

```
    if(input[i]== 32)
   {
       printf("\n");
if(input[i+1]==32)
   {
   i++;
    }
 }
 else if(input[i]==47)
  {
    if(input[i+1]==47)
     {
break;
    }
     else if(input[i+1]==42)
   {
 i++;
    if(input[i+1]!=47)
    {
i++;
       }
   }
```

```
  }
else
   {
printf("%c",input[i]);
    }
  }
}
```

Output:



Problem No. 02

Name of the problem: Write a C program to recognize strings under
'a', 'a*b+', 'abb'.

Solution of the Problem :

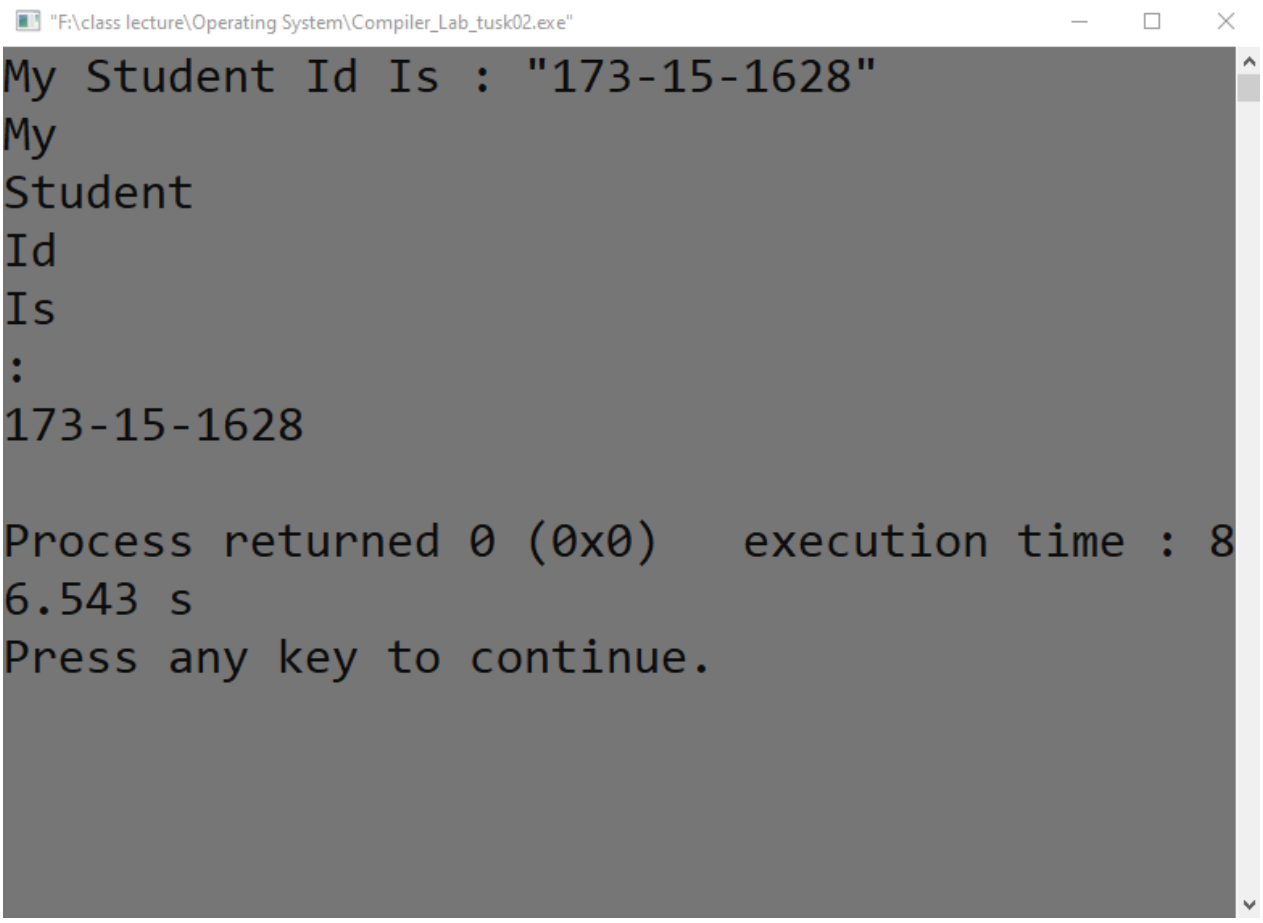
```
#include<stdio.h>
 int main()
{
    char input[100];
  gets(input);
int i=0,len;
 len=strlen(input);
for(i=0; i<=len; i++)
   {
       if(input[i] == 34 || input[i]== 39)
       {
          if(input[i-1]!=32)
          {
```

```
            printf("\n");
        }
 while(1)
        {
            if(input[i+1] == 34 || input[i+1] == 39)
            {
                if(input[i+2]!=32)
                {
 printf("\n");
                }
break;
             }
else              {
 i++;
printf("%c",input[i];


            }
 }
   i++;
      }
```

```
        else if(input[i]== 32)
        {
  while(input[i+1]==32)
            {
i++;
}
 printf("\n");
        }
        else if(input[i]==47)
        {
 if(input[i+1]==47)
            {
   break;
            }
else if(input[i+1]==42)
            {
i++;
while(input[i+1]!=47)
                {                   i++;
                }
```

```
        }
    }       else
{
 printf("%c",input[i]);
  }
    }
}
```

OUTPUT:



Problem No. 03

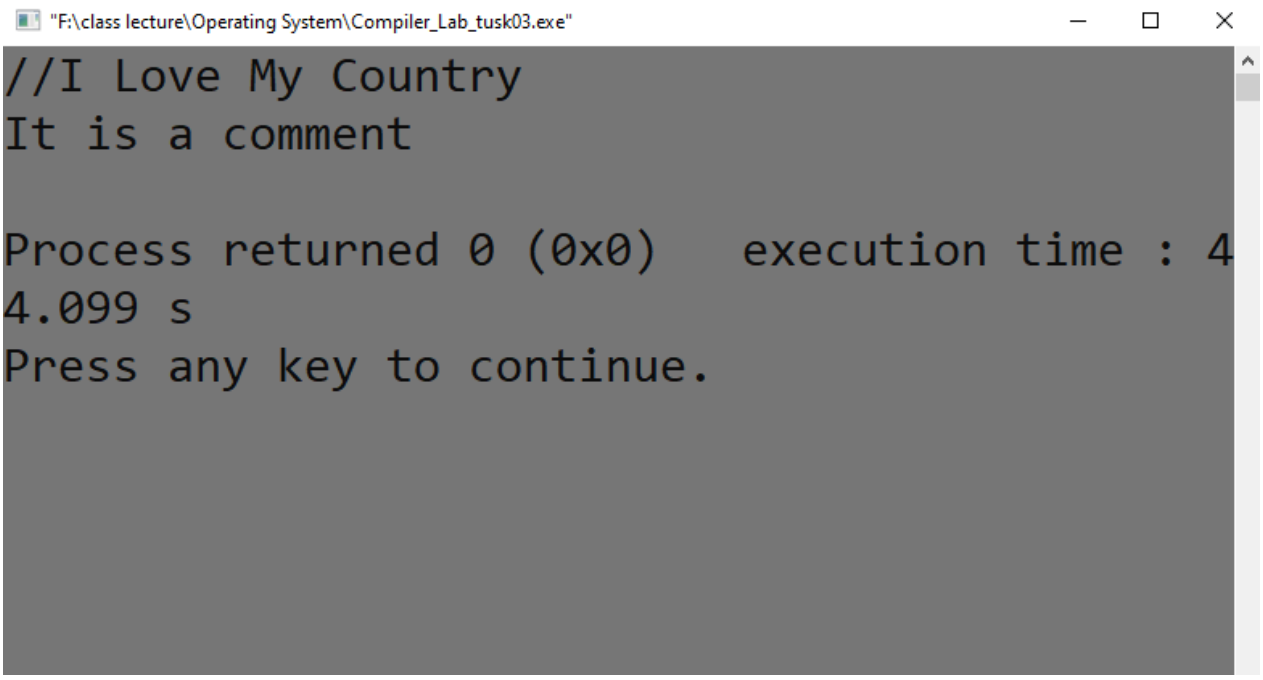
Name of the problem: Write a C program to identify whether a given line is a comment or not.

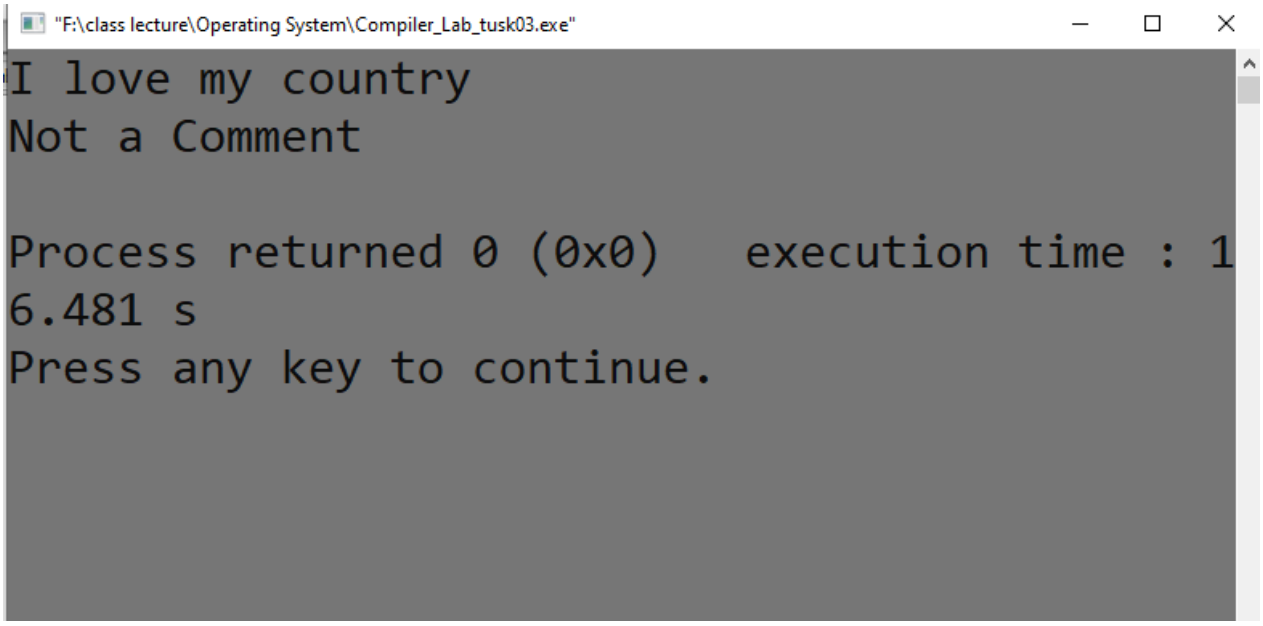
Solution of the problem :

```
#include<stdio.h>
 int main()
{
    char input[100];
int check=0,i=0,len;
gets(input);
len=strlen(input);
for(i=0; i<=len; i++)
   {
       if(input[i]==47)
       {
          if(input[i+1]==47)
          {
```

```
                printf("It is a comment\n");
    check=1;
                break;
            }
            else if(input[i+1]==42)
            {
                printf("It is a comment\n");
    check=1;                break;
            }
        }
    }
    if(check==0)
    {
        printf("Not a Comment\n");
    }
}
```

Output:


"F:\class lecture\Operating System\Compiler_Lab_tusk03.exe"
//I Love My Country
It is a comment
Process returned 0 (0x0)   execution time : 4
4.099 s
Press any key to continue.


"F:\class lecture\Operating System\Compiler_Lab_tusk03.exe"
I love my country
Not a Comment
Process returned 0 (0x0)   execution time : 1
6.481 s
Press any key to continue.

Problem No. 04

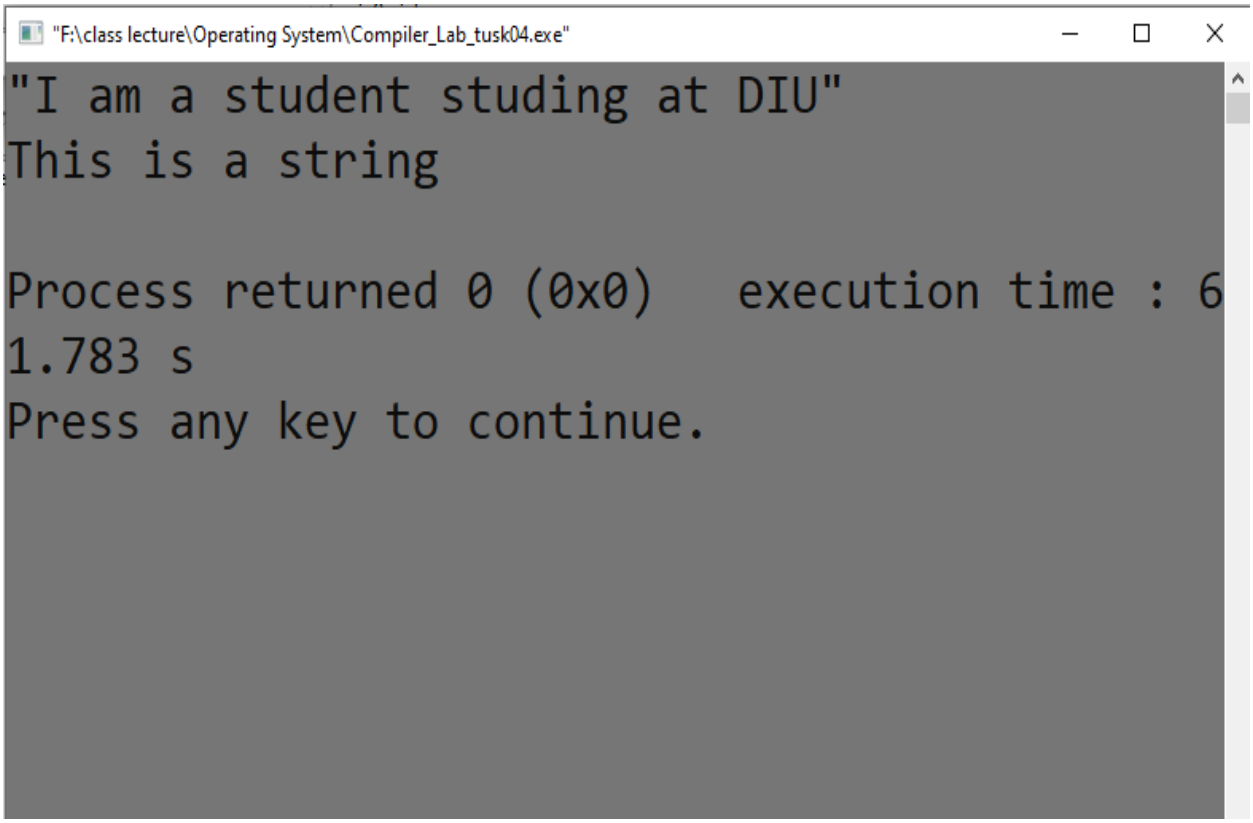
Name of the Problem: Write a C program to recognize any type of strings.

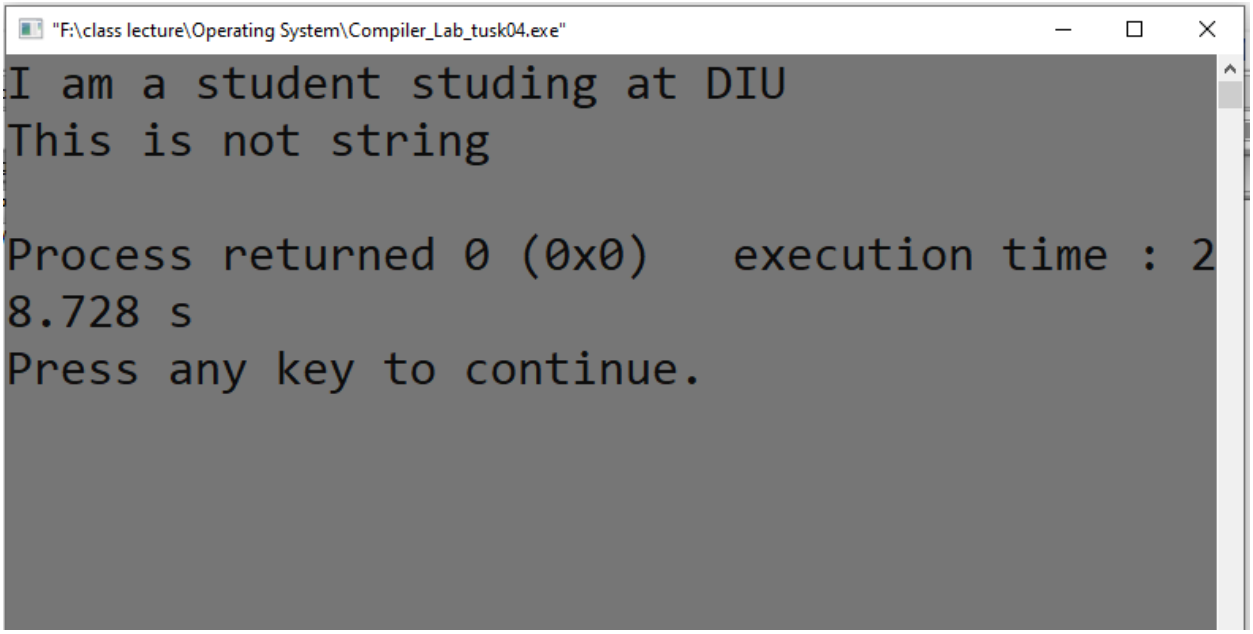
Solution of the Problem:

```
#include<stdio.h
>
int main()
{
    char input[100];
gets(input);
 int i=0,len,check=0;
len=strlen(input);
   for (i=0;i<=len;i++)
{
if (input[i]==34)
{
printf("This is a string\n");
check=check+1;
        break;

        }
        else if (input[i]==34)
```

```
{
 printf("This is a string\n");
check=check+1;
   break;
       }
    }
      if(check==0){
printf("This is not string\n");
       }
    }
```

Output:


"F:\class lecture\Operating System\Compiler_Lab_tusk04.exe"
"I am a student studing at DIU"
This is a string
Process returned 0 (0x0)   execution time : 6
1.783 s
Press any key to continue.


"F:\class lecture\Operating System\Compiler_Lab_tusk04.exe"
I am a student studing at DIU
This is not string
Process returned 0 (0x0)   execution time : 2
8.728 s
Press any key to continue.

Problem No. 05

Name of the Problem: Write a C program to develop a lexical analyzer to recognize a few patterns in C.

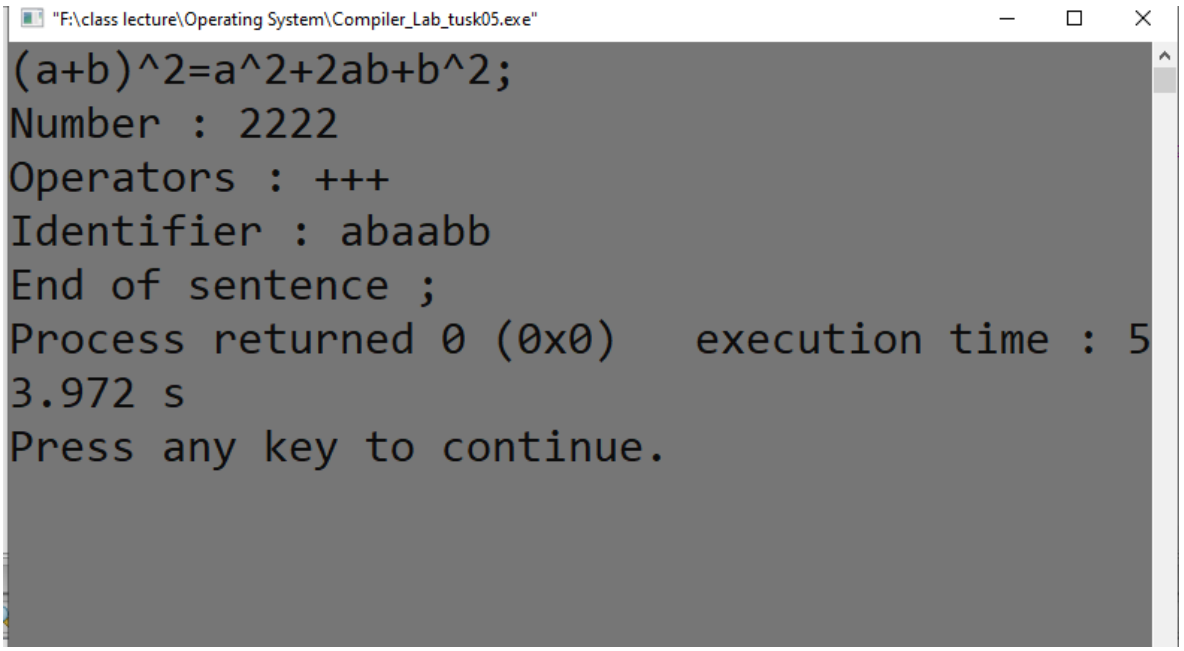
Solution of the Problem:

```
#include<stdio.h>
 int main()
{
char input[100];
   int len,check=0,i;
gets(input);
len=strlen(input);
printf("Number : ");
for(i=0;i<=len;i++){

      if((input[i]>=48) && (input[i]<=57)){
printf("%c",input[i]);
       }
```

```
    }
    printf("\nOperators
: ");
for(i=0;i<=len;i++){
if((input[i]==42)||(inp
ut[i]==43)||(input[i]=
=45)||(i
nput[i]==47)){
printf("%c",input[i]);
        }
    }

    printf("\n Identifier
: ");
for(i=0;i<=len;i++){

       if((input[i]>=65
&&
 input[i]<=90)||(input[i]>=97 && input[i]<=122))
{             printf("%c",input[i]);
```

```
        }

    else
if(input[i]==59){
check=1;
    }
}
 if(check==1)
{
printf("\nEnd of sentence ;");
}
return 0;
}
```

Output:


"F:\class lecture\Operating System\Compiler_Lab_tusk05.exe"
(a+b)^2=a^2+2ab+b^2;
Number : 2222
Operators : +++
Identifier : abaabb
End of sentence ;
Process returned 0 (0x0)   execution time : 5
3.972 s
Press any key to continue.