**1.operators,identifiers and consonants(token recognition)**

#include<stdio.h>

#include<string.h>

#include<ctype.h>

int main()

{

int i,j,m,ic=0,oc=0,cc=0;

char a[30],operaters[30],identifiers[30],constants[30];

printf("Enter the string:");

scanf("%[^\n]s",&a);

for(i=0;i<=strlen(a);i++)

{

if(isspace(a[i]))

{

continue;

}

else if(isalpha(a[i]))

{

identifiers[ic]=a[i];

ic++;

}

else if(isdigit(a[i]))

{

m=(a[i]-'0');

i=i+1;

while(isdigit(a[i]))

{

m=m\*10+(a[i]-'0');

i++;

}

i=i-1;

constants[cc]=m;

cc++;

}

else

{

if(a[i]=='\*')

{

operaters[oc]='\*';

oc++;

}

else if(a[i]=='+')

{

operaters[oc]='+';

oc++;

}

else if(a[i]=='-')

{

operaters[oc]='-';

oc++;

}

else if(a[i]=='=')

{

operaters[oc]='=';

oc++;

}

else if(a[i]=='/')

{

operaters[oc]='/';

oc++;

}

}

}

printf("identifiers:");

for(j=0;j<ic;j++)

{

printf("%c",identifiers[j]);

}

printf("\n constants:");

for(j=0;j<cc;j++)

{

printf("%d",constants[j]);

}

printf("\n operators:");

for(j=0;j<oc;j++)

{

printf("%c",operaters[j]);

}

}

**2.single line, multi line and no comment**

#include<stdio.h>

#include<conio.h>

#include<string.h>

int main()

{

char a[30];

int len;

printf("enter the line of text :");

scanf("%[^\n]s",&a);

len=strlen(a);

if(a[0]=='/'&&a[1]=='/')

{

printf("single line comment");

}

else if(a[0]=='/' && a[1]=='\*'&&a[len-1]=='/' && a[len-2]=='\*')

{

printf("Multi line comment");

}

else

{

printf("Not a comment");

}

return 0;

}

**3.validate operator or not**

#include <stdio.h>

#include <stdbool.h>

// Function to check if a character is a valid arithmetic operator

bool isValidOperator(char c) {

return (c == '+' || c == '-' || c == '\*' || c == '/');

}

int main() {

char input[100];

printf("Enter a string: ");

scanf("%s", input);

printf("Valid Operators: ");

for (int i = 0; input[i] != '\0'; i++) {

if (isValidOperator(input[i])) {

printf("%c ", input[i]);

}

}

return 0;

}

**4.No. of white spaces and new lines**

#include <stdio.h>

int main() {

char ch;

int spaces = 0, newlines = 0;

printf("Enter a string (Ctrl+Z to end): \n");

while ((ch = getchar()) != EOF)

{

if (ch == ' ') {

spaces++;

} else if (ch == '\n') {

newlines++;

}

}

printf("Number of spaces: %d\n", spaces);

printf("Number of newlines: %d\n", newlines);

}