Practical : 9

Aim: Write a program to implement Recursive Decent Parser for following grammar and check given input strings accepted by grammar or not?

expr → digit rest
rest → +digit rest |- digit rest| Є
digit → 0 | 1 | 2 | 3 |…| 9

```
#include<stdio.h>
#include<ctype.h>
#include<string.h>
void Tprime();
void Eprime();
void E();
void check();
void T();
void dollar();
char expression[10];
int count, flag;
int main()
{
 count = 0;
 flag = 0;

 printf("\nEnter an Algebraic Expression:\t");
 scanf("%s", expression);
 E();

 if((strlen(expression) == count) && (flag == 0))
 {
 printf("\nThe Expression %s is Valid\n", expression);
}
 else
 {
 printf("\nThe Expression %s is Invalid\n", expression);

 }

}
```

```
void E()
{
 T();
 Eprime();
 dollar();
}
void T()
{
 check();
 Tprime();
}
void Tprime()
{
 if(expression[count] == '-')
 {
 count++;
 check();
 Tprime();
 }

}
void check()
{
 if(isalnum(expression[count]))
 {
 count++;
 }
 else
 {
 flag = 1;
}

}
void Eprime()
{
 if(expression[count] == '+')
 {
 count++;
 T();
 Eprime();

 }
}
```

```
void dollar()
{
 if(expression[count] == '$') count++;
}
```

```
Enter an Algebraic Expression:  5+2-1$

The Expression 5+2-1$ is Valid
```

```
Enter an Algebraic Expression:  5-2-$

The Expression 5-2-$ is Invalid
```