

## Week 7 - program 1

1. Implement non-recursive Predictive Parser for the grammar

$S \rightarrow aBa$

$B \rightarrow bB \mid \epsilon$

	a b	\$
S	$S \rightarrow aBa$	
B	$B \rightarrow \epsilon \mid bB$	

### Test cases:

aa	String is successfully parsed
abba	String is successfully parsed
abbb	Error in parsing String
aaa	Error in parsing String

```
main.c
29 printf("The given grammar is\n\n");
30 printf("S -> aBa\n");
31 printf("B -> bB | epsilon \n\n");
32 printf("Enter the string to be parsed:\n");
33 scanf("%s",ip);
34 nextlen(ip);

input
The given grammar is
S -> aBa
B -> bB | epsilon
Enter the string to be parsed:
aa
S ->aBa
match of a
B -> epsilon
match of a
Successful parsing of string
...Program finished with exit code 0
Press ENTER to exit console.
```

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main.c

29

printf("The given grammar is\n\n");

input

The given grammar is  
  
S -> aBa  
B -> bB | epsilon  
  
Enter the string to be parsed:  
abba  
  
S ->aBa  
match of a  
B ->bB  
match of b  
B ->bB  
match of b  
B -> epsilon  
match of a  
  
Successful parsing of string  
  
...Program finished with exit code 0  
Press ENTER to exit console.

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29

printf("The given grammar is\n\n");

input

The given grammar is  
  
S -> aBa  
B -> bB | epsilon  
  
Enter the string to be parsed:  
abbb  
  
S ->aBa  
match of a  
B ->bB  
match of b  
B ->bB  
match of b  
B ->bB  
match of b  
  
Syntax Error!!!! String is invalid  
  
...Program finished with exit code 0  
Press ENTER to exit console.

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main.c

29

printf("The given grammar is\n\n");

input

The given grammar is  
  
S -> aBa  
B -> bB | epsilon  
  
Enter the string to be parsed:  
aaa  
  
S ->aBa  
match of a  
B -> epsilon  
match of a  
  
Syntax Error!!!! String is invalid  
  
...Program finished with exit code 0  
Press ENTER to exit console.

## Week 7- program 2


2. **Lab Assignment:** Implement Predictive Parser using C for the Expression Grammar

$$\begin{aligned} E &\rightarrow TE' \\ E' &\rightarrow +TE' \mid \varepsilon \\ T &\rightarrow FT' \\ T' &\rightarrow *FT' \mid \varepsilon \\ F &\rightarrow (E) \mid d \end{aligned}$$

	d	+	*	(	)	\$
E	$E \rightarrow TA$			$E \rightarrow TA$		
A		$A \rightarrow +TA$			$A \rightarrow \varepsilon$	$A \rightarrow \varepsilon$
T	$T \rightarrow FB$			$T \rightarrow FB$		
B		$B \rightarrow \varepsilon$	$B \rightarrow *FB$		$B \rightarrow \varepsilon$	$B \rightarrow \varepsilon$
F	$F \rightarrow d$			$F \rightarrow (E)$		

### Test cases:

d+d	String is successfully parsed
(d+d)*d	String is successfully parsed
d+*+d	Error in parsing String
i+i	Error in parsing String

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input

The given grammar is  
E -> TE'  
E' -> +TE' | epsilon  
T -> FT'  
T' -> \*FT' | epsilon  
F -> (E) | d  
  
Enter the string to be parsed:  
d+d  
  
E -> TE'  
T -> FT'  
F -> d  
match of d  
T' -> epsilon  
E' -> +TE'  
match of +  
T -> FT'  
F -> d  
match of d  
T' -> epsilon  
E' -> epsilon  
  
Successful parsing of string  
  
...Program finished with exit code 0  
Press ENTER to exit console.

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input

Enter the string to be parsed:  
(d+d)\*d  
  
E -> TE'  
T -> FT'  
F -> (E)  
match of (  
E -> TE'  
T -> FT'  
F -> d  
match of d  
T' -> epsilon  
E' -> +TE'  
match of +  
T -> FT'  
F -> d  
match of d  
T' -> epsilon  
E' -> epsilon  
match of )  
T' -> \*FT'  
match of \*  
F -> d  
match of d  
T' -> epsilon  
E' -> epsilon  
  
Successful parsing of string

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main.c

1 #include<stdio.h>

input

The given grammar is

E -> TE'

E' -> +TE' | epsilon

T -> FT'

T' -> \*FT' | epsilon

F -> (E) | d

Enter the string to be parsed:

d\*\*+d

E -> TE'

T -> FT'

F -> d

match of d

T' -> epsilon

E' -> +TE'

match of +

Syntax Error!!!! String is invalid

...Program finished with exit code 0

Press ENTER to exit console.

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main.c

1 #include<stdio.h>

2 #include<conio.h>

3 #include<stdlib.h>

4 #include<string.h>

5 int i=0,top=0;

6 char stack[20],ip[20];

7 void push(char c)

8 {

input

The given grammar is

E -> TE'

E' -> +TE' | epsilon

T -> FT'

T' -> \*FT' | epsilon

F -> (E) | d

Enter the string to be parsed:

i+i

Syntax Error!!!! String is invalid

...Program finished with exit code 0

Press ENTER to exit console.