136371
ICS 4B
ICS 4211 Compiler Construction
Individual Assignment

Question:

Consider the following expression grammar :

1. E ? TE’
2. E’ ? + TE’
3. | ε
4. T ? FT’
5. T’ ? *FT’
6. | ε
7. F ? (E)
8. | id

Implement the following:

First and Follow Table:

	FIRST()	**FOLLOW()**
E	{ (, id }	{) , $ }
E’	{ +, ε }	{) , $ }
T	{ (, id }	{ +,), $ }
T’	{ *, ε }	{ +,), $ }
F	{ (, id }	{ +, *,), $ }

Parsing Table:

	id	**+**	*****	**(**	**)**	**$**
E	E ? TE’			E ? TE’		
E’		E’ ? ε			E’ ? +TE’	E’ ? ε
T	T ? FT’			T ? FT’		
T’		T’ ? *FT’	F ? (E)		T’ ? ε	F ? (E)
F	$			F ? id		

Stack Input Output:
Input: "id + id * id"

Step	Stack	Input	Action (Production)	Output
1	E	id + id * id	Shift	
2	E id	+ id * id	E -> TE'	
3	T E'	+ id * id	Shift	
4	T E' +	id * id	E' -> + TE'	
5	T E' + id	* id	Shift	
6	T E' + id *	id	T' -> * FT'	
7	T E' + T'	id	Shift	
8	T E' + T' id		T' -> ε	T -> FT'
9	T E' + T'			
10	T E' + T' *	id	Shift	
11	T E' + T' * id		F -> id	
12	T E' + T' * F			T' -> ε
13	T E' + T'			
14	T E' + T'			E' -> ε
15	T E'			
16	T E' T			
17	T E'			E -> TE'
18	T E' T			
19	T E' T			E' -> ε
20	T E'			
21	T E'			
22	T			
23	T F			
24	T id		F -> id	
25	T			
26	T			T' -> ε
27				E' -> ε
28				