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SSC Problem Solving

2. Given Grammer:

$A \rightarrow Sa \mid bB$
$S \rightarrow c \mid \varepsilon$
$B \rightarrow d$

to find : first() & follow() of {A, S, B}.

Soln:

First ()

First(B) → {d}
First(S) → {c, ε}
First(A) → {First(S), First(b)}
→ {c, First(ε a), b}
→ (c, a, b).

→ Follow ()
Follow(A) → {$}
Follow(S) → {a}

Follow(B) → Follow(A) → {$}

Representation Table

Grammer	First()	follow()
$A \rightarrow Sa \mid bB$	$\{c, a, b\}$	$\{\$\}$
$S \rightarrow c \mid \varepsilon$	$\{c, \varepsilon\}$	$\{a\}$
$B \rightarrow d$	$\{d\}$	$\{\$\}$

1. For given grammer construct SLR. parsing table and parse string "(a,(a,a))"

$S \rightarrow (L) / a$

$L \rightarrow L, S / S.$

Stack	Input Buffer	Parsing Action
$	(a,(a,a))$	Shift
$(	a,(a,a))$	Shift
$(a	,(a,a))$	Reduce S → a
$(S	,(a,a))$	Reduce L → S
$(L	,(a,a))$	Shift
$(L,	(a,a))$	Shift
$(L,(	a,a))$	Shift
$(L,(a	,a))$	Reduce S → a
$(L,(S	,a))$	Reduce L → S
$(L,(L	,a))$	Shift
$(L,(L,	a))$	Shift
$(L,(L,a	))$	Reduce S → a
$(L,(L,S	))$	Reduce L → L,S
$(L,(L	))$	Shift
$(L,(L)	)$	Reduce S → (L)
$(L,S	)$	Reduce L → L,S
$(L	)$	Shift
$(L)	$	Reduce S → (L)
$S	$	Accept

SLR parser is a type of LR parser with small parse table and a relatively small parser generator ~~algo~~ SLR ~~generation~~ generator accept fewer grammer than do LALR generators like yacc and Bison

Construction of SLR parsing table

1] Construct $C = \{ I_0, I_1, \& \ldots I_n \}$, the collections of sets of LR(0) items for C'.

2] ~~If~~ State i is constructed from I_i. The parsing action for state i are determined as follows

→ If $[A \to ?.a?]$ is in I_i and GOTO $(I_i, a) = I_j$, then set ACTION $[i, a]$ to "shift j". Here a must be terminal~~s~~

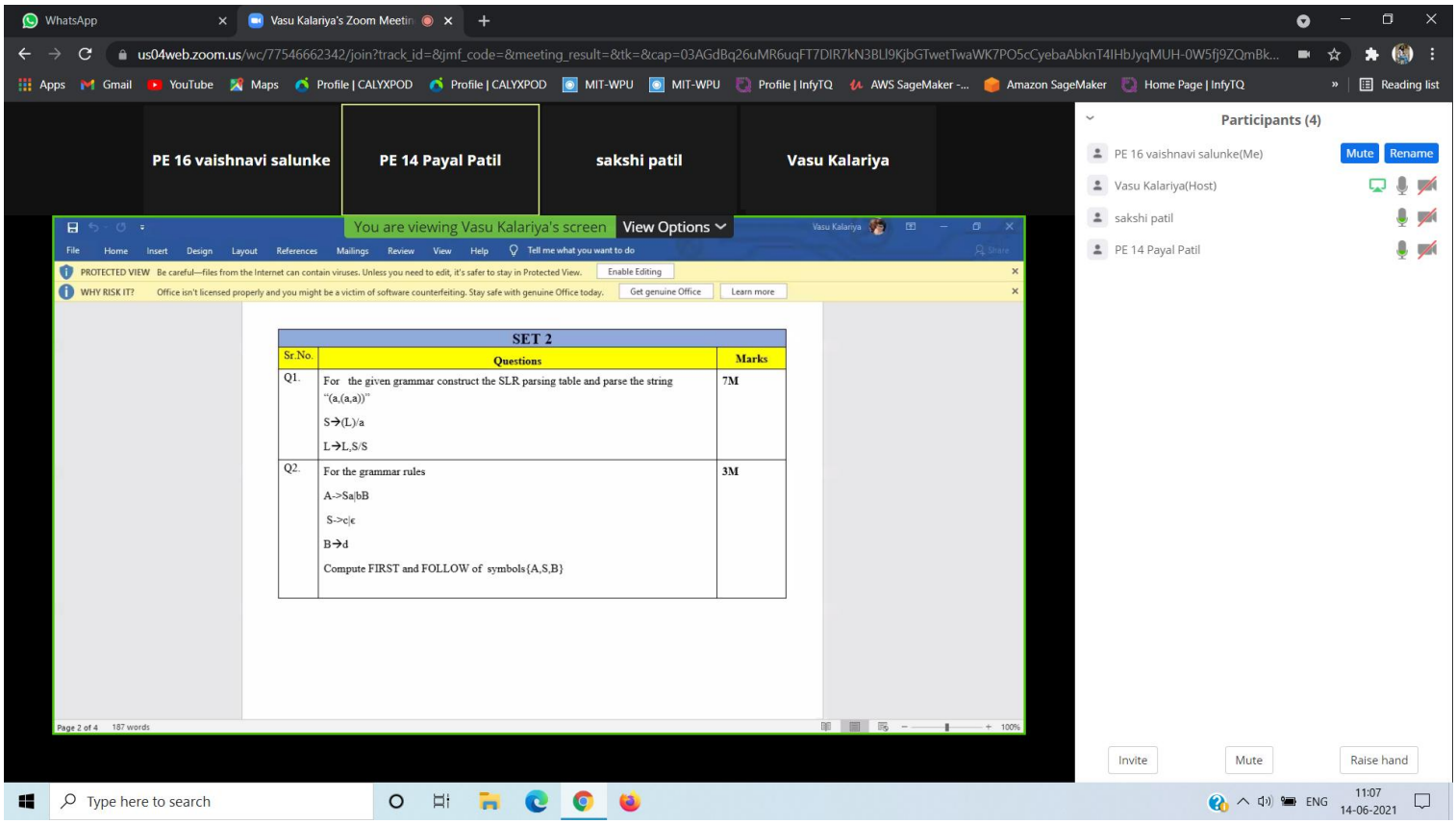
→ If $[A \to ?]$ is in I_j, then set ACTION $[i, a]$ to "reduce $A \to ?$" for all a in FOLLOW (A); here A may not be S'.

→ If $[S \to S]$ is in I_i, then set action $[i, \$]$ to "accept"

If any conflicting actions are generated by the above rules we say that grammer is not SLR

3] The goto-rule transition for state i are constructed for all non-terminal A using the rules.
if GTO $(I_i, A) = I_j$ then GOTO $[i, A] = j$

4] All entries not defined by rules 2 & 3 are made error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Vasu Kalariya's Zoom Meetin
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Enable Editing
WHY RISK IT? Office isn't licensed properly and you might be a victim of software counterfeiting. Stay safe with genuine Office today.
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SET 2
Sr.No.
Questions
Marks
Q1.
For the given grammar construct the SLR parsing table and parse the string "(a,(a,a))"
S→(L)/a
L→L,S/S
7M
Q2.
For the grammar rules
A->Sa|bB
S->c|ϵ
B→d
Compute FIRST and FOLLOW of symbols{A,S,B}
3M
Page 2 of 4
187 words
100%
Participants (4)
PE 16 vaishnavi salunke(Me)
Mute
Rename
Vasu Kalariya(Host)
sakshi patil
PE 14 Payal Patil
Invite
Mute
Raise hand
Type here to search
ENG
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