



# COMSATS University Islamabad, Wah Campus

Department of: COMPUTER SCIENCE

Class/Program: BS(A) Due Date: 19 May 2022 8:30  
Subject: Compiler Construction Instructor: Muhammad Nadeem

**Note: copying will lead to ZERO Marks will be given on effort base.**  
Time Allowed is 100 minutes.

Consider the following grammar. (number) represent production number of grammar.

**S → NP VP (P0)**

**NP → DT NN (P1)**

**NP → PR NN (P2)**

**NP → NP SBAR (P3)**

**VP → VBD (P4)**

**SBAR → IN S (P5)**

**DT → the (P6)**

**PRP → my (P7)**

**NN → motorcycle | guy | sister (P8,P9,P10)**

**VBD → rode | married | rusted (P11,P12,P13)**

**IN → that (P14)**

Its SLR-1 table is given below. (more clear image can be found in folder)

Parsing table can be found in table.csv file, where columns are separated by commas (,) .

You need to implement SLR-1 parsing algorithm for this parsing table, consider input already tokenized (no lexical analysis required).

SLR(1) Table

	\$	that	rusted	married	rode	sister	guy	motorcycle	my	the	S	PR	NP	VP	SBAR	DT	PRP	NN	VBD	IN
0									s5		s4	s3	s2			s1				
1						s18	s17	s16										s15		
2		s14	s13	s12	s11									s10	s9				s8	s7
3						s18	s17	s16										s6		
4	acc																			
5						r(DT → the)	r(DT → the)	r(DT → the)												
6		r(NP → PR NN)	r(NP → PR NN)	r(NP → PR NN)	r(NP → PR NN)															
7									s5		s19	s3	s2			s1				
8	r(VP → VBD)	r(VP → VBD)	r(VP → VBD)	r(VP → VBD)	r(VP → VBD)															
9		r(NP → NP SBAR)	r(NP → NP SBAR)	r(NP → NP SBAR)	r(NP → NP SBAR)															
10	r(S → NP VP)	r(S → NP VP)	r(S → NP VP)	r(S → NP VP)	r(S → NP VP)															
11	r(VBD → rode)	r(VBD → rode)	r(VBD → rode)	r(VBD → rode)	r(VBD → rode)															
12	r(VBD → married)	r(VBD → married)	r(VBD → married)	r(VBD → married)	r(VBD → married)															
13	r(VBD → rusted)	r(VBD → rusted)	r(VBD → rusted)	r(VBD → rusted)	r(VBD → rusted)															
14									r(IN → that)											
15		r(NP → DT NN)	r(NP → DT NN)	r(NP → DT NN)	r(NP → DT NN)															
16		r(NN → motorcycle)	r(NN → motorcycle)	r(NN → motorcycle)	r(NN → motorcycle)															
17		r(NN → guy)	r(NN → guy)	r(NN → guy)	r(NN → guy)															
18		r(NN → sister)	r(NN → sister)	r(NN → sister)	r(NN → sister)															
19		r(SBAR → IN S)	r(SBAR → IN S)	r(SBAR → IN S)	r(SBAR → IN S)															

Each stack operation should be properly displayed.