```
PS C:\Users\Samar Mittal\Desktop\Compiler LAb\lab10> python bottomup.py



Original grammar input:



S -> C

C -> c C | d

Grammar after Augmentation:

S' -> . S
S -> . C
C -> . c C
C -> . d

Calculated closure: I0

S' -> . S
S -> . C
C -> . c C
C -> . d

States Generated:

State = I0
S' -> . S
S -> . C
C -> . c C
C -> . d

State = I1
S' -> S .

State = I2
S -> C .

State = I3
C -> d .

State = I4
C -> c . C
C -> . c C
C -> . d

State = I5
C -> c C .
```

Result of GOTO computation:

```
GOTO ( I0 , S ) = I1
GOTO ( I0 , C ) = I2
GOTO ( I0 , d ) = I3
GOTO ( I0 , c ) = I4
GOTO ( I4 , C ) = I5
GOTO ( I4 , d ) = I3
GOTO ( I4 , c ) = I4
```

SLR(1) parsing table:

```
         c       d       $       S       C

 I0      S4      S3               1       2
 I1                   Accept
 I2                      R1
 I3                      R3
 I4      S4      S3                       5
 I5                      R2
```

==========

Testing Valid Input

Parsing Input: ccd

Step	Stack	Input	Action
1	0	ccd$	S4
2	0 c 4	cd$	S4
3	0 c 4 c 4	d$	S3
4	0 c 4 c 4 d 3	$	R3
5	0 c 4 c 4 C 5	$	R2
6	0 c 4 C 5	$	R2
7	0 C 2	$	R1
8	0 S 1	$	Accept

Input string 'ccd' accepted!

Production sequence (in reverse):

```
4. S -> C
3. C -> c C
2. C -> c C
1. C -> d

================================================
Testing Invalid Input

Parsing Input: ccc

-------------------------------------------------------------------------------
|       Step       |       Stack       |       Input       |      Action      |
-------------------------------------------------------------------------------
|1                 |0                  |ccc$               |S4                |
-------------------------------------------------------------------------------
|2                 |0 c 4              |cc$                |S4                |
-------------------------------------------------------------------------------
|3                 |0 c 4 c 4          |c$                 |S4                |
-------------------------------------------------------------------------------
|4                 |0 c 4 c 4 c 4      |$                  |                  |
-------------------------------------------------------------------------------
Error: No action defined for state 4 and symbol '$'
Input string 'ccc' is not valid according to the grammar
PS C:\Users\Samar Mittal\Desktop\Compiler LAb\lab10>
```