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#include <conio.h>
#include <iostream>
#include <string.h>
using namespace std;
struct grammer
{
    char p[20];
    char prod[20];
} g[10];

int main()
{
    int i, stpos, j, k, l, m, o, p, f, r;
    int np, tspos, cr;

    cout << "\nEnter Number of productions:";
    cin >> np;

    char sc, ts[10];

    cout << "\nEnter productions:\n";
    for (i = 0; i < np; i++)
    {
        cin >> ts;
        strncpy(g[i].p, ts, 1);
        strcpy(g[i].prod, &ts[3]);
    }

    char ip[10];

    cout << "\nEnter Input:";
    cin >> ip;

    int lip = strlen(ip);

    char stack[10];

    stpos = 0;
    i = 0;

```

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//moving input
sc = ip[i];
stack[stpos] = sc;
i++;
stpos++;

cout << "\n\nStack\tInput\tAction";
do
{
    r = 1;
    while (r != 0)
    {
        cout << "\n";
        for (p = 0; p < stpos; p++)
        {
            cout << stack[p];
        }
        cout << "\t";
        for (p = i; p < lip; p++)
        {
            cout << ip[p];
        }

        if (r == 2)
        {
            cout << "\tReduced";
        }
        else
        {
            cout << "\tShifted";
        }
        r = 0;

        //try reducing
        getch();
        for (k = 0; k < stpos; k++)
        {
            f = 0;

            for (l = 0; l < 10; l++)

```

```

        {
            ts[l] = '\0';
        }

        tspos = 0;
        for (l = k; l < stpos; l++) //removing first caharcter
        {
            ts[tspos] = stack[l];
            tspos++;
        }

        //now compare each possibility with production
        for (m = 0; m < np; m++)
        {
            cr = strcmp(ts, g[m].prod);

            //if cr is zero then match is found
            if (cr == 0)
            {
                for (l = k; l < 10; l++) //removing matched part
from stack
                {
                    stack[l] = '\0';
                    stpos--;
                }

                stpos = k;

                //concatinate the string
                strcat(stack, g[m].p);
                stpos++;
                r = 2;
            }
        }
    }

    //moving input
    sc = ip[i];
    stack[stpos] = sc;

```

```
        i++;
        stpos++;

    } while (strlen(stack) != 1 && stpos != lip);

    if (strlen(stack) == 1)
    {
        cout << "\n String Accepted";
    }

    getch();
}
```

File
Edit
Selection
View
Go
Run
...
shiftReduceParser.cpp - Compiler Design - Visual...

shiftReduceParser.cpp X

shiftReduceParser.cpp > ...

```

1  #include <conio.h>
2  #include <iostream>
3  #include <string.h>
4  using namespace std;
5  struct grammer
6  {
7      char p[20];
8      char prod[20];
9  } g[10];
10
11 int main()

```

PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL

2: Code

Enter Number of productions:4
Enter productions:
E->E+E
E->E*E
E->(E)
E->a

Enter Input:(a+a)*a

Stack	Input	Action
(a+a)*a	Shifted
(a	+a)*a	Shifted
(E	+a)*a	Reduced
(E+	a)*a	Shifted
(E+a)*a	Shifted
(E+E)*a	Reduced
(E)*a	Reduced
(E)	*a	Shifted
E	*a	Reduced
E*	a	Shifted
E*a		Shifted
E*E		Reduced
E		Reduced

String Accepted
PS G:\Compiler Design>

Run Testcases
0 0
Ln 10, Col 1
Spaces: 4
UTF-8
CRLF
C++
Go Live
Win32