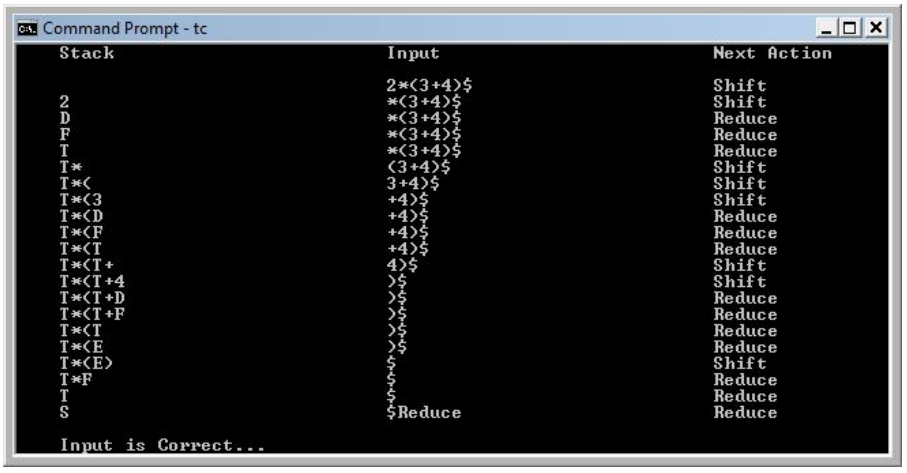
C++ Programming Articles

Program to show the implementation of Bottom-Up Parsing

Posted By: Easy Tutor **Category:** C++ Programming **Views:** 11739

A C++ Program to show the implementation of Bottom-Up Parsing.



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Code for Program to show the implementation of Bottom-Up Parsing in C++ Programming

```
# include <iostream.h>
# include   <string.h>
# include    <conio.h>

staticchar Stack[50][10]={NULL};
staticint top=-1;
staticint cit=0;

// Input Grammarstaticint productions[6]={5,1,7,7,2,10};

constchar Grammar[5][11][10]={
              {"S","E"},
              {"E","E+T","E-T","E*T","E/T","E%T","E^T","T"},
              {"T","T+F","T-F","T*F","T/F","T%F","T^F","F"},
              {"F","(E)","D"},
              {"D","0","1","2","3","4","5","6","7","8","9"}
            };

// Input Statementconstint input_length=8;
char Input[input_length][5]={"2","*","(","3","+","4",")","$"};


/*************************************************************************///--
{
   top++;

   strcpy(Stack[top],Token);
}

/*************************************************************************///--
{
   strset(Stack[top],NULL);

   top--;
}

/*************************************************************************///--
{
```

```
   for(int i=0;i<items;i++)
      Pop( );

   Push(Grammar[index][0]);
}

/*************************************************************************///--
{
   Push(Input[cit]);

   cit++;
}

/*************************************************************************///--
{
   int items;
   int index;

   char TopItems[100]={NULL};

   for(int i=0;i<=top;i++)
   {
      strset(TopItems,NULL);

      for(int j=i;j<=top;j++)
     strcat(TopItems,Stack[j]);

      for(j=0;j<productions[0];j++)
      {
     for(int k=1;k<=productions[(j+1)];k++)
     {
        if(strcmp(TopItems,Grammar[j][k])==0)
        {
       items=(top-i+1);
       index=j;

       goto NextCheck;
        }
     }
      }
   }

   return 0;

   NextCheck:

   char CitInput[20]={NULL};

   strcpy(CitInput,Stack[top]);
   strcat(CitInput,Input[cit]);

   for(i=0;i<productions[0];i++)
   {
      for(int j=1;j<=productions[(i+1)];j++)
      {
     if(strstr(Grammar[i][j],CitInput)!=NULL)
        return 0;
      }
   }

   Reduce(items,index);

   return 1;
}

/*************************************************************************//***
{
   clrscr( );

   int flag=0;

   cout<<"    /////*****++++++-----.....  Bottom-Up Parsing  .....-----++++++****

   gotoxy(5,3);
   cout<<"Stack";

   gotoxy(35,3);
   cout<<"Input";

   gotoxy(65,3);
   cout<<"Next Action";

   gotoxy(5,5);

   for(int i=0;i<=top;i++)
      cout<<Stack[i];

   gotoxy(35,5);

   for(int j=cit;j<input_length;j++)
      cout<<Input[j];

   gotoxy(65,5);
```

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```
    cout<<"Shift";

    do
    {
       if(!CheckReduceCondition( ))
       {
      Shift( );

      gotoxy(65,(wherey( )+1));
      cout<<"Shift";
       }

       else
       {
      gotoxy(65,(wherey( )+1));
      cout<<"Reduce";
       }

       gotoxy(5,wherey( ));

       for(int i=0;i<=top;i++)
      cout<<Stack[i];

       gotoxy(35,wherey( ));

       for(int j=cit;j<input_length;j++)
      cout<<Input[j];

       if(top==0 && strcmp(Stack[top],Grammar[0][0])==0 &&
                          strcmp(Input[cit],"$")==0)
       {
      flag=1;

      break;
       }

       elseif(strcmp(Stack[top],"$")==0)
       {
      flag=0;
      break;
       }
    }
    while(1);

    if(flag)
       cout<<"\n\n    Input is Correct...";

    else
       cout<<"\n\n    Input is Incorrect...";

    getch( );
    return 0;
 }
[/Code]
```

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Easy Tutor author of Program to show the implementation of Bottom-Up Parsing is from United States. Easy Tutor says

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