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| /\* |
|  |  |
|  | In any language program mostly syntax error occurs due to unbalancing delimiter such as |
|  | (),{},[]. Write C++ program using stack to check whether given expression is well parenthesized or not. |
|  | \*/ |
|  |  |
|  |  |
|  | #include <iostream> |
|  | using namespace std; |
|  | #define size 10 |
|  |  |
|  | class stackexp |
|  | { |
|  | int top; |
|  | char stk[size]; |
|  | public: |
|  | stackexp() |
|  | { |
|  | top=-1; |
|  | } |
|  | void push(char); |
|  | char pop(); |
|  | int isfull(); |
|  | int isempty(); |
|  | }; |
|  |  |
|  | void stackexp::push(char x) |
|  | { |
|  | top=top+1; |
|  | stk[top]=x; |
|  | } |
|  |  |
|  | char stackexp::pop() |
|  | { |
|  | char s; |
|  | s=stk[top]; |
|  | top=top-1; |
|  | return s; |
|  | } |
|  |  |
|  | int stackexp::isfull() |
|  | { |
|  | if(top==size) |
|  | return 1; |
|  | else |
|  | return 0; |
|  | } |
|  |  |
|  | int stackexp::isempty() |
|  | { |
|  | if(top==-1) |
|  | return 1; |
|  | else |
|  | return 0; |
|  | } |
|  |  |
|  | int main() |
|  | { |
|  | stackexp s1; |
|  | char exp[20],ch; |
|  | int i=0; |
|  | cout << "\n\t!! Parenthesis Checker..!!!!" << endl; // prints !!!Hello World!!! |
|  | cout<<"\nEnter the expression to check whether it is in well form or not : "; |
|  | cin>>exp; |
|  | if((exp[0]==')')||(exp[0]==']')||(exp[0]=='}')) |
|  | { |
|  | cout<<"\n Invalid Expression.....\n"; |
|  | return 0; |
|  | } |
|  | else |
|  | { |
|  | while(exp[i]!='\0') |
|  | { |
|  | ch=exp[i]; |
|  | switch(ch) |
|  | { |
|  | case '(':s1.push(ch);break; |
|  | case '[':s1.push(ch);break; |
|  | case '{':s1.push(ch);break; |
|  | case ')':s1.pop();break; |
|  | case ']':s1.pop();break; |
|  | case '}':s1.pop();break; |
|  | } |
|  | i=i+1; |
|  | } |
|  | } |
|  | if(s1.isempty()) |
|  | { |
|  | cout<<"\nExpression is well parenthesised...\n"; |
|  | } |
|  | else |
|  | { |
|  | cout<<"\nSorry !!! Invalid Expression or not in well parenthesized....\n"; |
|  | } |
|  | return 0; |
|  | } |