DSA_College\validParentheses.cpp

```
1
            #include<iostream>
   2
             #include<stack>
   3
             using namespace std;
   4
   5
            struct node
   6
            {
   7
                           int data ;
   8
                           struct node* next ;
   9
             };
10
             struct node* top =0 ;
11
12
             bool isEmpty()
13
                           return top == nullptr ;
14
15
16
17
             void push(char x)
18
19
                        struct node* newnode = (struct node*)malloc(sizeof(struct node)) ;
20
                        newnode->data = x;
21
                        newnode->next = top ;
22
                        top = newnode;
23
24
25
            void pop()
26
27
                           node* temp = top ;
28
                           top= top->next ;
29
                           free(temp);
30
            }
31
32
            bool isValid(string s)
33
34
                           for(int i=0;i<s.length();i++)</pre>
35
                                         if(s[i] == '(' || s[i] == '[' || s[i] == '{')
36
                                         {
37
38
                                                       push(s[i]);
39
                                         }
                                         else if(s[i] == ')' || s[i] == ']' || s[i] == '}')
40
41
                                         {
42
                                                       if(isEmpty())
43
                                                       {
44
                                                                    return false ;
45
46
                                                       char topChar = top->data ;
                                                       if((s[i] == ')' \&\& topChar != '(') || (s[i] == ']' \&\& topChar != '[') || (s[i] == ']' \&\& topChar != '['] || (s[i] == ']' && topChar != '['] || (s[i] == '] || (
47
              '}' && topChar != '{'))
48
                                                       {
49
                                                                    return false ;
50
51
                                                       pop();
```

```
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 52
53
 54
         return isEmpty();
 55
    }
 56
 57
     int main()
 58
         string s = "()){([]})";
 59
         bool res = isValid(s);
 60
         if(res)
 61
 62
 63
             cout<<"valid parentheses"<<endl;</pre>
 64
         }
 65
         else{
              cout<<"not valid parentheses"<<endl;</pre>
 66
 67
         }
         return 0;
 68
 69 }
```