JERUSALEM COLLEGE OF ENGINEERING
AN AUTONOMOUS INSTITUTION
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Velachery Main Road, Narayanapuram, Pallikaranai, Chennai, Tamil Nadu - 600100

DEPARTMENT OF INFORMATION TECHNOLOGY

Academic Year 2021-2022 Odd Semester

INNOVATIVE TEACHING PRACTICES

Degree, Semester& Branch: III Semester B.TECH-IT
Course Code & Title: JCS1301 Data Structures
Name of the Faculty member: Ms.S.Satheasree
Topic: Application of Stack

Practice's followed: Self-Directed Learning

Type of Learning: Active Learning

Learning Objectives:

Objective	Statements
O1	To make the students to apply the concept in application specific

Self-Directed Learning

Self-directed learning (SDL) is an instructional strategy where the students, with guidance from the teacher, decide what and how they will learn. It can be done individually or with group learning, but the overall concept is that students take ownership of their learning.

The Four key components of self-directed learning are:

- Being ready to learn
- Setting learning goals
- Engaging in the learning process
- Evaluating learning.

Benefits of Self-Directed Learning:

- Promotes the natural development of self-confidence, initiative, perseverance and satisfaction.
- Provides opportunities to pursue a far wider range of interests than is possible in a typical class room

Justification for chosen the topic:

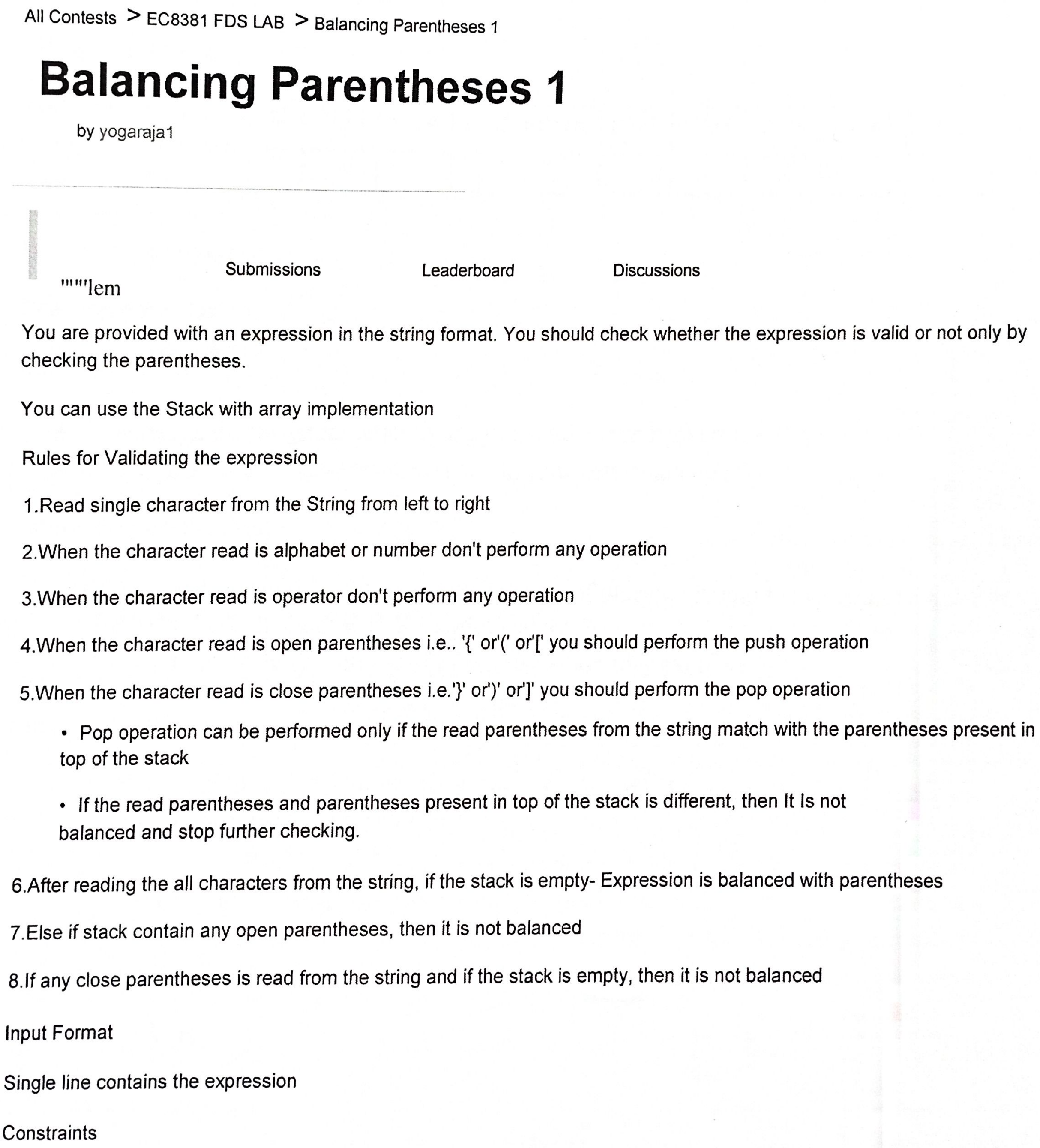
Applying the concepts learned in real time problems improves the understanding of the concept stronger. The stack and its application covers the majority of area in particular course objective.

SDL Approach:

A brief lecture for implementing stack using various approaches was taught prior to this activity; students were asked to have a hacckerrank account mandatorily. This activity was carried out in the hackerrank platform. An application of stack for checking the expression is balanced with proper parenthesis or not is to be determined.

A step by step instruction was given for checking the expression with clear diagrammatic demonstration in the description. Students are individually supposed to develop a program on his/her own understanding of the description given. There must be some test cases that need to be validated by the program's output. Two test cases are explained in the description and three more test cases are in hidden type. The students need to find the logic for writing a generic programming to validate all the test cases.

Activity Link: https://www.hackerrank.com/contests/ec8381-fds-lab



All Contests > EC8381 FDS LAB > Balancing Parentheses 1

Balancing Parentheses 1

by yogaraja1

"""lem Submissions Leaderboard Discussions

You are provided with an expression in the string format. You should check whether the expression is valid or not only by checking the parentheses.

You can use the Stack with array implementation

Rules for Validating the expression

1.Read single character from the String from left to right

2.When the character read is alphabet or number don't perform any operation

3.When the character read is operator don't perform any operation

4.When the character read is open parentheses i.e.. '{' or'(' or'[' you should perform the push operation

5.When the character read is close parentheses i.e.'}' or')' or']' you should perform the pop operation

- Pop operation can be performed only if the read parentheses from the string match with the parentheses present in top of the stack
- If the read parentheses and parentheses present in top of the stack is different, then It Is not balanced and stop further checking.

6.After reading the all characters from the string, if the stack is empty- Expression is balanced with parentheses

7.Else if stack contain any open parentheses, then it is not balanced

8.If any close parentheses is read from the string and if the stack is empty, then it is not balanced

Input Format

Single line contains the expression

Constraints

SDL Approach:

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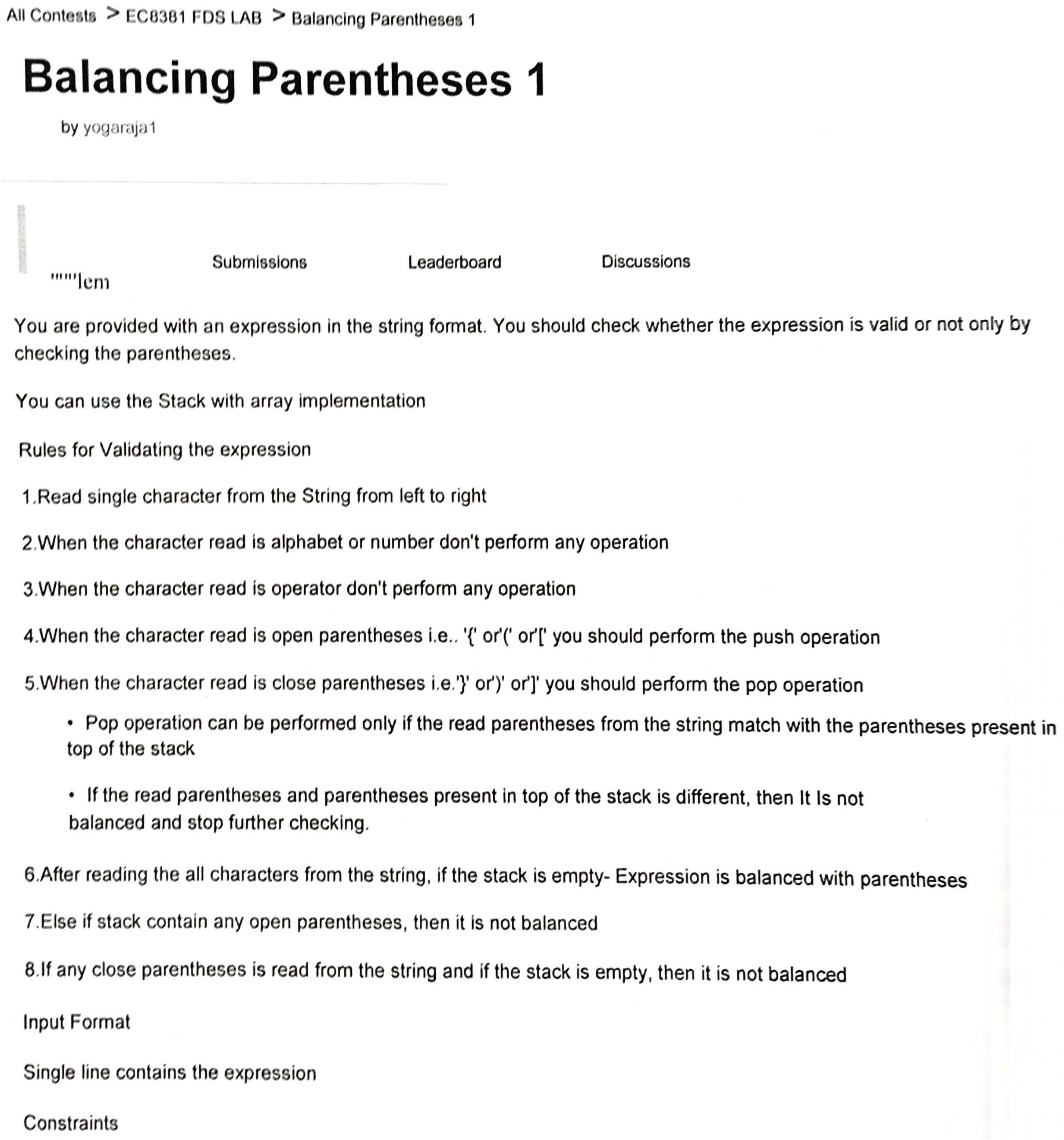

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Input Format

Single line contains the expression

Constraints

Maximum of20 characters in the Expression

Output Format

Print Balanced or Not Balanced

Sample Input 0

```
a*{b*[c
+{d+e)/
2-f]+1}
```

Sample Output 0

OUTCOME:

Finally, the students are able to write the generic programming based on the individual understanding about the description given. After completion of this activity, Students are with high tone for having such a learning experience.

Objective-PO Mapping

Objective	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
O1	3	3	2						3			1

Reflective Report:

Pre-implementation:

Identified Challenges:

- Involving the programmatically lagging students in hackerrank
- Spending time in hackerrank website to complete challenge

Addressing Challenges:

- Addressed the importance of coding in view of placement, and the recruitment pattern for MNC's is all about with the coding contests
- Planned this activity with a part of regular laboratory exercise

Post-implementation:

- With the measures taken initially, the activity is carried out smoothly with maximum commitment from the students
- Most of the students were found without hackerrank ids, I made them to create account and instruction was given about the platform
- They showed interest and curiosity in finding the solution for the hidden test cases
- Few students assured to practise such kind of contests in regular basis.

Facultyin-charge

HOD-IT

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