PES UNIVERSITY

(Established under Karnataka Act No.16 of 2013)
100-ft Ring Road, BSK III Stage, Bengaluru – 560 085

Department of Computer Science and Engineering

Session: Aug-Dec 2024

UE23CS243A: Automata Formal Languages and Logic

Evaluation Policy

Evaluation component	Test Mode	Conducted for Marks	Scaled to Marks
ISA-I	CBT	40	20
ISA-II	CBT	40	20
Experiential Learning	Coding Assignment: Building a foundation for further semester courses - Syntax Validation (Team size: 2)	6 Marks	10
	Unit-wise Assignment in Class: 5 questions/unit, student should solve in a sheet of paper and submit.	4 Marks (1 Mark/Unit)	
Total (ISA)			50
ESA	Pen and Paper	100	50
Total (ISA+ESA)			100

Assignment Description:

Syntax Validation of a Programming language constructs by writing Context Free Grammar using PLY Tool.

The following Programming Languages can be considered:

HTML and CSS	C# or C++	Shell	Fortran
Python	R	PowerShell	Prolog
Java	Golang (Go)	Perl	Cobol
JavaScript	TypeScript	Haskell	SAS
Swift	Scala	Kotlin	Lisp
Visual Basic	Visual Basic .NET	SQL	Ada
Delphi	MATLAB	Groovy	Dart
Lua	Rust	Ruby	D Lang

PHP	Scratch	Julia	Powershell ….

Assignment Guidelines

1) Team of two students belonging to the same section can make a team.

2) The team should choose 5-constructs from the above-mentioned languages. Teams can repeat the language but they should differ in chosen constructs.

3) List of constructs (may vary from language to language):

- Function declaration
- Function definition
- Simple data-type declaration
- Array declaration / Defining a List, tuple, set, dictionary, …
- Selection statements (if, if-else, nested-if, switch/nested-if-ladder)
- Looping constructs (while, do-while, for)
- Class definition
- Object creation (In java: *ClassName object = new ClassName();*)
- etc..

PLY Tool

https://python-ply.software.informer.com/3.4/

https://www.dabeaz.com/ply/ply.html

PLY is a pure-Python implementation of the popular compiler construction tools LEX and YACC.

PLY is an implementation of LEX and YACC parsing tools for Python.

Main Features:

- It's implemented entirely in Python.
- It uses LR-parsing which is reasonably efficient and well suited for larger grammars.
- PLY provides most of the standard lex/yacc features including support for empty productions, precedence rules, error recovery, and support for ambiguous grammars.
- PLY is straightforward to use and provides very extensive error checking.

Installation:

- **conda install -c anaconda ply**
- **pip install ply**