RAMAIAH UNIVERSITY OF APPLIED SCIENCES

Faculty of Engineering & Technology			
Ramaiah University of Applied Sciences			
Department	Computer Science and Engineering	**Programme**	B. Tech.
Semester/Batch	4th/2018		
Course Code	19CSC215A	**Course Title**	Formal Languages and Automata Theory
Course Leader	P.V.R.Murthy, P.Padma Priya Dharishini , Prakash P		

Assignment

Name of Student		Register No	

Sections		Marking Scheme	Max Marks	First Examiner Marks	Second Examiner Marks
At-arP	A1.1	Introduction	01		
	A1.2	Design and Validation	08		
	A1.3	Conclusion	01		
		Total Assignment Marks	**10**		

Please note:

1. Documental evidence for all the components/parts of the assessment such as the reports, photographs, laboratory exam / tool tests are required to be attached to the assignment report in a proper order.
2. The First Examiner is required to mark the comments in RED ink and the Second Examiner's comments should be in GREEN ink.
3. The marks for all the questions of the assignment have to be written only in the **Component – CET B: Assignment** table.
4. If the variation between the marks awarded by the first examiner and the second examiner lies within +/- 3 marks, then the marks allotted by the first examiner is considered to be final. If the variation is more than +/- 3 marks then both the examiners should resolve the issue in consultation with the Chairman BoE.

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Assignment

Instructions to students:

1. Maximum marks is 10.
2. The assignment has to be neatly word processed as per the prescribed format.
3. The maximum number of pages should be restricted to 4.
4. The printed assignment must be submitted to the subject leader.
5. **Submission Date: 2020**
6. **Submission after the due date is not permitted.**
7. **IMPORTANT**: It is essential that all the sources used in preparation of the assignment must be suitably referenced in the text.

Preamble:

This Course is intended to develop an understanding of the concepts of automata theory and formal languages and their relationship to computation models. Students are taught regular, context-free, context-sensitive and universal languages, their generating grammars and properties along with the related automata and machine models. Formal relationships among machines, languages and grammars are covered. Students are trained to design automata and machine models for a given formal language requirements.

Question A:

Nowadays, irrespective of education, people have been using online transaction platforms such has paytm, google_pay, phone_pay etc. for sending and receiving money. These platforms are also vulnerable to fraud. Fraud can be defined in many ways, in this context fraud is transaction exceeds certain threshold of money set by the application/platform based on the previous transactions. Consider the following requirements for design of PushDown Automata (PDA):

- User should be able to enter two pins: one to enter login and another for transaction completion.
- User should be able send money or request money via application.
- User should be able to select a bank and send money.
- If transaction money exceeds the threshold then the application should ask for security questions.
- Once the security answers are validated then then application should proceed for the completion of the transaction.
- If any security answer is wrong then the transaction must abort.

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Design a Pushdown Automata (PDA) to detect and report the fraud transaction.

You report should contains the following:

1. Introduction to problem definition.
2. Design and validations.
3. Conclusion.