IT3102 Theory of Computation

Tic-Tac-Toe game

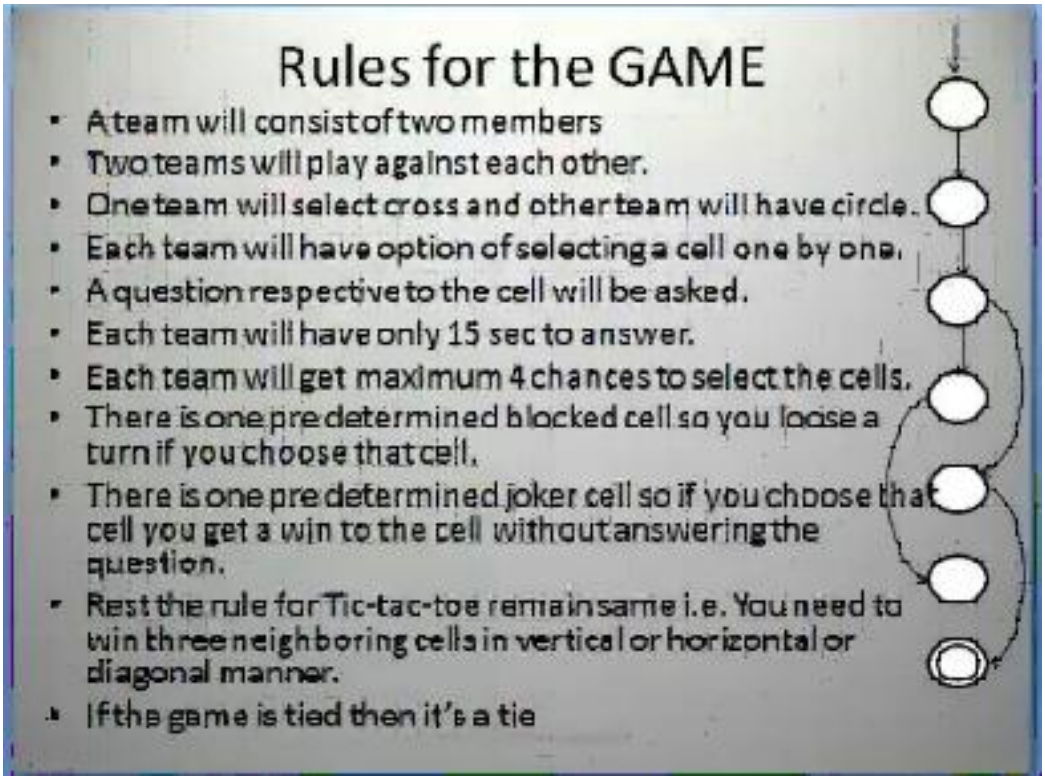
Description: Students were supposed to play the game in team of two members. A team member will select the cell number. There was a predefined question for that cell. Answering correctly with in 15 sec will win that cell. This way they need to complete the Tic-Tac-Toe to win.

Objective:
The objective was to enable students to revise the basic concepts of Theory of Computation such as FA, NFA, DFA, their properties and limitations. Students were free to choose the partner to play the game of classic Tic-Tac-Toe game.

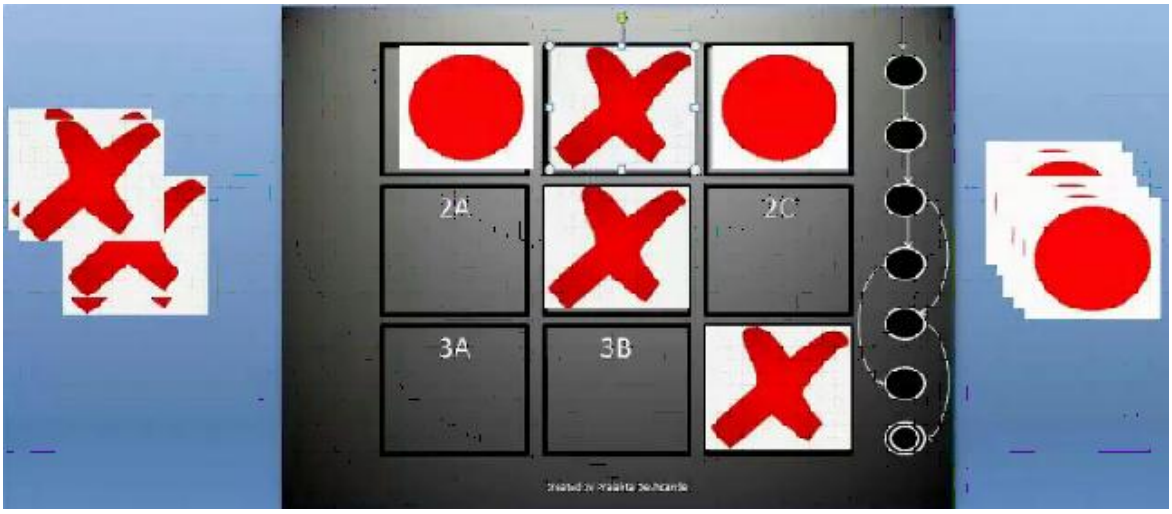
Impact:

- Students could relate to the basics of Theory of Computation
- They could think innovatively to apply their learned Theory of Computation.

Rule for the Game



Game Template



Sample Questions Asked

Game 1

1A) Number of states required to accept string ending with '10' are: Ans: 3

1B) Transition function for NFA is given by: Ans: Qx∑→Q

1C) Language of Finite Automata is always: Ans: Formal Language

2A) What is the difference between a string and valid word for a language? : Ans: String is any combination of ∑ where as valid word is that combination that reaches final state of FA

2B) What is Null string? Ans: A string with no alphabet.

2C) Joker cell

3A) For a language if ∑={a,b} then will 'ab' a valid alphabet for the same language? Ans: No it will be a word generated from ∑

3B) Blocked cell

3C)What is difference between NFA and DFA?

Ans: NFA can have many transition on a given state on a given input symbol

DFA has unique transition on a state on unique input symbol.

Feedback

Q1 What have you learned from the GAME

Logic and team work!
Always choose a circle in tic-tac-toe of toc. Also questions were really good and challenging.
The questions how they are confusing and tricky one
Being spontaneous
Many tricky questions which were not known, gained more knowledge, concepts were cleared
Learning and Summary in interesting way
New points related to toc
It was a really fun game which required good grip over basic TOC concepts
To do study in fun manner
Different terms related to FA,DFA etc
It was awesome and learning can be fun too
It was fun filled game with tricky TOC questions.
FA doesn't have memory so no calculations can be performed, mealy is more efficient than moore machine, and finally Circle always wins!! Kidding!!! :)
How the fun activity is useful .
To think faster for correct answers !!
we learn that how to solve questions in time
I learnt the pattern of questions like I was assuming that questions for TOC would always be like numerical..and not in such a way
learning is ongoing process.
All concepts have got cleared,limitations of FSM.
many things...drawbacks of FSM,Advantages of using automata etc.It was fun game with knowledge.
The basic points were cleared
Some very intricate and tricky questions were asked. Got more in depth knowledge about the topics. Got increased interest inTOC as well!
It was interesting... Questions were quite tricky and easy to understand but enjoyed learning
Study TOC concept thoroughly
it helped to revise the concepts of TOC and some questions were really tricky .
The concepts taught in lectures got revised again. Also, I got to know which topics I am weak at and should be more practiced.
Ability to analyze and answer questions quickly and, under pressure
Definitions of moore,mealy machines,formal language
Learning can be interesting. And because of game I have revised all the concepts in fun way
Co-relate idea to subject
Revised concepts
To answer tricky questions and to know basic concepts of TOC
That we should choose O between O and X always□
it is interesting
little more about fa , fsm, nfa and dfa
learned and revised some basic concept of theory of computation
Revision of Mealy and Moore machine, NFA and DFA,Fa with tricky questions
It was interactive and i understood that the basics are key.
I learnt the answers of tricky questions from the game which otherwise I would have overlooked while studying unintentionally.

Very interesting game...I could easily revise and clear my concepts.

Q2 Should we play such games?