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| Assignment 1 | Assignment 1 | Submission Mode online/  offline | Assessment Method online/  offline | Individual | Weightage 1 mark | Date of Release 15/02/20 | Submission Deadline (Date and time) 26/02/20 upto 4 P.M. |

**Instructions (Sample provided below, please change as necessary):**

* Assignment must be submitted by the **Due Date** **and Time** as mentioned above.
* Assignment submitted after **Due Date** **and Time** and before the next 48 hours will be marked late and will attract a penalty of 0.5 marks (out of the overall 5 marks, and it will be evaluated out of 5-0.5 marks only). Assignment will not be considered for evaluation subsequently (after 48 hours past due date and time), and a score of zero will be awarded.
* You all are required to submit the assignment in **hard copy** also to respective faculties for assessment.
* Plagiarism is not allowed by the University for any Academic Document to be submitted by the students for any assessment. In order to avoid plagiarism ensure you always follow good academic practice. This include self- plagiarism i.e. submitting a peace of your own work which has provisionally been presented for examination.
* Submitted assignment must have your Full Name and SAP ID in the space provided above this page in the Header.

**Submitting this Assignment**

* You will submit (upload) this assignment in Moodle.
* Email/paper submissions will not be accepted (except for UG students who are not yet registered in Moodle).
* Questions must be answered in the given order.
* Submit a pdf version of this document.
* Name this document as A1\_CS 213\_Even2020\_Manik\_Anand.pdf in case your name is Manik Anand, and you are submitting Assignment 1 of the course whose code is CS213, and it is offered in the Even Semester of the Year 2020.

**Problems:**

1. What is NFA? Explain the difference between NFA & DFA with suitable example.
2. Design a DFA accepting all the strings over input {a,b} , containing at least 3as and exactly 2bs.
3. Write the applications and limitations of finite automata.
4. Design a NFA accepting all the strings over input {0,1} containing 0110 as a substring and convert the constructed NFA into its equivalent DFA.
5. Design a DFA accepting all the strings over binary input whose decimal equivalent is either divisible by 3 or divisible by 2.