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Assignment 4.

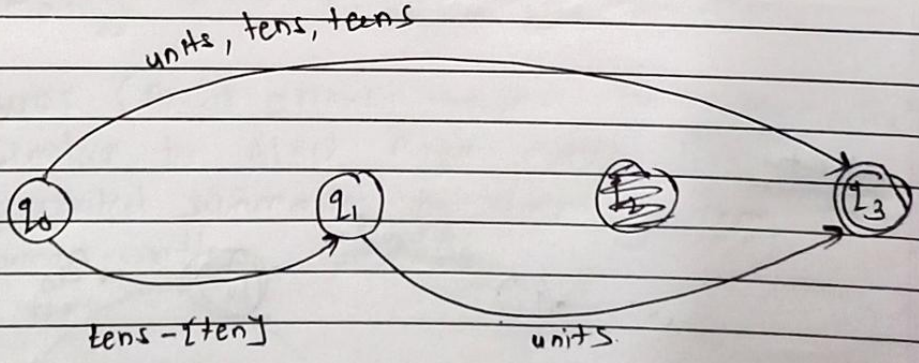
Q1] Design a Finite state Automata (FSA) for the words of English number 1-99, write FSA for noun, verb and adjective.

⇒ ① The entire word set of the english number 1-99 can be represented by 3 set.

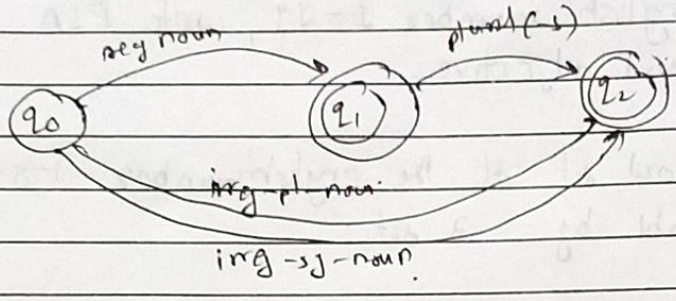
units : "one", two, three, four, five, six, seven, eight, nine
Tens : ten, twenty, thirty, fourty, fifty, sixty, seventy, eighty, ninty, hundred.
Teens : eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen.

Σ = { units, tens, teens }

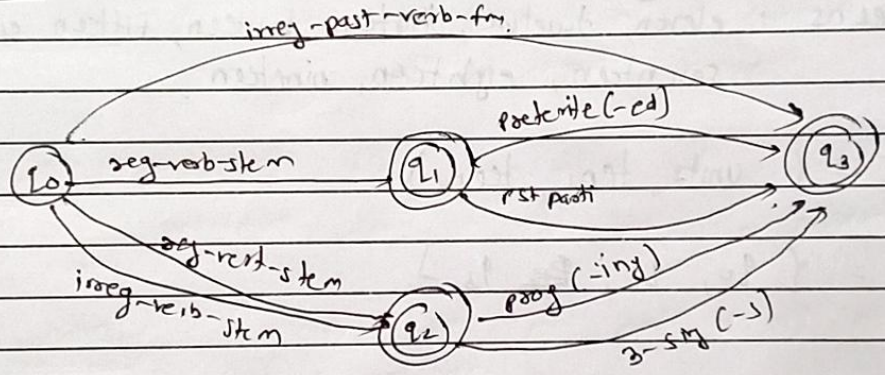
Q = { q_0, q_1, [redacted], q_3 }.



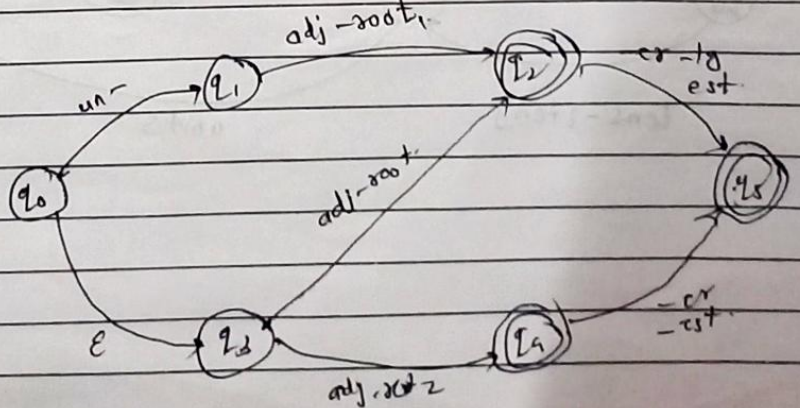
② Noun



③ Verb



④ adjective.



Q29. What is a language model? Write a note on evaluation metrics for the language model

⇒ A language model is a statistical model that predicts the probability of a sequence of word occurring in a given language.

Evaluation Metrics for language Model.

Perplexity : Measures the average uncertainty of the model in predicting the next word given the previous words.

BLEU (Bilingual Evaluation understudy) : Primary used for machine translation,

BLEU evaluates the quality of generated text by comparing it to human reference translation

ROUGE (Recall oriented understudy for gisting evaluation): Similar to BLEU, Rogue assesses the quality of generated summaries by comparing them to human-written summaries

Q3] Evaluate the performance of the developed answering system in term of providing contextually relevant answer for marathi educational content.

⇒ Following evaluation matrix could be used.

Accuracy: Measures the percentage of questions answered correctly.

Precision: Calculates the proportion of correct answers among all retrieved answer

Recall: Measure the proportion of correct answer retrieved out of all possible correct answer

F1 score: Combines precision and recall into a single metric