

Team Members:

Roll No. 1) Mandar Acharekar

Roll No. 5) Rishabh Bhatnagar

Roll No. 17) Vinay Deshmukh

1) Automated essay grading:

Designing specialized computer programs to assign grades to essays written in an educational setting. It is an automated method of educational assessment which eliminates the manual effort required to score student written essays. It uses natural language processing algorithms and searches for features which can model the attributes like language fluency, vocabulary, structure organization and content. These can be measured without any human insight.

For this, [dataset](#) of essays and its corresponding human assessed grades is provided by Hewlett Foundation. A pre-filtering of essays is required to remove all the nouns replaced by Named Entity Recognizer(NER) for each essay. These essays will now be fed to procedures for extracting features such as word count, sentence count, spelling mistakes, domain information content, etc. These features will be used to train the model using an appropriate algorithm like linear regression, naive bayes, etc depending upon the applicability and the dataset that we get.

This concept of automated grading is used in online services like ets essay grading (of gre examination). This can also be used in schools and colleges in order to reduce the workload of teachers.

2) Gaming agent to play snake game:

Making a gaming agent using reinforcement learning that can independently think and play the game with possible highest score. This will deal with try and error approach for training the model.

Deep Q Learning is the technique that can be used. It doesn't require any preprocessed dataset. The only requirement is a suitable environment that is observable by the agent when it is playing the game. In Deep Q Learning, to avoid model getting biased, the observations will be stored in a dump(any live data structure or a file) and model will be trained based on random games.

This Reinforcement Learning agent will act as a proof of concept that RL can be used to solve real world problems that cannot be solved with linear constructs or modelled seen problems which has already occurred and has been recorded..

3) Salary Prediction:

Predicting the salary of a person based on the census data. Salary is just one parameter that can be predicted. This model will judge the capability/capacity/adequacy of a person based on his/her background.

This can easily be achieved by using a simple linear regression model with multivariate nature. The [dataset](#) for the same is provided by uci website.

This model is very helpful in determining the salary of a new member for a job or predicting how fit is a person for a given job (higher the salary, more is the suitability).