**Course Assets Application 1: Predictive Course Material Model**

The Predictive Course Material Model is an intelligent search-based model which aims at generating the best of handouts, technical scenarios, quiz, samples, code etc. for a given course being enrolled by the user.

The Code is elaborated in an extensive way as follows:

**Input**

The code takes input in the form of a json file. This file must contain every feature the user wants to put in, in a detailed format:-

{

"\_id":{"$oid":"5ecea1b690cfa44a44f83139"},

"user\_id":"Caramel\_1",

"firstName":"Student",

"lastName":"One",

"category":"Student",

"course\_name":"Introduction to Html",

"user\_proficiency ":5,

}

The Input has to mention the course name that the user has enrolled into along with his proficiency in it.

**Code**

* Data is taken from the json input like ID, name, course\_name and user proficiency. Now taking in consideration the User Proficiency and Category provided, the no of scenario and their difficulty is set. The default setting is to keep it easy.
* The getdata(course\_name, difficulty, user\_id, user\_proficiency) function is called which take in account the course, difficulty id and the proficiency of the user. This function will firstly sort data according to the coursename, selecting those course data which belongs to that domain.

Example: for Javascript we can show data of node.js, vue.js, react.js altogether.

* Now according to the proficiency, the difficulty of the technical scenarios,no of quizzes and codes will be filtered. \*But the handouts will be same regardless of the above condition.

Example: for a student, 10 technical scenario, 10 quizzes and 10 codes (All are easy difficulty) along with the handout will be provided. For a professional, 5 technical scenario, 5 quizzes and 5 codes (with higher difficulty) along with the handout will be provided.

* Data is imported into a dataframe (df) through Dataframe Methods present in the pandas library. This dataframe is further processed and filtered on the basis of course name and the topic. It shuffles randomly by the sample method provided by pandas.
* Finally the no of technical scenarios, no of quizzes and codes are extracted into a final dataframe.

**Output**

The handout of the unique course will have different no’s (for example ui-1, javascript-2, python-3 and so on)

The final dataframe is then converted to json format and saved into a separate file with the name of the user id.

{"Predicted\_Material":

{

"No\_ofTechScen":10,

"No\_ofQuiz":5,

"No\_ofCodes":10,

"handout\_no":7

}

}

\*Previous Json ouputs had two coloums which not only adds significant overhead over data transfer but also is useless in cases of structured databases.