

Data Science Module - Portfolio Project

You are a Controller of Examination (COE) in an Examination body that regularly organizes an online examination. As a part of your responsibility, you need to generate various reports from the database. Your task is to automate the entire process using pandas. Details of the database are as follows:

Application_ID	: ID of applicant
D_O_B	: Date of Birth
Sex	: Gender of Candidate
H_Qual	: The highest qualification of the candidate
TH_CENT_CH	: First choice of examination city
SEC_TH_CEN	: Second Choice of Examination City
CATEGORY	: Category of student
Rollno	: Roll Number of the candidate (<i>To be filled by CEO</i>)
cent_allot	: Examination center district (<i>To be filled by CEO</i>)
cent_add	: Examination Centre Address (<i>To be filled by CEO</i>)
examDate	: Examination Date (<i>To be filled by CEO</i>)
batch	: Allotted batch on examination Date (<i>To be filled by CEO</i>)
rep_time	: Reporting time for examination (<i>To be filled by CEO</i>)

Stage One: Finalization of Candidate Count

1. Calculate the Candidate count in each district based on the *first choice of examination city*.
2. Assume that as per policy districts having more than 100 students should have an examination centre. District in which students are less than 100, adjust those students to other districts based on their second choices and find the final candidate count of each district.

Stage Two: Preparation of Database

In each examination centre, the exam is to be organized in two shifts batch I & batch II (reporting time 9:00 AM & 2 PM). The exam can be conducted any number of days in a city from September 1-30, 2023 depending upon the number of candidates in a city. Note in each city only one examination centre is possible and in one shift a maximum 20 students can appear.

3. Based on the information mentioned above complete the examination database by allocating:
 - **Rollno**: Roll number of the candidate will start from NL2000001 onwards (eg: NL2000001, NL2000002, NL2000003.....)
 - **cent_allot**: allocate center by putting examination city code
 - **cent_add**: put NIELIT <District Name> as the center address in each location (for eg if the district name is ADI then the centre add is NIELIT ADI)
 - **examDate**: Allocate any exam date between 1st September 2023 to 30th September 2023 keeping minimum no of examination days and not violating any conditions mentioned above
 - **batch**: Allocate batch I or II ensuring all the conditions mentioned above

- **rep_time:** For batch I reporting time is 9 AM and for batch II reporting time is 2 PM.

Write an appropriate program to complete the aforementioned task. **Sample filled database is shown below:**

Rollno	cent_allot	cent_add	examDate	batch	rep_time
NL2000001	CHN	NIELIT CHN	01-12-2020	1	9:00 AM
NL2000002	CHN	NIELIT CHN	01-12-2020	1	9:00 AM
NL2000003	CHN	NIELIT CHN	01-12-2020	1	9:00 AM

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