Lab Exercise – 3: Pandas Package

Note:

* Prepare a PDF document and name the file as “Lab3_RegisterNo.pdf”.
* PDF file should consist Question No, Code, and Result for each Question.
* File Should be headed with your Register number, Slot number, Lab Exercise number.

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1. Create a Pandas Data frame using
   - 2D Lists / List of lists
     - lst = [['Subbu', 'Kadi', 25], ['krish', 'Kevvu', 30], ['Raj', 'wilson', 26], ['Swetha', 'Kalimi', 22]]
   - Dictionary
     - data = {'Area':['Array', 'Stack', 'Queue'], ‘Student_1':[20, 21, 19], 'Student_2':[15, 20, 14]}
   - list of tuples
     - data = [('Ravi', 18, 7), ('Raju', 15, 6), ('Jyotika', 17, 8), ('Minion', 18, 7), ('Swathi', 17, 5)]
   - list of dicts
     - list = [{'Urbanpro': 'dataframe', 'Student': 'using', 'Site': 'list'}, {' Urbanpro ': 10, ' Student ': 20, ' Site ': 30}]
   - list of nested dictionaries
     - list = [{
       "Student": [{"Exam": 90, "Grade": "a"},
       {"Exam": 99, "Grade": "b"},
       {"Exam": 97, "Grade": "c"},],
       "Name": "Krish Naik" },
       {
       "Student": [{"Exam": 89, "Grade": "a"},
       {"Exam": 80, "Grade": "b"}],
       "Name": "Sudalai Raj"
       }]
   - panda’s series

2. Perform reindexing and reset of indexing of the data frame.

3. Add a new column using **map and dictionary** into existing data frame.

4. Read a CSV file into a data frame and print first few rows. Re shape the data frame using stack, unstack, and melt methods. (file is enclosed – nba.csv)

5. Make a column of data frame as an index, then do reset of indexing without losing the column data.

6. Change the column names and row indexes in multiple ways of a data frame.

7. Iterate over the rows of data frame and print data of required columns.

8. Select the rows of a data frame based on conditions:

Data:

record = { 'Name': ['Ankit', 'Amit', 'Aishwarya', 'Priyanka', 'Priya', 'Shaurya'],
'Age': [21, 19, 20, 18, 17, 21],
'Stream': ['Math', 'Commerce', 'Science', 'Math', 'Math', 'Science'],
'Percentage': [88, 92, 95, 70, 65, 78] }

- Percentage > 80
- Percentage != 95
- Stream is either Math or Commerce
- Stream is neither Math nor Commerce
- Age = 21 and Stream is either Math or Commerce
- Apply the above using loc[].

9. Convert a data frame into list of lists using iloc[] and for loop.

10. Drop the rows from the data frame which does not satisfy specific condition, such as age < 25. (Work on nba.csv file).

11. Develop a function to insert a row at a specific position in the data frame.

12. Rank the rows of a data frame based on a single attribute (Marks) and arrange the rows based on rank.

Data:
student_details = {'Name':['Raj', 'Raj', 'Raj', 'Aravind', 'Aravind', 'Aravind', 'John', 'John', 'John', 'Arjun', 'Arjun', 'Arjun'], 'Subject':['Maths', 'Physics', 'Chemistry', 'Maths', 'Physics', 'Chemistry', 'Maths', 'Physics', 'Chemistry', 'Maths','Physics', 'Chemistry'], 'Marks':[80, 90, 75, 60, 40, 60, 80, 55, 100, 90, 75, 70] }

13. Sort the rows of a data frame using single column (Maths) or multiple columns (Maths then Science).

data = {'name': ['Raj', 'Aravind', 'John', 'Arjun', 'Williams'], 'Maths': [8, 5, 6, 9, 7], 'Science': [7, 9, 5, 4, 7], 'English': [7, 4, 7, 6, 8]}.

14. Identify which driver scored max points and having max age. Similarly min points and min age.

dict1 = {'Driver':['Raj', 'Aravind', 'John', 'Arjun', 'Williams', 'Senthil', 'Krishna', 'Kalyani', 'Kavitha', 'Kiran', 'Kumar', 'Rani', 'Pavitra', 'Sophiya', 'Sujal', 'Sundari', 'Karishma', 'Kunjal', 'Kushal', 'Rishi'],
'Points':[408, 320, 251, 249, 247, 170, 69, 62, 56, 53, 50, 49, 39, 37, 29, 12, 9, 6, 4, 1],
'Age':[33, 31, 39, 21, 29, 29, 31, 28, 26, 24, 37, 22, 21, 32, 22, 26, 28, 20, 29, 23]}

15. Filter rows checking Position contains PG and College must contains like UC. (Work on nba.csv file)

16. Select ‘n’ random rows from the data frame or n% rows.

17. List out the column names of a data frame.

18. Rename a column name(s) of a data frame.

19. Print unique values of a column.

20. Display the list of indices whose rows satisfy specific condition on a column.