**Assigment 1**

**Data Preprocessing using Pandas Exercises**

**Exam Dictionary data and List labels**

exam\_data = {'name': ['Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael', 'Matthew', 'Laura', 'Kevin', 'Jonas'],  
'score': [12.5, 9, 16.5, np.nan, 9, 20, 14.5, np.nan, 8, 19],  
'attempts': [1, 3, 2, 3, 2, 3, 1, 1, 2, 1],  
'qualify': ['yes', 'no', 'yes', 'no', 'no', 'yes', 'yes', 'no', 'no', 'yes']}  
labels = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j']

**Q1.** Write a Python program to create and display a DataFrame from a specified dictionary data which has the index labels.

**Q2.** Write a Python program to display a summary of the basic information about a specified DataFrame and its data.

**Q3.** Write a Python program to get the first 3 rows of a given DataFrame.

**Q4.** Write a Python program to select the 'name' and 'score' columns from the following DataFrame.

**Q5.** Write a Python program to select the specified columns and rows from a given data frame.

**Q6.** Write a Python program to select the rows where the number of attempts in the examination is greater than 2.

**Q7.** Write a Python program to count the number of rows and columns of a DataFrame.

**Q8.** Write a Python program to select the rows where the score is missing, i.e. is NaN.

**Q9.** Write a Python program to select the rows the score is between 15 and 20 (inclusive). 

**Q10.** Write a Python program to select the rows where number of attempts in the examination is less than 2 and score greater than 15.

**Q11.** Write a Python program to change the score in row 'd' to 11.5.

**Q12.** Write a Python program to calculate the sum of the examination attempts by the students.

**Q13.** Write a Python program to calculate the mean score for each different student in DataFrame.

**Q14.** Write a Python program to append a new row 'k' to data frame with given values for each column. Now delete the new row and return the original DataFrame.

**Q15.** Write a Python program to sort the DataFrame first by 'name' in descending order, then by 'score' in ascending order.

**Q16.** Write a Python program to replace the 'qualify' column contains the values 'yes' and 'no' with True and False.

**Q17.** Write a Python program to change the name 'James' to 'Suresh' in name column of the DataFrame.

**Q18.** Write a Python program to delete the 'attempts' column from the DataFrame.

**Q19.** Write a Python program to insert a new column in existing DataFrame.

**Q20.** Write a Python program to iterate over rows in a DataFrame.

**Q21.** Write a Python program to get list from DataFrame column headers.