1. From input, extract words that contain at least 2 vowels. (10 marks)

Input = Pandas Series ('Spyder', 'Anaconda', 'Pycharm', 'Python', 'Jupiter')

Expected Output:

1 Anaconda

4 Jupiter

dtype: object

1. Read the xml file ‘Employees\_xml’ (25 marks)

Find the experience of each employees till date (today) in years, months and days

Expected Output Format:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | emp\_id | first\_name | last\_name | hire\_date | experience |
|  | 100 | Steven | King | 17-06-2003 | 15 years, 11 months, 10 days |
|  | 101 | Neena | Kochhar | 21-09-2005 | 13 years, 8 months, 6 days |

Write the output as a csv file.

1. Read the csv file ‘group score’ (15 marks)
2. Create a new column ‘status’ from the column ‘score’ so that values < 25 becomes ‘Low’ and >= 25 becomes ‘High’.
3. For each ‘group\_id’ in the dataset create multiple tables in SQL Server filtering the records with ‘status’ as ’High’
4. Read the json file ‘players’ (10 marks)

Create new columns ‘first name’ and ‘last name’ by splitting the ‘full name’

1. Consider the number 45656. (10 marks)

Each pair of consecutive digits of 45656 has a difference of one.

A number for which every pair of consecutive digits has a difference of one is called a step number.

1. Write a function ‘step\_num’ to return ‘True’ if a number is a step number.
2. Create another function ‘print\_step\_num’ that calls the function ‘step\_num’. If the given input is a step number, print the number,

else, print the next nearest step number

1. Write a python program to solve the following: (15 marks)
2. Insert a number after each number of a list.

The number should be the next integer that is divisible by 3

Sample input: [1,6,4,9,1,5,4]

Expected output: [1,3,6,9,4,6,9,12,1,3,5,6,4,6]

1. Convert the output to a ‘nx2’ numpy array where n=length of list/2

array([[ 1, 3],

[ 6, 9],

[ 4, 6],

[ 9, 12],

[ 1, 3],

[ 5, 6],

[ 4, 6]])

1. Convert the numpy array to a pandas dataframe with column names [‘A’,‘B’] and index names as the sum of digits in each row.
2. Write a python program to demonstrate inheritance. (5 marks)
3. Write a Python program to create a dictionary by counting the number of letters from a string. (10 marks)

Sample string: 'lateral bootcamp'

Expected output: {'l': 2, 'a': 3, 't': 2, 'e': 1, 'r': 1, ' ': 1, 'b': 1, 'o': 2, 'c': 1, 'm': 1, 'p': 1}