Unit 3.1Graded Assignment

Instructions:
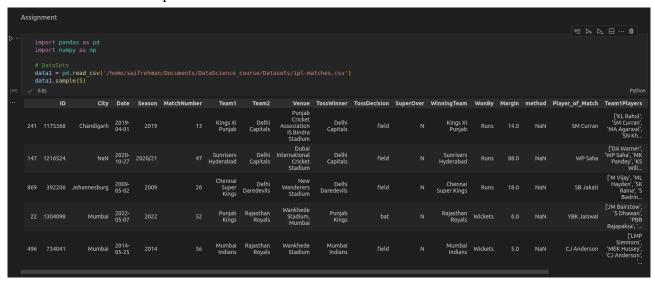**Implement a label encoder for categorical data**
using pure Python, Pandas and NumPy

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Solution:

1. First we have import our dataset.

2. We have implemented function in two use cases if the run by default it will labelize all the object based column. In second case we will labialize in the desired column.

```python
var = [i for i in data1 if data1[i].dtype == 'O']
def labelencoder(dataFrame, index=var):
    encoded_dataFrame = dataFrame.copy()
    for i in dataFrame.columns:
        if dataFrame[i].dtype == 'O':
            for j in dataFrame[index]:
                categories = dataFrame[j].unique()
                # This line creates a dictionary that maps each unique category to a unique integer value.
                encode = {cat: x for x, cat in enumerate(categories)}
                encoded_dataFrame[j] = dataFrame[j].map(encode).astype(np.int16)

    return encoded_dataFrame
```

```python
a = labelencoder(data1)
a.sample(5)
```
✓ 0.2s

	ID	City	Date	Season	MatchNumber	Team1	Team2	Venue	TossWinner	TossDecision	SuperOver	WinningTeam	WonBy	Margin	method	Player_of_Match	Team1Players	Team2Players	Umpire1
9	1304111	2	9	0	9	2	4	2	4	1	0	6	1	3.0	0	9	9	9	0
602	598022	1	465	9	48	7	9	19	7	0	0	9	0	4.0	0	67	592	592	41
536	729309	10	420	8	58	11	4	7	4	0	0	12	0	6.0	0	165	527	526	39
10	1304110	3	10	0	10	3	3	4	6	1	0	7	1	17.0	0	10	10	10	7
69	1304051	4	58	0	69	0	7	5	3	1	0	1	1	61.0	0	53	67	67	2

```python
a = labelencoder(data1, ['City','SuperOver'])
a.sample(5)
```
✓ 0.0s

	ID	City	Date	Season	MatchNumber	Team1	Team2	Venue	TossWinner	TossDecision	SuperOver	WinningTeam	WonBy	Margin	method	Player_of_Match	Team1Players	Team2P
794	419146	13	2010-04-09	2009/10	41	Kings XI Punjab	Mumbai Indians	Punjab Cricket Association Stadium, Mohali	Mumbai Indians	bat	0	Kings XI Punjab	Wickets	6.0	NaN	KC Sangakkara	['AB Barath', 'DPMD Jayawardene', 'KC Sangakka...	['S Dh 'SR Ten 'AT R
409	980947	2	2016-04-28	2016	24	Mumbai Indians	Kolkata Knight Riders	Wankhede Stadium	Mumbai Indians	field	0	Mumbai Indians	Wickets	6.0	NaN	RG Sharma	['RG Sharma', 'PA Patel', 'AT Rayudu', 'KH Pan...	['RV Utl 'G Ga 'Sh H
921	336009	8	2008-05-08	2007/08	28	Delhi Daredevils	Chennai Super Kings	Feroz Shah Kotla	Chennai Super Kings	field	0	Chennai Super Kings	Wickets	4.0	NaN	MS Dhoni	['G Gambhir', 'V Sehwag', 'AB de Villiers', 'S...	['S Vidy Flemir Dho
4	1304116	2	2022-05-22	2022	70	Sunrisers Hyderabad	Punjab Kings	Wankhede Stadium, Mumbai	Sunrisers Hyderabad	bat	0	Punjab Kings	Wickets	5.0	NaN	Harpreet Brar	['PK Garg', 'Abhishek Sharma', 'RA Tripathi', ...	['JM Bai 'S Dhaw Sh k
373	981019	17	2016-05-29	2016	Final	Royal Challengers Bangalore	Sunrisers Hyderabad	M Chinnaswamy Stadium	Sunrisers Hyderabad	bat	0	Sunrisers Hyderabad	Runs	8.0	NaN	BCJ Cutting	['CH Gayle', 'V Kohli', 'AB de Villiers', 'KL ...	['DA W 'S Dh Hen