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2ECE-A

Problem 1.a.)

```
1 import pandas as pd
2 data1 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'],
3         'Math': [80, 95, 79]}
4 grades1 = pd.DataFrame(data1, columns=['Student', 'Math'])
5 data2 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'],
6         'Electronics': [85, 81, 83]}
7 grades2 = pd.DataFrame(data2, columns=['Student', 'Electronics'])
8 data3 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'],
9         'GEAS': [90, 79, 93]}
10 grades3 = pd.DataFrame(data3, columns=['Student', 'GEAS'])
11 data4 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'],
12         'ESAT': [93, 89, 88]}
13 grades4 = pd.DataFrame(data4, columns=['Student', 'ESAT'])
14
15 merge = pd.merge(grades1, grades2, how='right', on='Student')
16 merge1 = pd.merge(merge, grades3, how='right', on='Student')
17 mergefinal = pd.merge(merge1, grades4, how='right', on='Student')
```

	Student	Math	Electronics	GEAS	ESAT
0	Ice Bear	80	85	90	93
1	Panda	95	81	79	89
2	Grizzly	79	83	93	88

Problem 1.b.) Long format

```
1 import pandas as pd
2 data1 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'],
3         'Math': [80, 95, 79]}
4 grades1 = pd.DataFrame(data1, columns=['Student', 'Math'])
5 data2 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'],
6         'Electronics': [85, 81, 83]}
7 grades2 = pd.DataFrame(data2, columns=['Student', 'Electronics'])
8 data3 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'],
9         'GEAS': [90, 79, 93]}
10 grades3 = pd.DataFrame(data3, columns=['Student', 'GEAS'])
11 data4 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'],
12         'ESAT': [93, 89, 88]}
13 grades4 = pd.DataFrame(data4, columns=['Student', 'ESAT'])
14
15 merge = pd.merge(grades1, grades2, how='right', on='Student')
16 merge1 = pd.merge(merge, grades3, how='right', on='Student')
17 mergefinal = pd.merge(merge1, grades4, how='right', on='Student')
18
19 mergelong = pd.melt(mergefinal, id_vars='Student',
20                    var_name='Subject',
21                    value_name='Grades')
```

Index	Student	Subject	Grades
0	Ice Bear	Math	80
1	Panda	Math	95
2	Grizzly	Math	79
3	Ice Bear	Electronics	85
4	Panda	Electronics	81
5	Grizzly	Electronics	83
6	Ice Bear	GEAS	90
7	Panda	GEAS	79
8	Grizzly	GEAS	93
9	Ice Bear	ESAT	93
10	Panda	ESAT	89
11	Grizzly	ESAT	88

Problem2.)

Spyder (Python 3.7)

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Editor - C:\Users\HP\Desktop\ECE\PYTHON\exp9\Problem2.py

```
1 import pandas as pd
2
3 data = {'Box': ['Box1', 'Box1', 'Box1', 'Box2', 'Box2', 'Box2'],
4         'Dimension': ['Length', 'Width', 'Height', 'Length', 'Width', 'Height'],
5         'Value': [6, 4, 2, 5, 3, 4]}
6 messy = pd.DataFrame(data, columns = ['Box', 'Dimension', 'Value'])
7 tidy = messy.pivot_table(index = 'Box', columns = 'Dimension', values = 'Value').reset_index()
8 volume = tidy.assign(Volume=lambda tidy: tidy.Length*tidy.Height*tidy.Width)
```

Variable explorer

Name	Type	Size	Value
data	dict	3	{'Box': ['Box1', 'Box1', 'Box1', 'Box2', 'Box2', 'Box2'], 'Dimension': ['Le ...
messy	DataFrame	(6, 3)	Column names: Box, Dimension, Value
tidy	DataFrame	(2, 4)	Column names: Box, Height, Length, Width
volume	DataFrame	(2, 5)	Column names: Box, Height, Length, Width, Volume

Python console

```
AttributeError: 'dict' object has no attribute 'assign'

In [16]:
In [16]: runfile('C:/Users/HP/Desktop/ECE/PYTHON/exp9/Problem2.py', wdir='C:/Users/HP/Desktop/ECE/PYTHON/exp9')
In [17]:
```

messy - DataFrame

Index	Box	Dimension	Value
0	Box1	Length	6
1	Box1	Width	4
2	Box1	Height	2
3	Box2	Length	5
4	Box2	Width	3
5	Box2	Height	4

volume - DataFrame

Index	Box	Height	Length	Width	Volume
0	Box1	2	6	4	48
1	Box2	4	5	3	60

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Python console History log

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