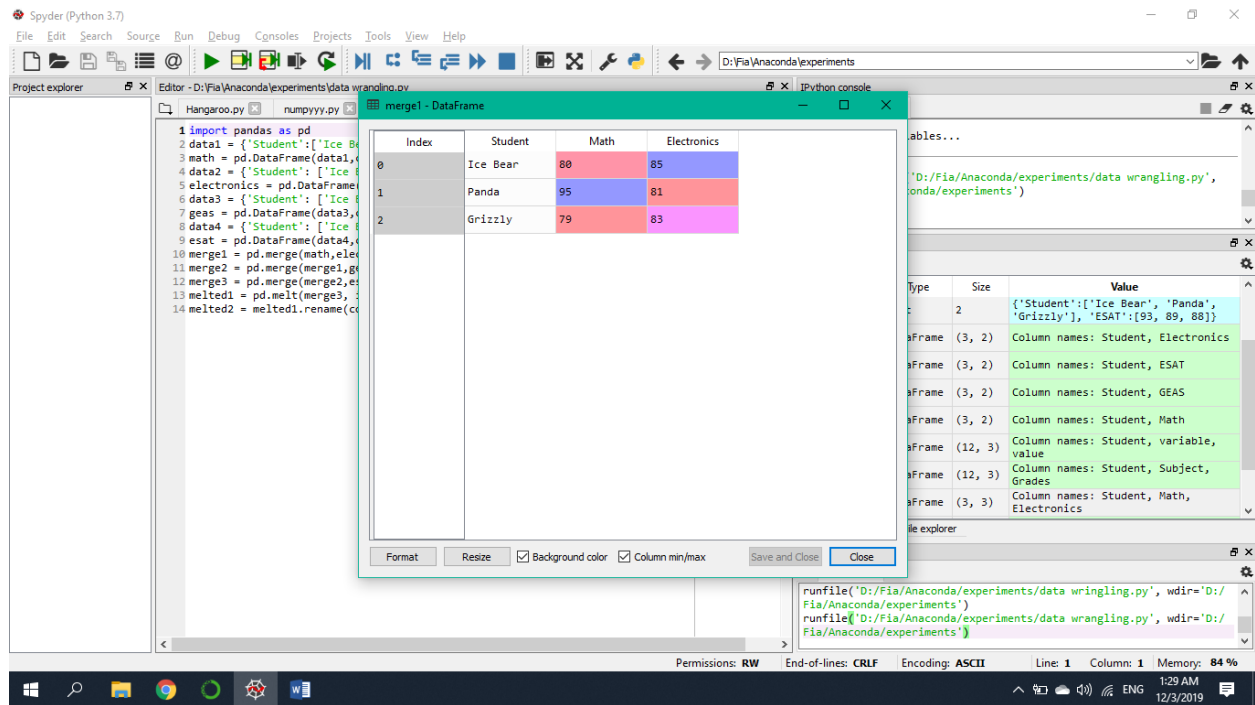


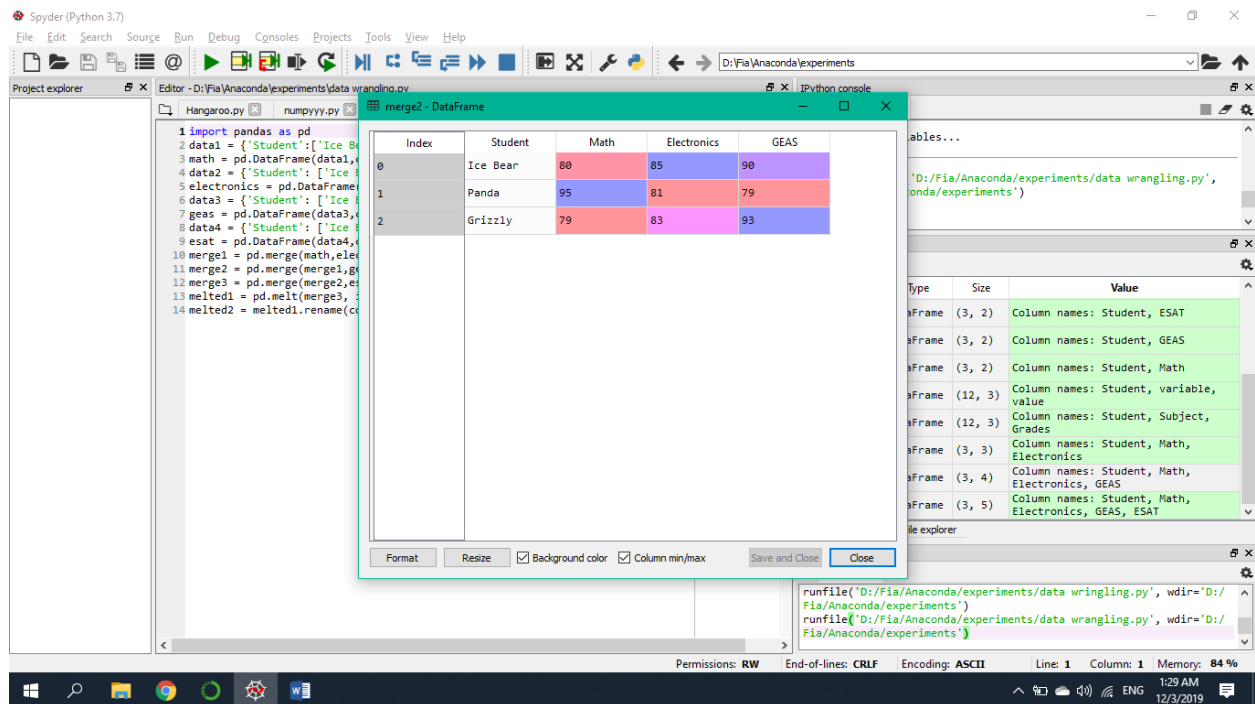
PROBLEM 1:



1 import pandas as pd
2 data1 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'],
3 'Math': [80, 95, 79],
4 'Electronics': [85, 81, 83]}
5 data2 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'],
6 'ESAT': [93, 89, 88]}
7 data3 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'],
8 'GEAS': [90, 79, 93]}
9 data4 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'],
10 'ESAT': [93, 89, 88]}
11 merge1 = pd.merge(data1, data2, on='Student')
12 merge2 = pd.merge(merge1, data3, on='Student')
13 merge3 = pd.merge(merge2, data4, on='Student')
14 melted1 = pd.melt(merge3, id_vars='Student', value_vars=['Math', 'Electronics', 'ESAT', 'GEAS'], var_name='Subject', value_name='Grade')
15 melted2 = melted1.rename(columns={'Subject': 'Subject', 'Grade': 'Value'})

Index	Student	Math	Electronics
0	Ice Bear	80	85
1	Panda	95	81
2	Grizzly	79	83

runfile('D:/Fia/Anaconda/experiments/data wrangling.py', wdir='D:/Fia/Anaconda/experiments')



1 import pandas as pd
2 data1 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'],
3 'Math': [80, 95, 79],
4 'Electronics': [85, 81, 83]}
5 data2 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'],
6 'ESAT': [93, 89, 88]}
7 data3 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'],
8 'GEAS': [90, 79, 93]}
9 data4 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'],
10 'ESAT': [93, 89, 88]}
11 merge1 = pd.merge(data1, data2, on='Student')
12 merge2 = pd.merge(merge1, data3, on='Student')
13 merge3 = pd.merge(merge2, data4, on='Student')
14 melted1 = pd.melt(merge3, id_vars='Student', value_vars=['Math', 'Electronics', 'ESAT', 'GEAS'], var_name='Subject', value_name='Grade')
15 melted2 = melted1.rename(columns={'Subject': 'Subject', 'Grade': 'Value'})

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

runfile('D:/Fia/Anaconda/experiments/data wrangling.py', wdir='D:/Fia/Anaconda/experiments')

Spyder (Python 3.7)

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Project explorer Editor - D:/Fia/Anaconda/experiments/data wrangling.py IPython console

```
1 import pandas as pd
2 data1 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'], 'Math': [80, 95, 79]}
3 math = pd.DataFrame(data1)
4 data2 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'], 'Electronics': [85, 81, 83]}
5 electronics = pd.DataFrame(data2)
6 data3 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'], 'GEAS': [90, 79, 93]}
7 geas = pd.DataFrame(data3)
8 data4 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'], 'ESAT': [93, 89, 88]}
9 esat = pd.DataFrame(data4)
10 merge1 = pd.merge(math, electronics)
11 merge2 = pd.merge(merge1, geas)
12 merge3 = pd.merge(merge2, esat)
13 melted1 = pd.melt(merge3, id_vars='Student')
14 melted2 = melted1.rename(columns={'variable': 'value'})
```

merge3 - DataFrame

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

runfile('D:/Fia/Anaconda/experiments/data wrangling.py', wdir='D:/Fia/Anaconda/experiments')

runfile('D:/Fia/Anaconda/experiments/data wrangling.py', wdir='D:/Fia/Anaconda/experiments')

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Spyder (Python 3.7)

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Project explorer Editor - D:/Fia/Anaconda/experiments/data wrangling.py IPython console

```
1 import pandas as pd
2 data1 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'], 'Math': [80, 95, 79]}
3 math = pd.DataFrame(data1)
4 data2 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'], 'Electronics': [85, 81, 83]}
5 electronics = pd.DataFrame(data2)
6 data3 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'], 'GEAS': [90, 79, 93]}
7 geas = pd.DataFrame(data3)
8 data4 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'], 'ESAT': [93, 89, 88]}
9 esat = pd.DataFrame(data4)
10 merge1 = pd.merge(math, electronics)
11 merge2 = pd.merge(merge1, geas)
12 merge3 = pd.merge(merge2, esat)
13 melted1 = pd.melt(merge3, id_vars='Student')
14 melted2 = melted1.rename(columns={'variable': 'value'})
```

melted1 - DataFrame

Index	Student	variable	value
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

runfile('D:/Fia/Anaconda/experiments/data wrangling.py', wdir='D:/Fia/Anaconda/experiments')

runfile('D:/Fia/Anaconda/experiments/data wrangling.py', wdir='D:/Fia/Anaconda/experiments')

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Spyder (Python 3.7)

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Project explorer Editor - D:/Fia/Anaconda/experiments/data wrangling.py IPython console

```
1 import pandas as pd
2 data1 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'], 'Subject': 'Math', 'Grades': [80, 95, 79]}
3 math = pd.DataFrame(data1)
4 data2 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'], 'Subject': 'Electronics', 'Grades': [85, 81, 83]}
5 electronics = pd.DataFrame(data2)
6 data3 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'], 'Subject': 'GEAS', 'Grades': [90, 79, 93]}
7 geas = pd.DataFrame(data3)
8 data4 = {'Student': ['Ice Bear', 'Panda', 'Grizzly'], 'Subject': 'ESAT', 'Grades': [93, 89, 88]}
9 esat = pd.DataFrame(data4)
10 merge1 = pd.merge(math, electronics)
11 merge2 = pd.merge(merge1, geas)
12 merge3 = pd.merge(merge2, esat)
13 melted1 = pd.melt(merge3, id_vars='Student', var_name='Subject', value_name='Grades')
14 melted2 = melted1.rename(columns={'Subject': 'Subject', 'Grades': 'Grades'})
```

melted2 - DataFrame

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

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PROBLEM 2:

Spyder (Python 3.7)

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Project explorer Editor - D:/Fia/Anaconda/experiments/data wrangling2.py IPython console

```
1 import pandas as pd
2 boxes = pd.DataFrame({'Box': ['Box1', 'Box1', 'Box1', 'Box2', 'Box2', 'Box2'], 'Dimension': ['Length', 'Width', 'Height', 'Length', 'Width', 'Height'], 'Value': [6, 4, 2, 5, 3, 4]})
3
4
5
6
7
8 tidy = boxes.pivot_table(index='Box', columns='Dimension', values='Value')
9 volume = [48, 60]
10
11 tidy['Volume'] = volume
```

boxes - 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

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Spyder (Python 3.7)

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Project explorer Editor - D:\Fia\Anaconda\experiments\data wrangling2.ov IPython console

```
1 import pandas as pd
2
3 boxes = pd.DataFrame(
4     {'Box': ['Box1', 'Box2'],
5       'Dimension': ['L', 'L'],
6       'Value': [6, 4, 2, 5]}
7 )
8 tidy = boxes.pivot_table(index='Box', columns='Dimension', values='Value')
9 volume = [48, 60]
10
11 tidy['Volume'] = volume
```

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

Format Resize Background color Column min/max Save and Close Close

ipython console

```
'D:/Fia/Anaconda/experiments/data wrangling.py',
onda/experiments')
'D:/Fia/Anaconda/experiments/data wrangling2.py',
onda/experiments')
```

Type	Size	Value
Frame (3, 2)		Column names: Student, Electronics
Frame (3, 2)		Column names: Student, ESAT
Frame (3, 2)		Column names: Student, GEAS
Frame (3, 2)		Column names: Student, Math
Frame (12, 3)		Column names: Student, variable, value
Frame (12, 3)		Column names: Student, Subject, Grades
Frame (3, 3)		Column names: Student, Math, Electronics
Frame (3, 4)		Column names: Student, Math, Electronics, GEAS
Frame (3, 5)		Column names: Student, Math, Electronics, GEAS, ESAT
tidy	DataFrame (2, 4)	Column names: Height, Length, Width, Volume
volume	list 2	[48, 60]

Variable explorer File explorer

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