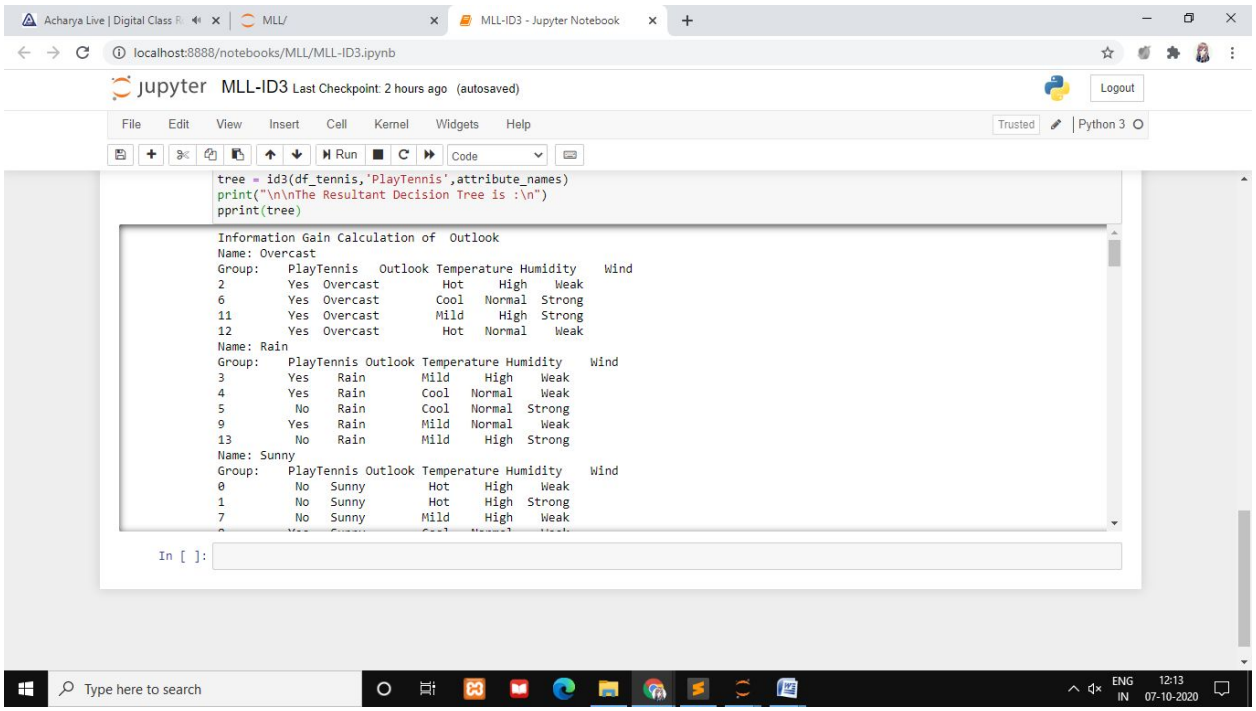
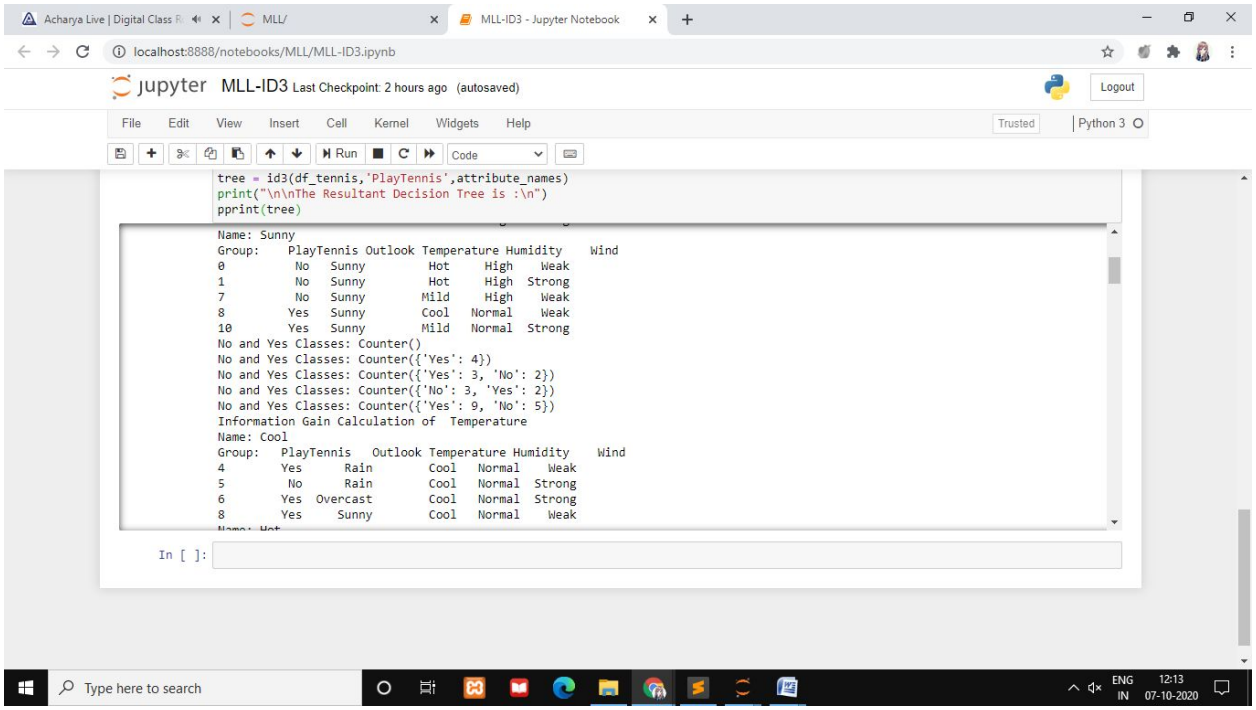
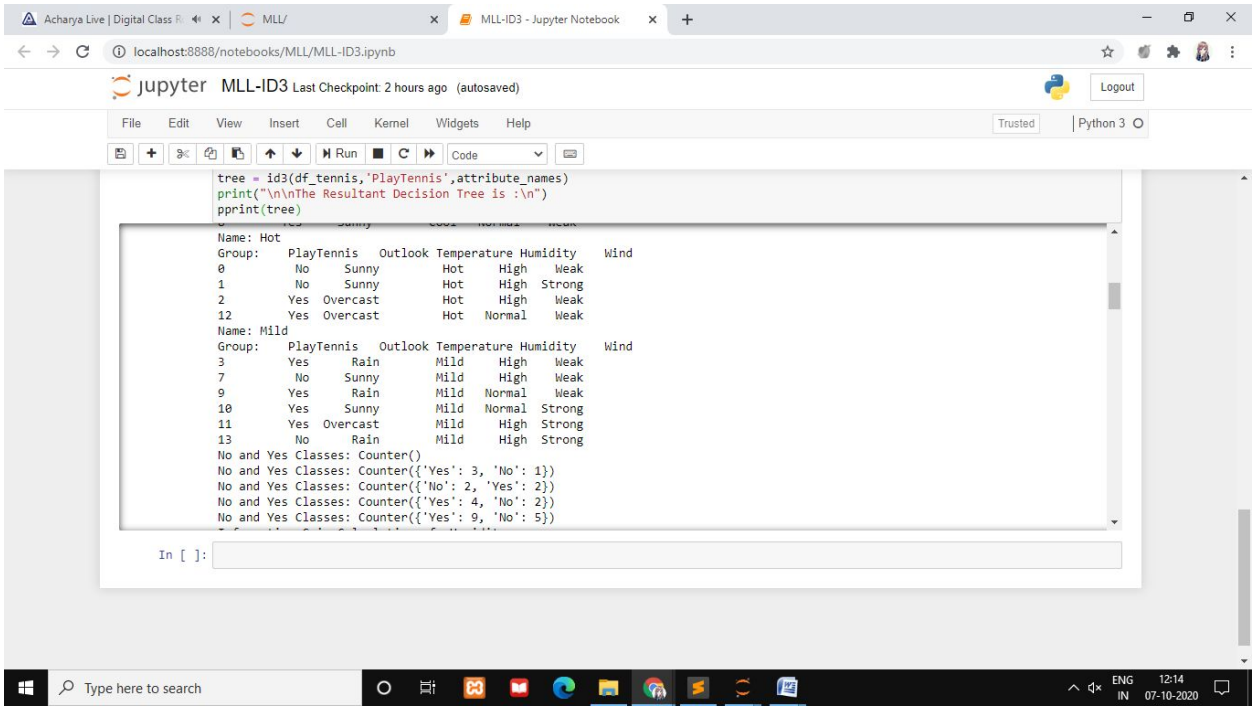
PROGRAM -3

OUTPUT



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Python 3
Run
Code
tree = id3(df_tennis,'PlayTennis',attribute_names)
print("\n\nThe Resultant Decision Tree is :\n")
pprint(tree)
Name: Hot
Group: PlayTennis Outlook Temperature Humidity Wind
0 No Sunny Hot High Weak
1 No Sunny Hot High Strong
2 Yes Overcast Hot High Weak
12 Yes Overcast Hot Normal Weak
Name: Mild
Group: PlayTennis Outlook Temperature Humidity Wind
3 Yes Rain Mild High Weak
7 No Sunny Mild High Weak
9 Yes Rain Mild Normal Weak
10 Yes Sunny Mild Normal Strong
11 Yes Overcast Mild High Strong
13 No Rain Mild High Strong
No and Yes Classes: Counter()
No and Yes Classes: Counter({'Yes': 3, 'No': 1})
No and Yes Classes: Counter({'No': 2, 'Yes': 2})
No and Yes Classes: Counter({'Yes': 4, 'No': 2})
No and Yes Classes: Counter({'Yes': 9, 'No': 5})
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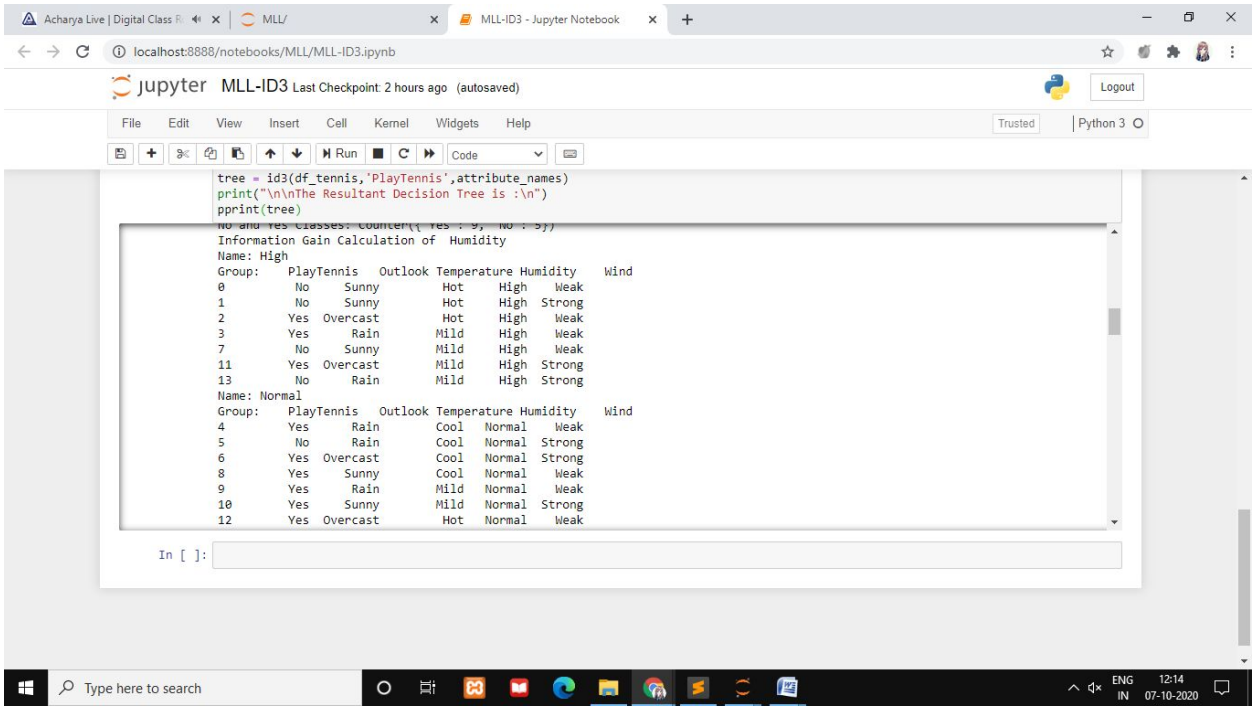
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Python 3
Run
Code
tree = id3(df_tennis,'PlayTennis',attribute_names)
print("\n\nThe Resultant Decision Tree is :\n")
pprint(tree)
Information Gain Calculation of Humidity
Name: High
Group: PlayTennis Outlook Temperature Humidity Wind
0 No Sunny Hot High Weak
1 No Sunny Hot High Strong
2 Yes Overcast Hot High Weak
3 Yes Rain Mild High Weak
7 No Sunny Mild High Weak
11 Yes Overcast Mild High Strong
13 No Rain Mild High Strong
Name: Normal
Group: PlayTennis Outlook Temperature Humidity Wind
4 Yes Rain Cool Normal Weak
5 No Rain Cool Normal Strong
6 Yes Overcast Cool Normal Strong
8 Yes Sunny Cool Normal Weak
9 Yes Rain Mild Normal Weak
10 Yes Sunny Mild Normal Strong
12 Yes Overcast Hot Normal Weak
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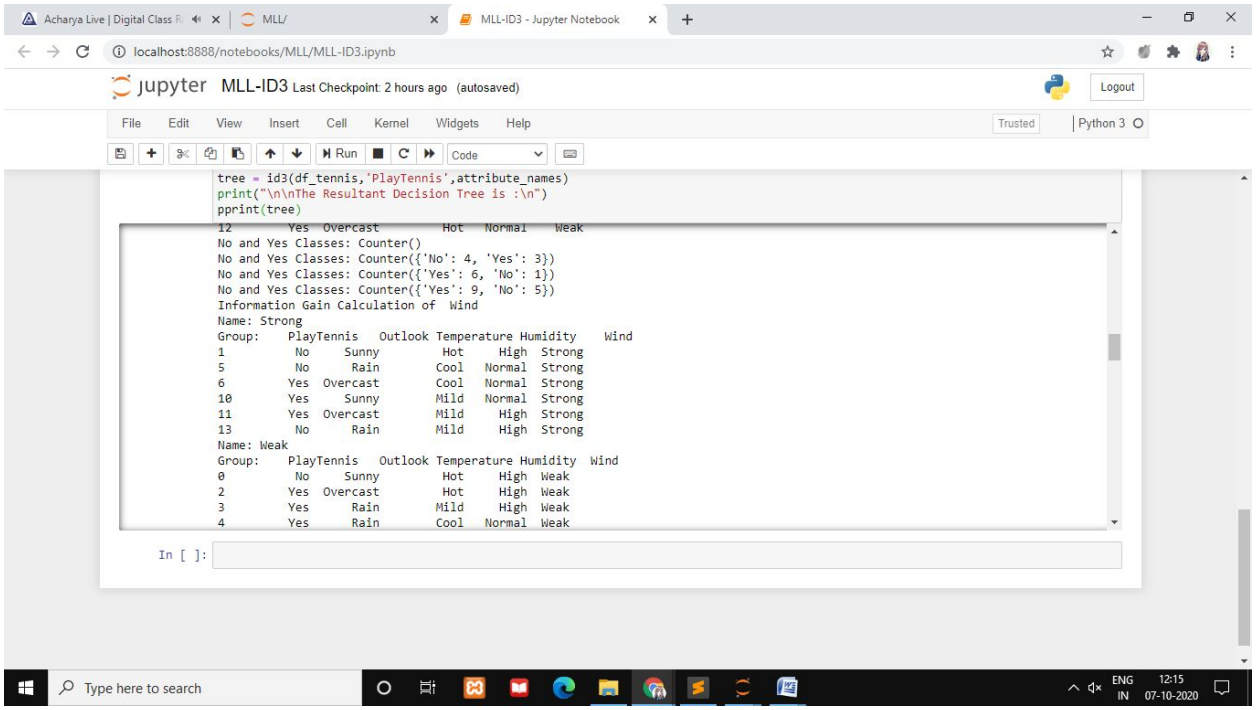
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Python 3
Run
Code
tree = id3(df_tennis,'PlayTennis',attribute_names)
print("\n\nThe Resultant Decision Tree is :\n")
pprint(tree)
12 Yes Overcast Hot Normal Weak
No and Yes Classes: Counter()
No and Yes Classes: Counter({'No': 4, 'Yes': 3})
No and Yes Classes: Counter({'Yes': 6, 'No': 1})
No and Yes Classes: Counter({'Yes': 9, 'No': 5})
Information Gain Calculation of Wind
Name: Strong
Group: PlayTennis Outlook Temperature Humidity Wind
1 No Sunny Hot High Strong
5 No Rain Cool Normal Strong
6 Yes Overcast Cool Normal Strong
10 Yes Sunny Mild Normal Strong
11 Yes Overcast Mild High Strong
13 No Rain Mild High Strong
Name: Weak
Group: PlayTennis Outlook Temperature Humidity Wind
0 No Sunny Hot High Weak
2 Yes Overcast Hot High Weak
3 Yes Rain Mild High Weak
4 Yes Rain Cool Normal Weak
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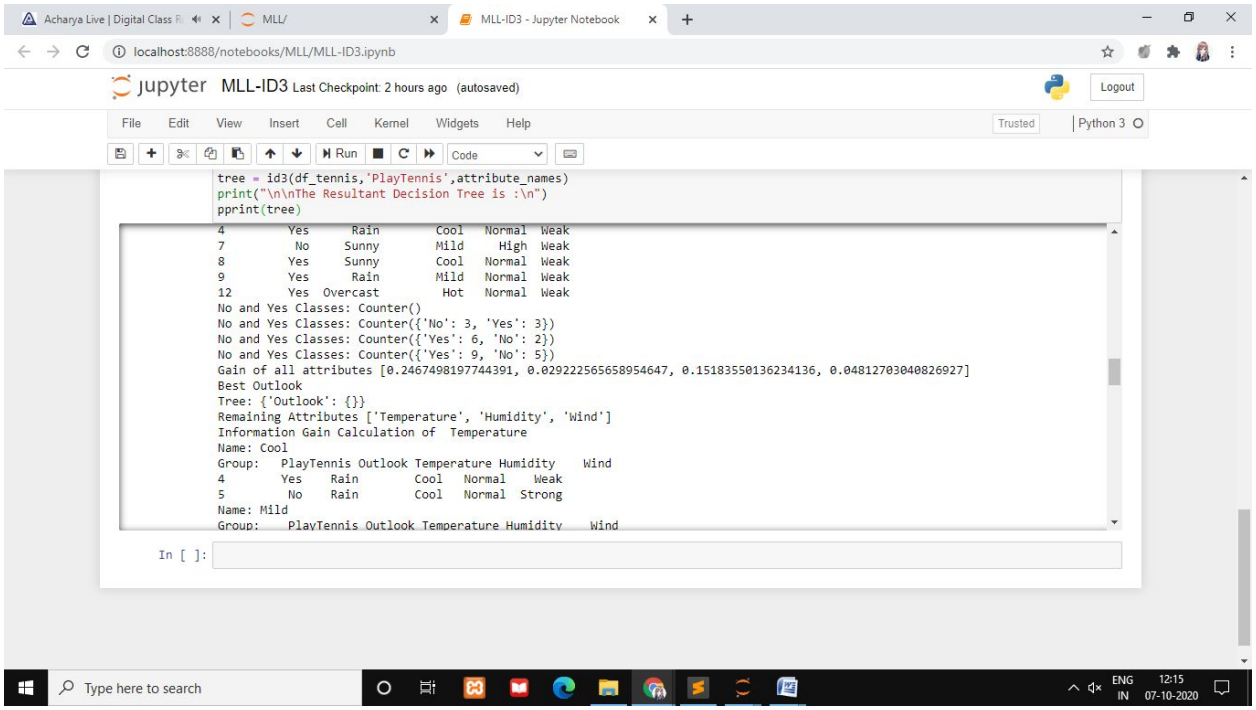
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Trusted
Python 3
Run
Code
tree = id3(df_tennis,'PlayTennis',attribute_names)
print("\n\nThe Resultant Decision Tree is :\n")
pprint(tree)
4 Yes Rain Cool Normal Weak
7 No Sunny Mild High Weak
8 Yes Sunny Cool Normal Weak
9 Yes Rain Mild Normal Weak
12 Yes Overcast Hot Normal Weak
No and Yes Classes: Counter()
No and Yes Classes: Counter({'No': 3, 'Yes': 3})
No and Yes Classes: Counter({'Yes': 6, 'No': 2})
No and Yes Classes: Counter({'Yes': 9, 'No': 5})
Gain of all attributes [0.2467498197744391, 0.029222565658954647, 0.15183550136234136, 0.04812703040826927]
Best Outlook
Tree: {'Outlook': {}}
Remaining Attributes ['Temperature', 'Humidity', 'Wind']
Information Gain Calculation of Temperature
Name: Cool
Group: PlayTennis Outlook Temperature Humidity Wind
4 Yes Rain Cool Normal Weak
5 No Rain Cool Normal Strong
Name: Mild
Group: PlayTennis Outlook Temperature Humidity Wind
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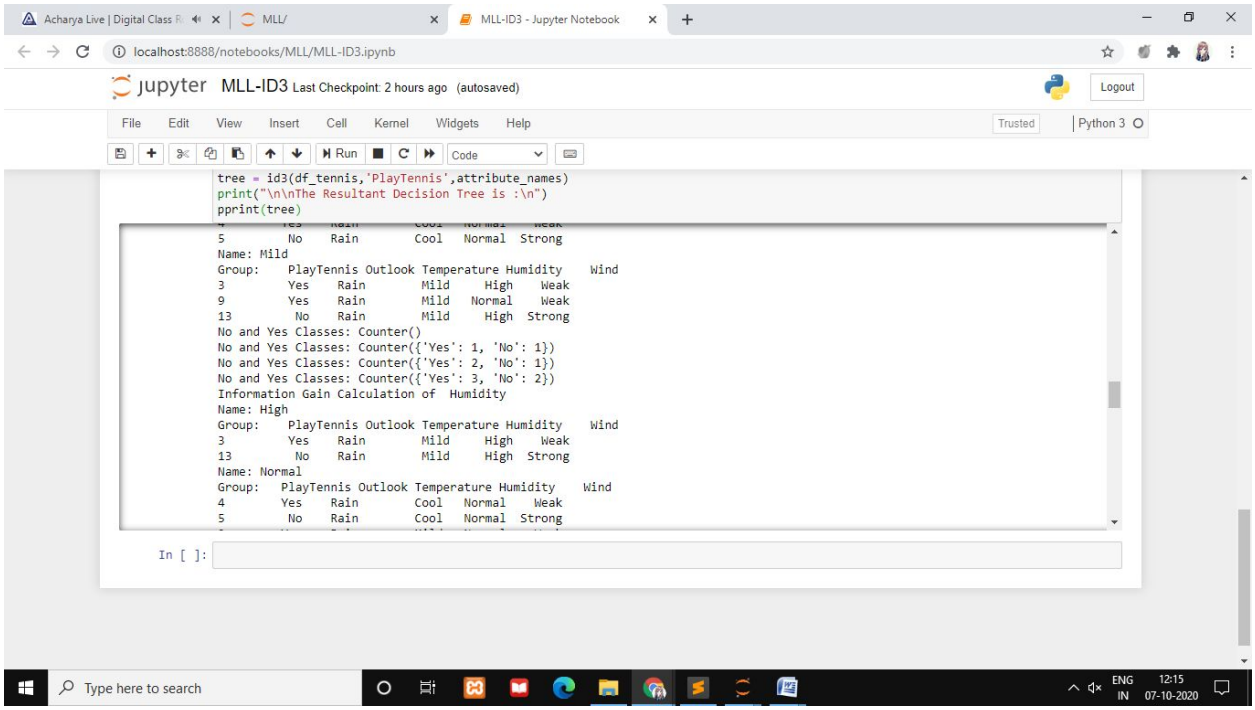
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Python 3
Run
Code
tree = id3(df_tennis,'PlayTennis',attribute_names)
print("\n\nThe Resultant Decision Tree is :\n")
pprint(tree)
5 No Rain Cool Normal Strong
Name: Mild
Group: PlayTennis Outlook Temperature Humidity Wind
3 Yes Rain Mild High Weak
9 Yes Rain Mild Normal Weak
13 No Rain Mild High Strong
No and Yes Classes: Counter()
No and Yes Classes: Counter({'Yes': 1, 'No': 1})
No and Yes Classes: Counter({'Yes': 2, 'No': 1})
No and Yes Classes: Counter({'Yes': 3, 'No': 2})
Information Gain Calculation of Humidity
Name: High
Group: PlayTennis Outlook Temperature Humidity Wind
3 Yes Rain Mild High Weak
13 No Rain Mild High Strong
Name: Normal
Group: PlayTennis Outlook Temperature Humidity Wind
4 Yes Rain Cool Normal Weak
5 No Rain Cool Normal Strong
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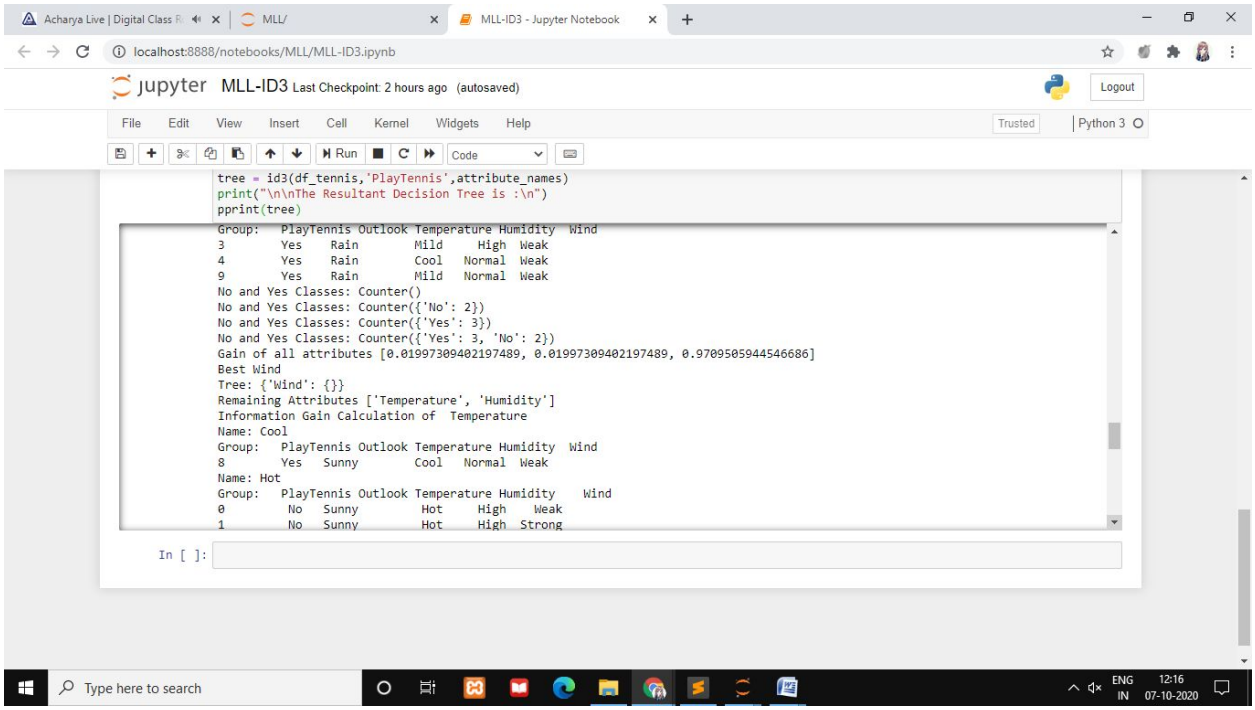
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Python 3
Run
Code
tree = id3(df_tennis,'PlayTennis',attribute_names)
print("\n\nThe Resultant Decision Tree is :\n")
pprint(tree)
Group: PlayTennis Outlook Temperature Humidity Wind
3 Yes Rain Mild High Weak
4 Yes Rain Cool Normal Weak
9 Yes Rain Mild Normal Weak
No and Yes Classes: Counter()
No and Yes Classes: Counter({'No': 2})
No and Yes Classes: Counter({'Yes': 3})
No and Yes Classes: Counter({'Yes': 3, 'No': 2})
Gain of all attributes [0.01997309402197489, 0.01997309402197489, 0.9709505944546686]
Best Wind
Tree: {'Wind': {}}
Remaining Attributes ['Temperature', 'Humidity']
Information Gain Calculation of Temperature
Name: Cool
Group: PlayTennis Outlook Temperature Humidity Wind
8 Yes Sunny Cool Normal Weak
Name: Hot
Group: PlayTennis Outlook Temperature Humidity Wind
0 No Sunny Hot High Weak
1 No Sunny Hot High Strong
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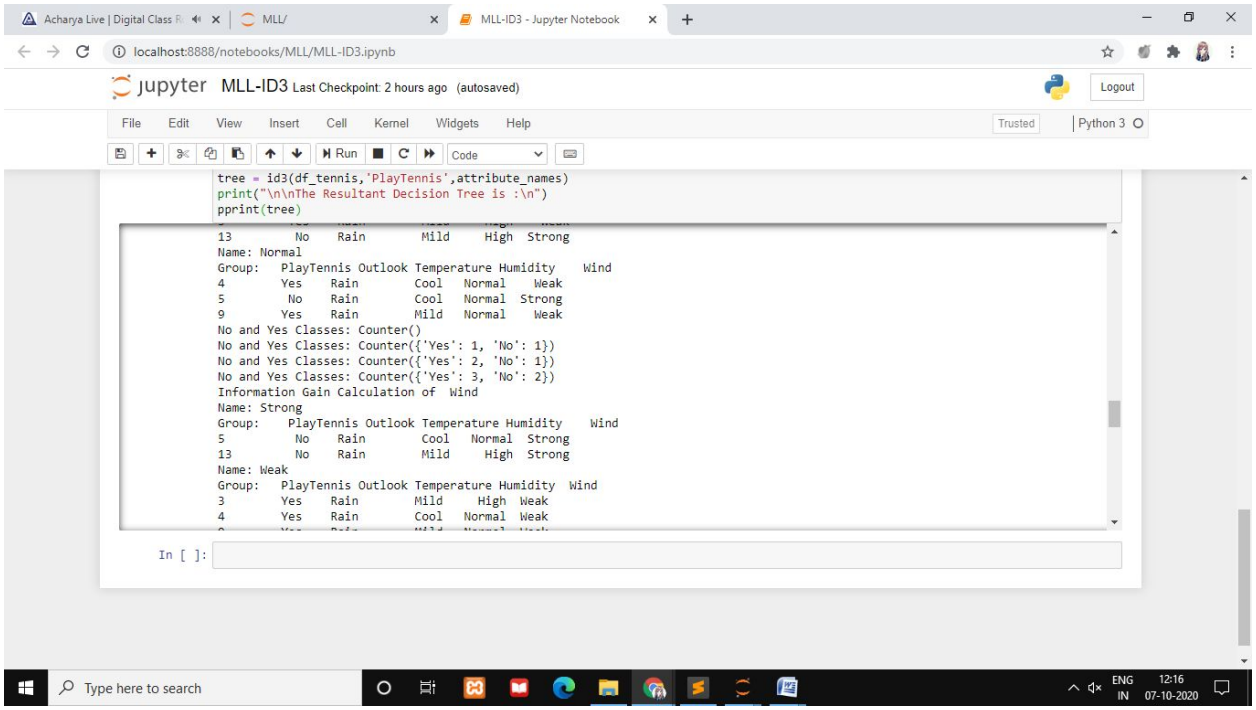
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Python 3
Run
Code
tree = id3(df_tennis,'PlayTennis',attribute_names)
print("\n\nThe Resultant Decision Tree is :\n")
pprint(tree)
13 No Rain Mild High Strong
Name: Normal
Group: PlayTennis Outlook Temperature Humidity Wind
4 Yes Rain Cool Normal Weak
5 No Rain Cool Normal Strong
9 Yes Rain Mild Normal Weak
No and Yes Classes: Counter()
No and Yes Classes: Counter({'Yes': 1, 'No': 1})
No and Yes Classes: Counter({'Yes': 2, 'No': 1})
No and Yes Classes: Counter({'Yes': 3, 'No': 2})
Information Gain Calculation of Wind
Name: Strong
Group: PlayTennis Outlook Temperature Humidity Wind
5 No Rain Cool Normal Strong
13 No Rain Mild High Strong
Name: Weak
Group: PlayTennis Outlook Temperature Humidity Wind
3 Yes Rain Mild High Weak
4 Yes Rain Cool Normal Weak
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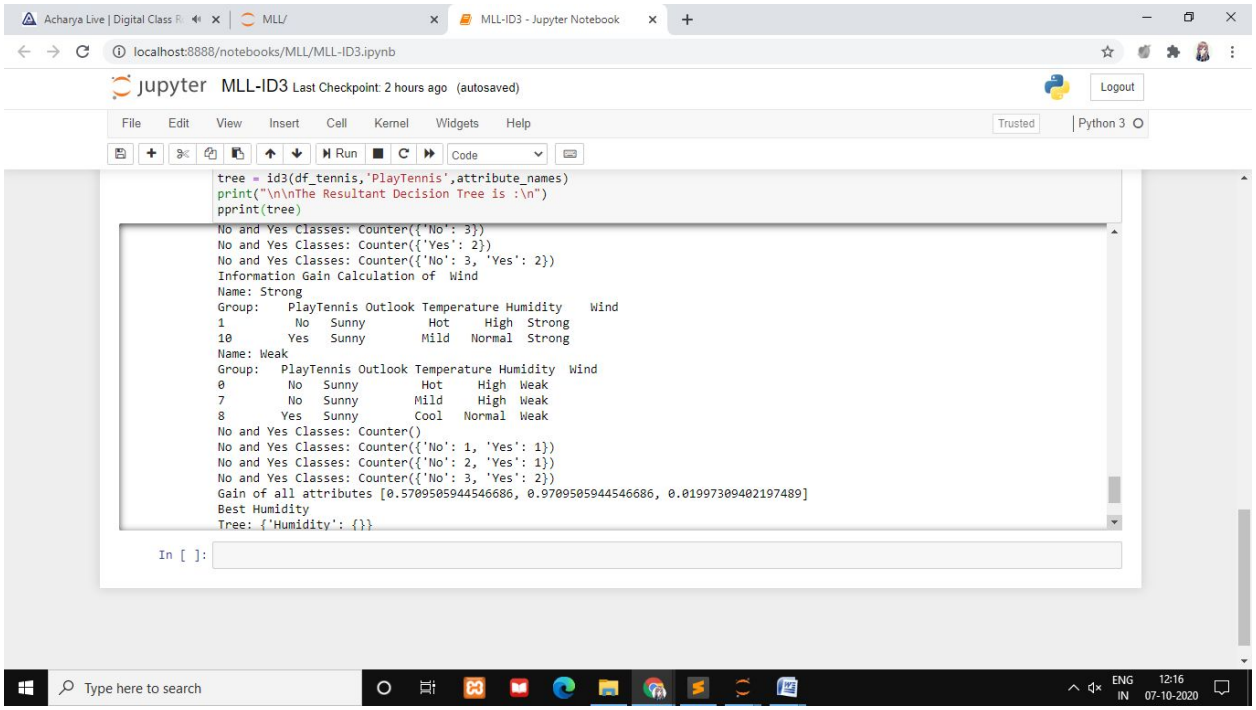
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Python 3
Run
Code
tree = id3(df_tennis,'PlayTennis',attribute_names)
print("\n\nThe Resultant Decision Tree is :\n")
pprint(tree)
No and Yes Classes: Counter({'No': 3})
No and Yes Classes: Counter({'Yes': 2})
No and Yes Classes: Counter({'No': 3, 'Yes': 2})
Information Gain Calculation of Wind
Name: Strong
Group: PlayTennis Outlook Temperature Humidity Wind
1 No Sunny Hot High Strong
10 Yes Sunny Mild Normal Strong
Name: Weak
Group: PlayTennis Outlook Temperature Humidity Wind
0 No Sunny Hot High Weak
7 No Sunny Mild High Weak
8 Yes Sunny Cool Normal Weak
No and Yes Classes: Counter()
No and Yes Classes: Counter({'No': 1, 'Yes': 1})
No and Yes Classes: Counter({'No': 2, 'Yes': 1})
No and Yes Classes: Counter({'No': 3, 'Yes': 2})
Gain of all attributes [0.5709505944546686, 0.9709505944546686, 0.0199730940219748 9]
Best Humidity
Tree: {'Humidity': {}}
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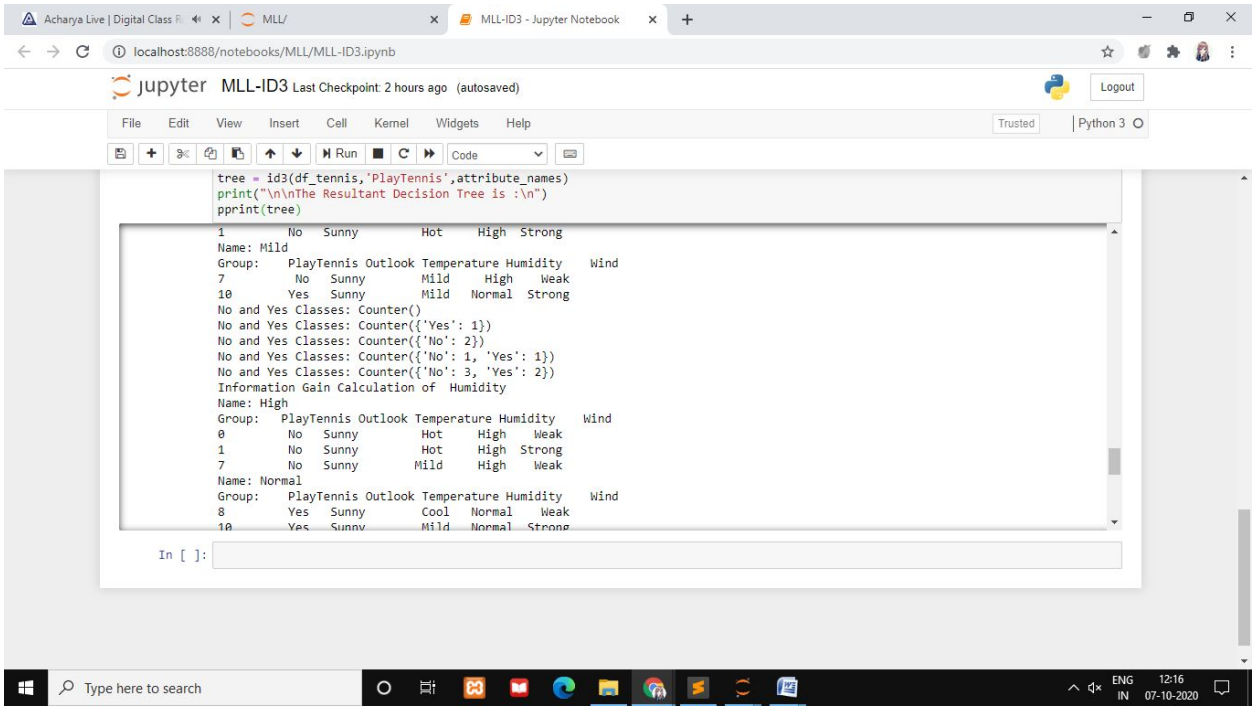
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Python 3
Run
Code
tree = id3(df_tennis,'PlayTennis',attribute_names)
print("\n\nThe Resultant Decision Tree is :\n")
pprint(tree)
1 No Sunny Hot High Strong
Name: Mild
Group: PlayTennis Outlook Temperature Humidity Wind
7 No Sunny Mild High Weak
10 Yes Sunny Mild Normal Strong
No and Yes Classes: Counter()
No and Yes Classes: Counter({'Yes': 1})
No and Yes Classes: Counter({'No': 2})
No and Yes Classes: Counter({'No': 1, 'Yes': 1})
No and Yes Classes: Counter({'No': 3, 'Yes': 2})
Information Gain Calculation of Humidity
Name: High
Group: PlayTennis Outlook Temperature Humidity Wind
0 No Sunny Hot High Weak
1 No Sunny Hot High Strong
7 No Sunny Mild High Weak
Name: Normal
Group: PlayTennis Outlook Temperature Humidity Wind
8 Yes Sunny Cool Normal Weak
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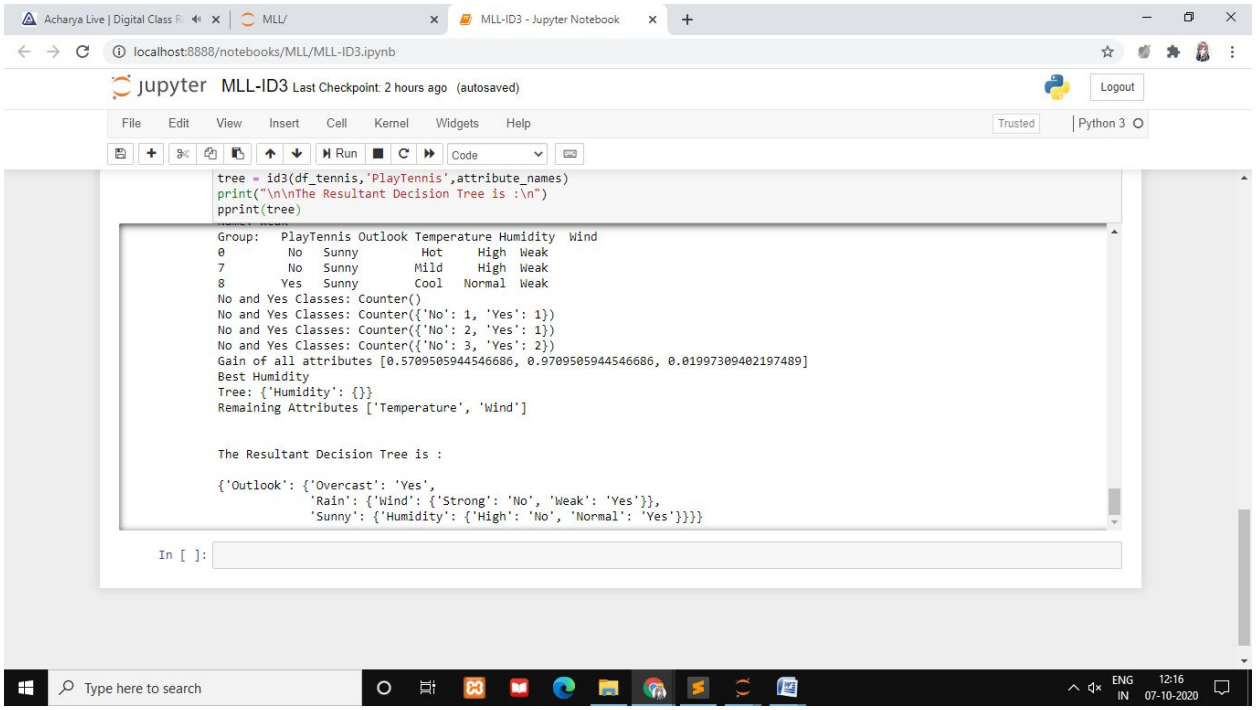
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Python 3
Run
Code
tree = id3(df_tennis,'PlayTennis',attribute_names)
print("\n\nThe Resultant Decision Tree is :\n")
pprint(tree)
Group: PlayTennis Outlook Temperature Humidity Wind
0 No Sunny Hot High Weak
7 No Sunny Mild High Weak
8 Yes Sunny Cool Normal Weak
No and Yes Classes: Counter()
No and Yes Classes: Counter({'No': 1, 'Yes': 1})
No and Yes Classes: Counter({'No': 2, 'Yes': 1})
No and Yes Classes: Counter({'No': 3, 'Yes': 2})
Gain of all attributes [0.5709505944546686, 0.9709505944546686, 0.0199730940219748 9]
Best Humidity
Tree: {'Humidity': {}}
Remaining Attributes ['Temperature', 'Wind']
The Resultant Decision Tree is :
{'Outlook': {'Overcast': 'Yes',
'Rain': {'Wind': {'Strong': 'No', 'Weak': 'Yes'}},
'Sunny': {'Humidity': {'High': 'No', 'Normal': 'Yes'}}}}
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