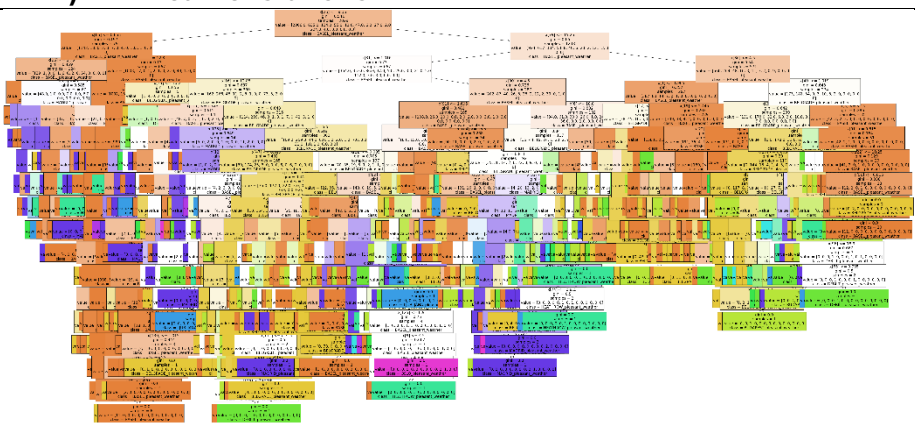
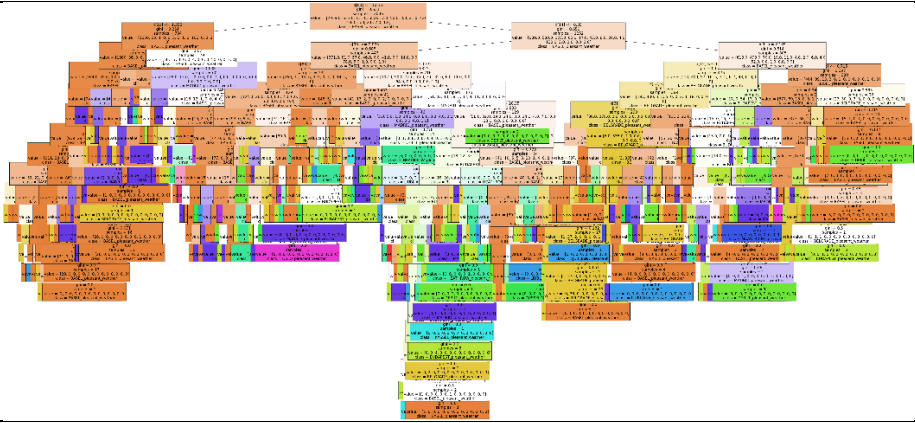


Real-World Applications of Machine Learning

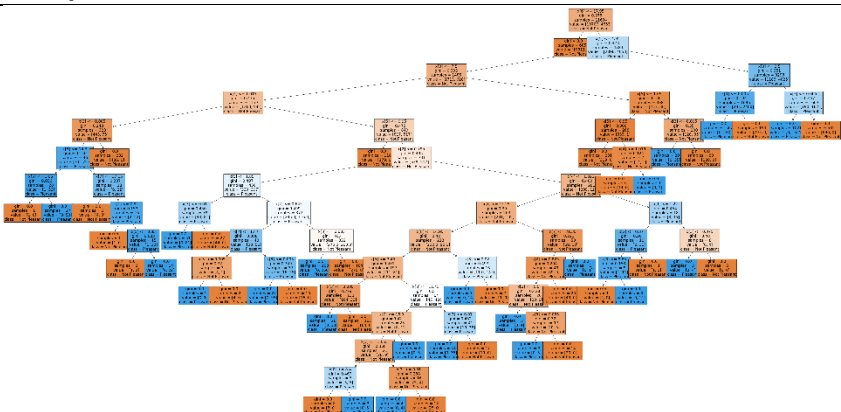
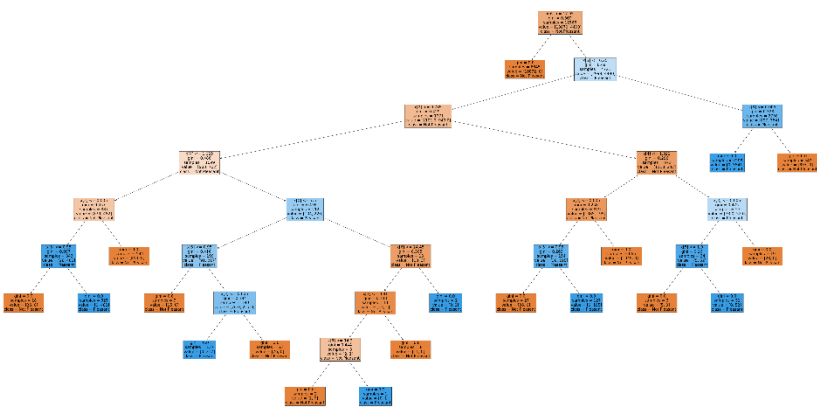
2.3: Complex Machine Learning Models and Keras Part 2

Random Forest – All weather stations

1) All weather stations	Parameters 1: <code>n_estimators = 100</code> <code>clf.estimators_[15]</code>
	
2) All weather stations	Parameters 2: <code>clf.estimators_[99]</code>
	
Model Accuracy: 0.8880597014925373 or approx. 90%	
Note: The weather stations are all color coded, it's notable to see a consistency of orange hue, this represents that the BASEL weather station holds the most weight in the random forest prediction model.	

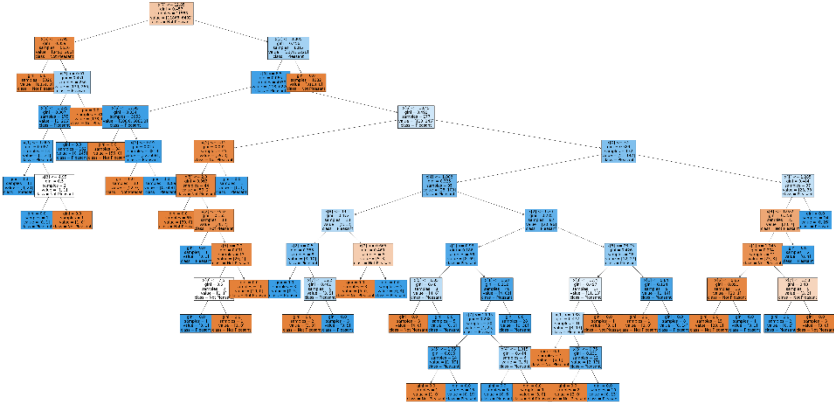
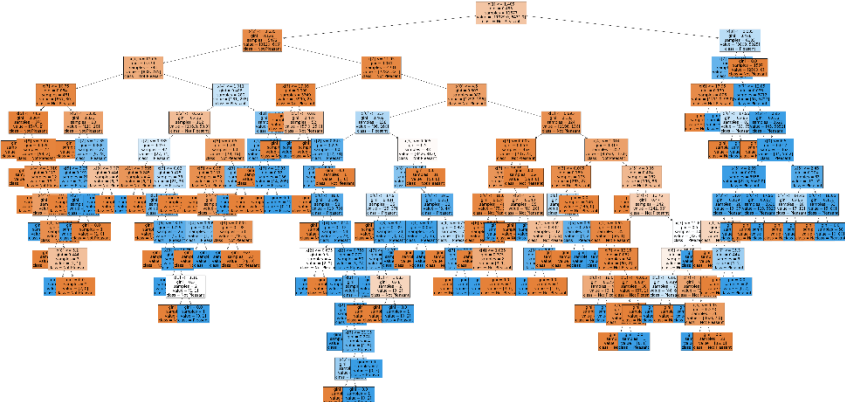


Random Forest - BASEL

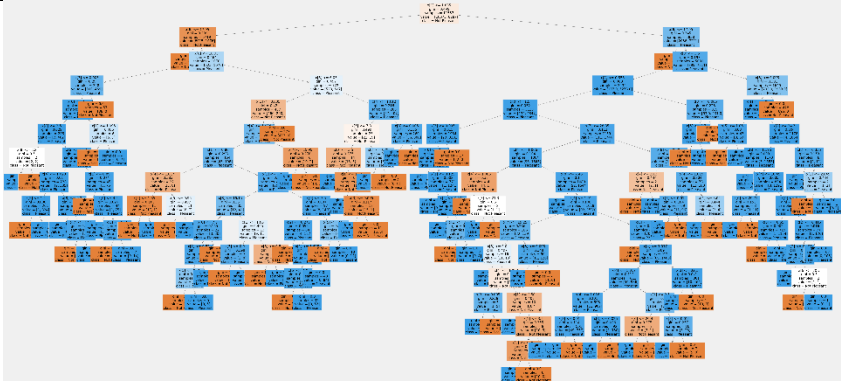
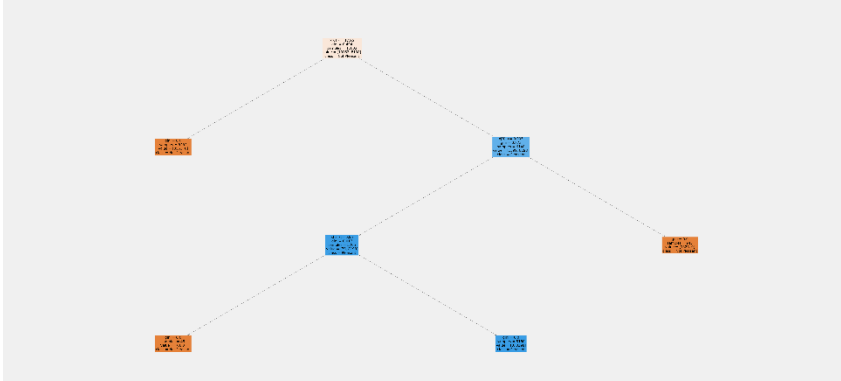
1) Basel weather station	Parameters 1: <code>n_estimators = 100</code> <code>clf.estimators_[15]</code>
	
2) Basel weather station	Parameters 2: <code>clf.estimators_[99]</code>
	
Model Accuracy: 1.0 or approx. 100%	



Random Forest – BELGRADE, MADRID

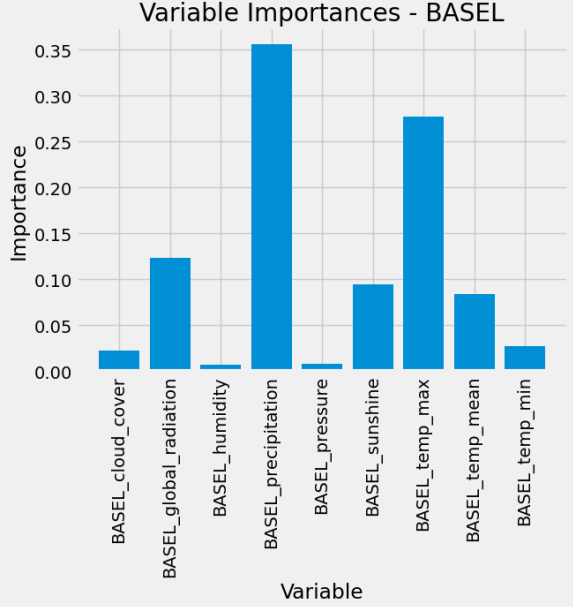
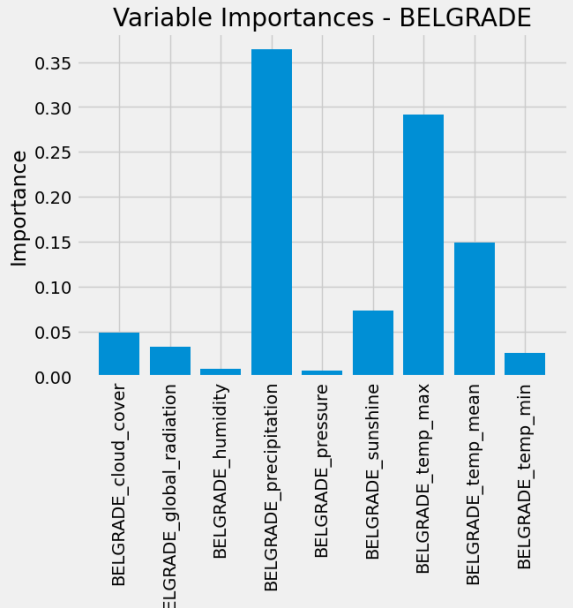
1) Belgrade weather station	Parameters 1: <code>n_estimators = 100</code> <code>clf.estimators_[15]</code>
	
2) Belgrade weather station	Parameters 2: <code>clf.estimators_[99]</code>
	
Model Accuracy: 1.0 or approx. 100%	



1) Madrid weather station 	Parameters 1: <pre>n_estimators = 100 clf.estimators_[15]</pre>
2) Madrid weather station 	Parameters 2: <pre>clf.estimators_[99]</pre>
Model Accuracy: 1.0 or approx. 100% Note: When modeling individual weather stations 'Basel', 'Belgrade, and 'Madrid; using the same parameters throughout, we have a consistent accuracy of 100%.	



Feature Importances Analysis**- BASEL, BELGRADE, MADRID**

 <table border="1"><caption>Variable Importances - BASEL</caption><thead><tr><th>Variable</th><th>Importance</th></tr></thead><tbody><tr><td>BASEL_cloud_cover</td><td>0.02</td></tr><tr><td>BASEL_global_radiation</td><td>0.12</td></tr><tr><td>BASEL_humidity</td><td>0.01</td></tr><tr><td>BASEL_precipitation</td><td>0.35</td></tr><tr><td>BASEL_pressure</td><td>0.01</td></tr><tr><td>BASEL_sunshine</td><td>0.09</td></tr><tr><td>BASEL_temp_max</td><td>0.28</td></tr><tr><td>BASEL_temp_mean</td><td>0.08</td></tr><tr><td>BASEL_temp_min</td><td>0.03</td></tr></tbody></table>	Variable	Importance	BASEL_cloud_cover	0.02	BASEL_global_radiation	0.12	BASEL_humidity	0.01	BASEL_precipitation	0.35	BASEL_pressure	0.01	BASEL_sunshine	0.09	BASEL_temp_max	0.28	BASEL_temp_mean	0.08	BASEL_temp_min	0.03	<p>Top features of importances are for BASEL weather station are:</p> <ol style="list-style-type: none">1. Temperature max2. Temperature mean3. Precipitation
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 <table border="1"><caption>Variable Importances - BELGRADE</caption><thead><tr><th>Variable</th><th>Importance</th></tr></thead><tbody><tr><td>BELGRADE_cloud_cover</td><td>0.05</td></tr><tr><td>BELGRADE_global_radiation</td><td>0.03</td></tr><tr><td>BELGRADE_humidity</td><td>0.01</td></tr><tr><td>BELGRADE_precipitation</td><td>0.35</td></tr><tr><td>BELGRADE_pressure</td><td>0.01</td></tr><tr><td>BELGRADE_sunshine</td><td>0.07</td></tr><tr><td>BELGRADE_temp_max</td><td>0.29</td></tr><tr><td>BELGRADE_temp_mean</td><td>0.15</td></tr><tr><td>BELGRADE_temp_min</td><td>0.02</td></tr></tbody></table>	Variable	Importance	BELGRADE_cloud_cover	0.05	BELGRADE_global_radiation	0.03	BELGRADE_humidity	0.01	BELGRADE_precipitation	0.35	BELGRADE_pressure	0.01	BELGRADE_sunshine	0.07	BELGRADE_temp_max	0.29	BELGRADE_temp_mean	0.15	BELGRADE_temp_min	0.02	<p>Top features of importances are for BELGRADE weather station are:</p> <ol style="list-style-type: none">1. Precipitation2. Temperature max3. Temperature mean
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