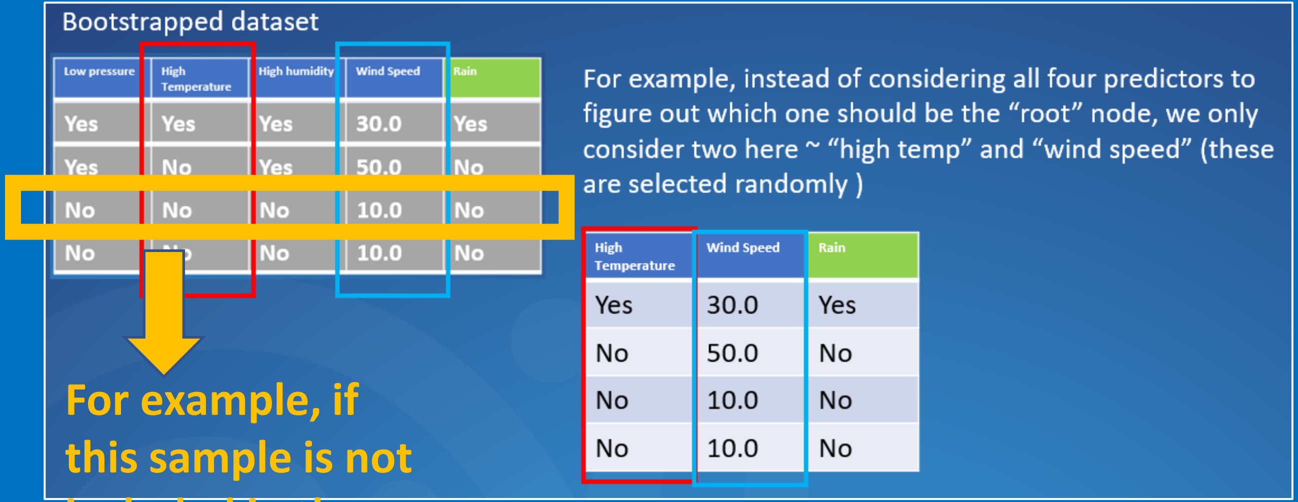
Random Forest

how to evaluate RF

So how can we know if RF is good



Bootstrapped dataset

Low pressure	High Temperature	High humidity	Wind Speed	Rain
Yes	Yes	Yes	30.0	Yes
Yes	No	Yes	50.0	No
No	No	No	10.0	No
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For example, instead of considering all four predictors to figure out which one should be the "root" node, we only consider two here ~ "high temp" and "wind speed" (these are selected randomly)

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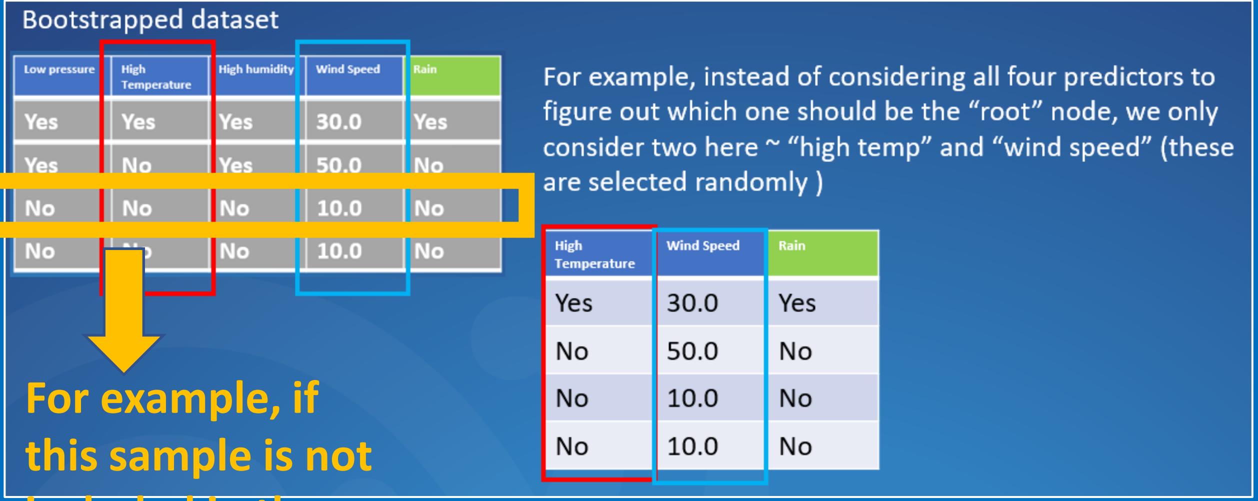

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When the sample size is big, there might be many “out-of-bag” dataset

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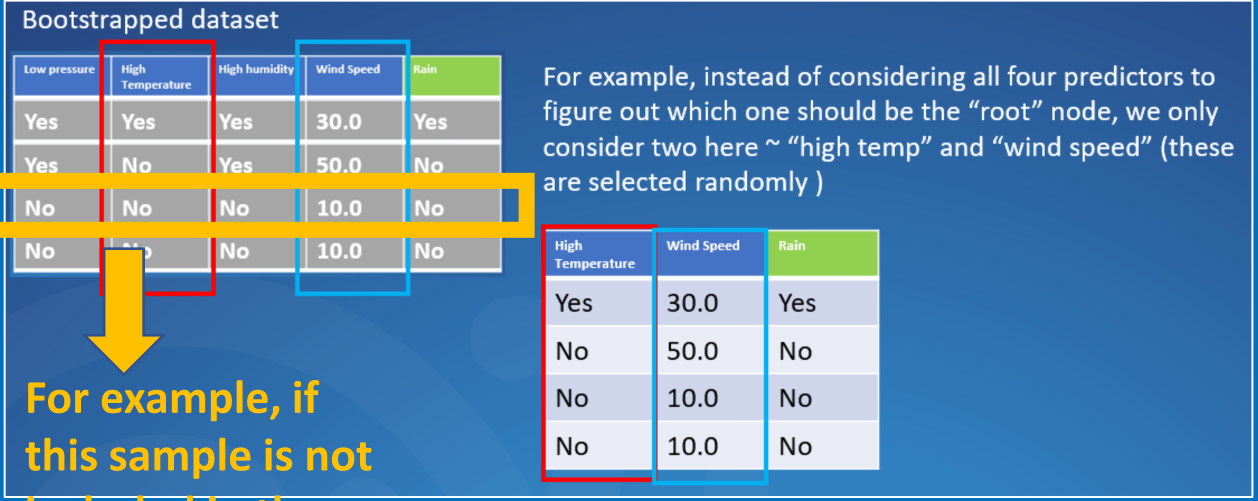

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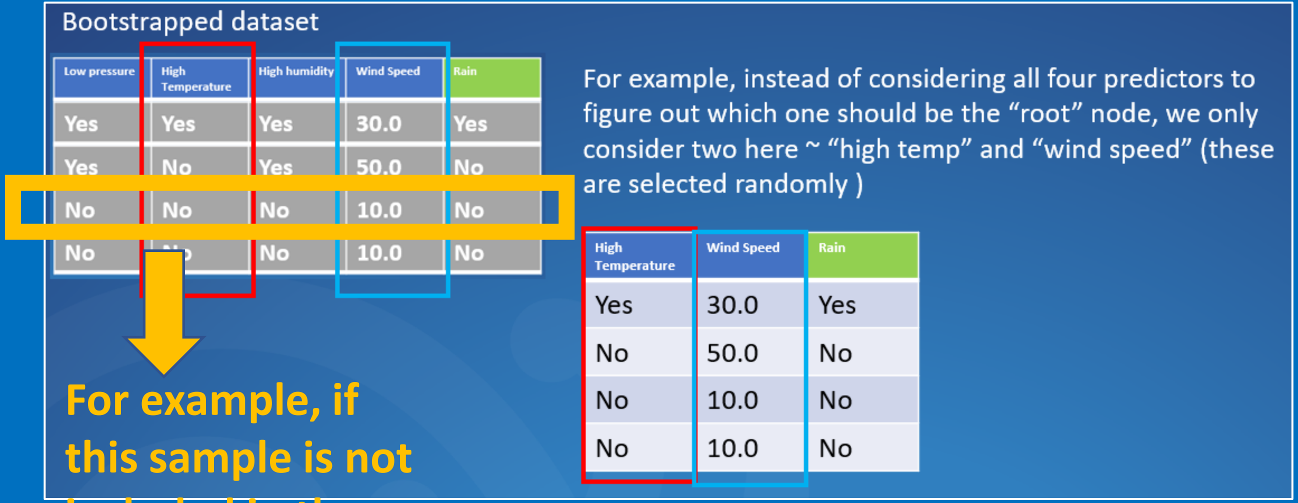

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We can search all the trees without this dataset, and get all the predictions

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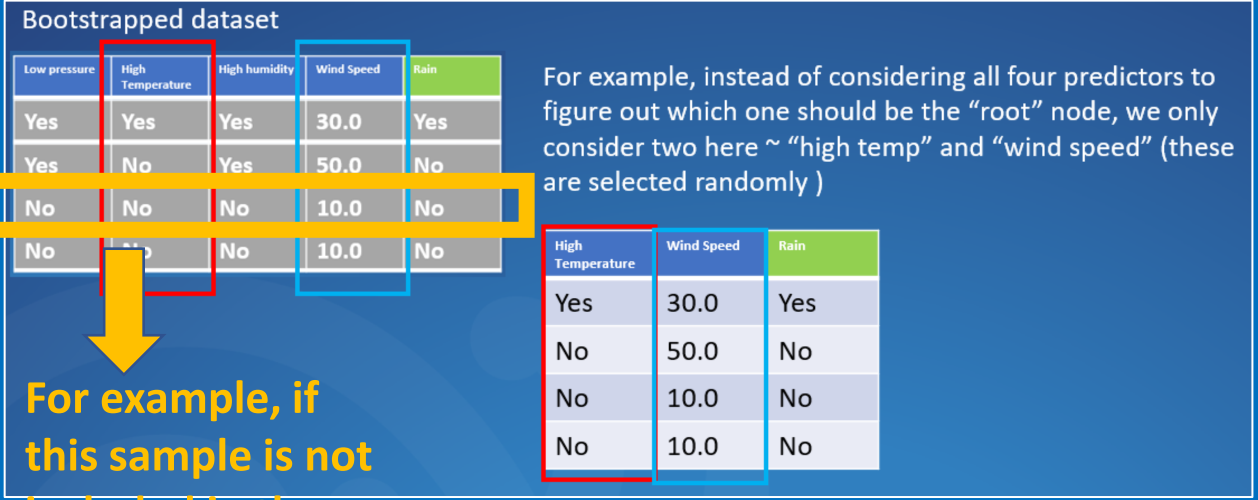

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Rain: YES	Rain: NO
11	7

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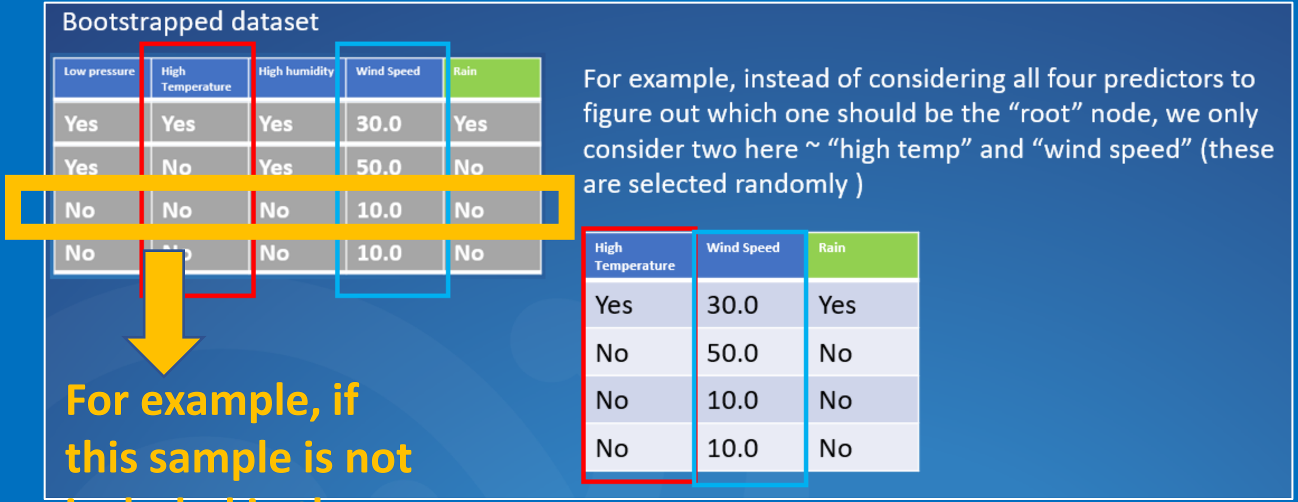

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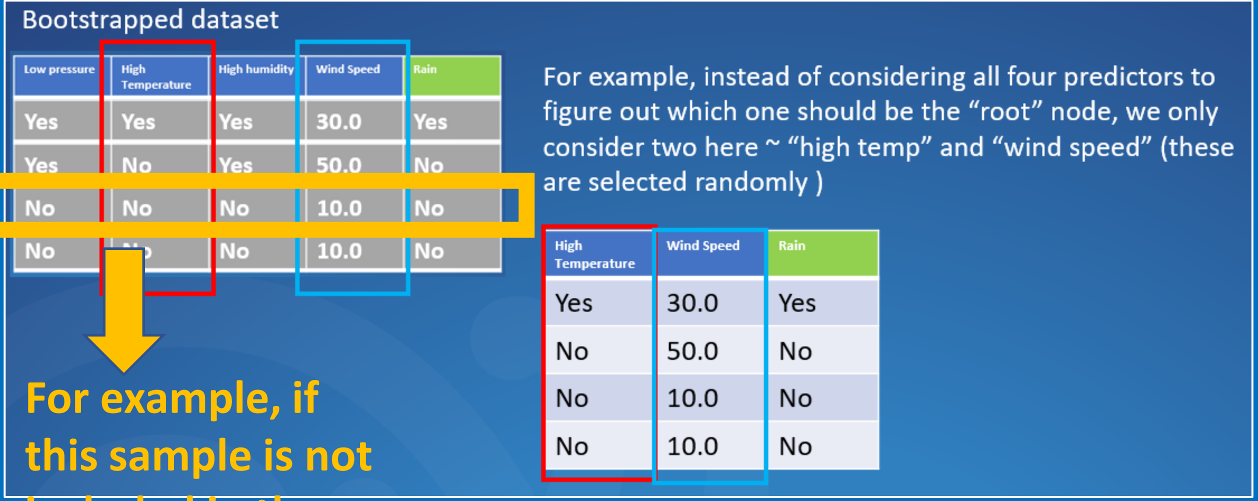

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Ultimately, we can measure how accurate the RF is based on the proportion of how many "out-of-bag" dataset gets the correct prediction