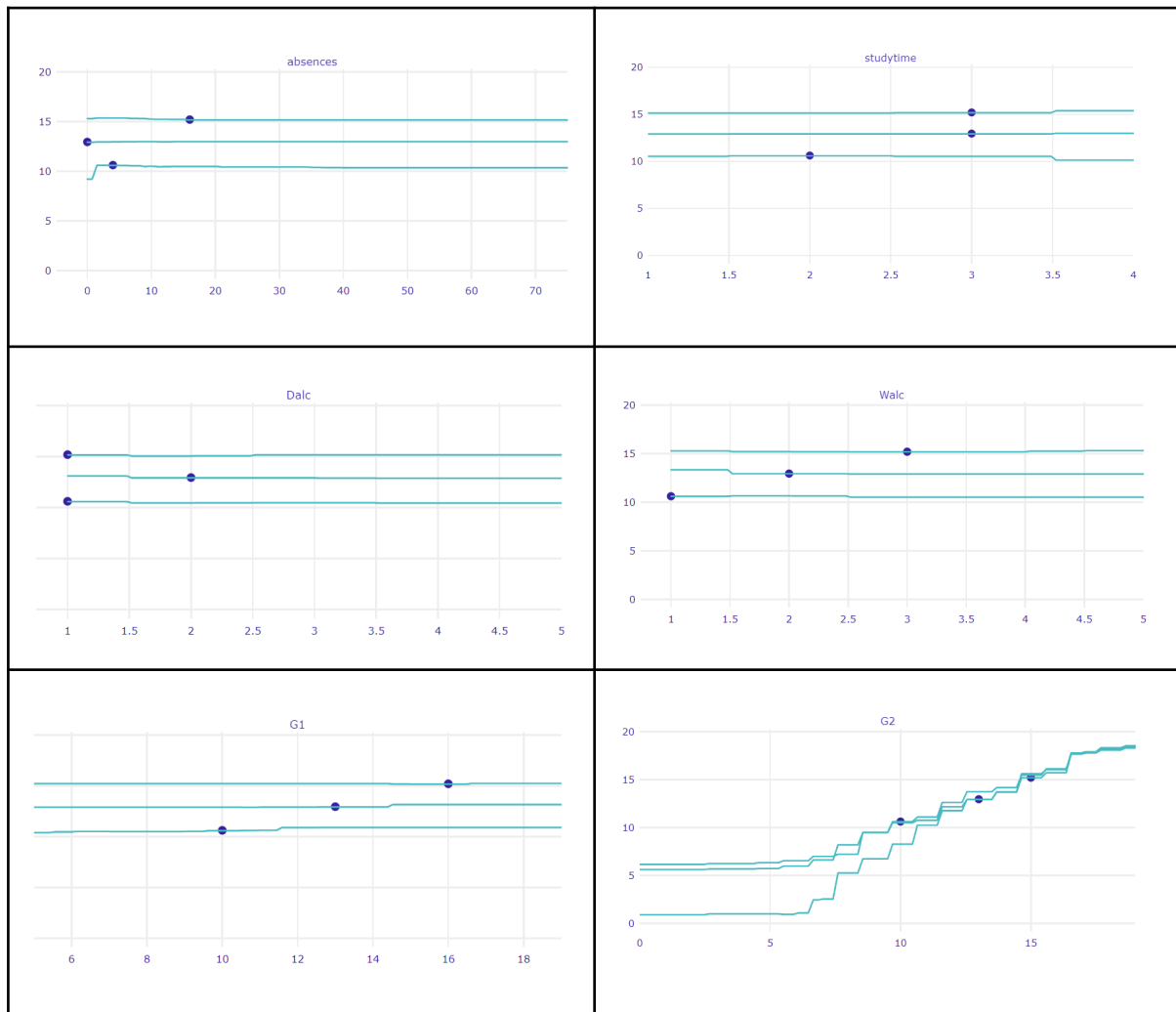


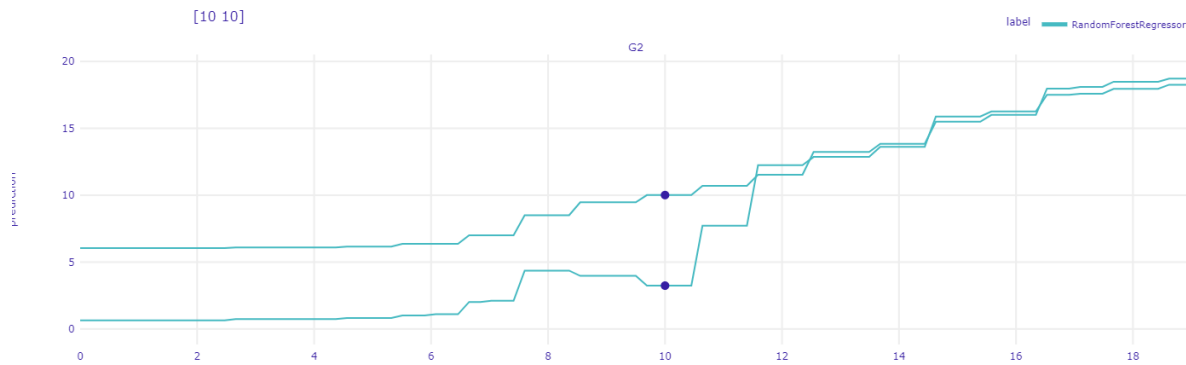
2. Calculate the what-if explanations of these predictions using Ceteris Paribus profiles.



Out of all the variables, most, including daily and weekly alcohol consumption, do not show any interesting relationship with the final grade. The only variable that seems relevant for the prediction is the 2nd semester grade. In all 3 samples a similar pattern is to be seen, only it is shifted in the lower values and converges towards higher values. Notably, the 1st semester grade does not share this property.

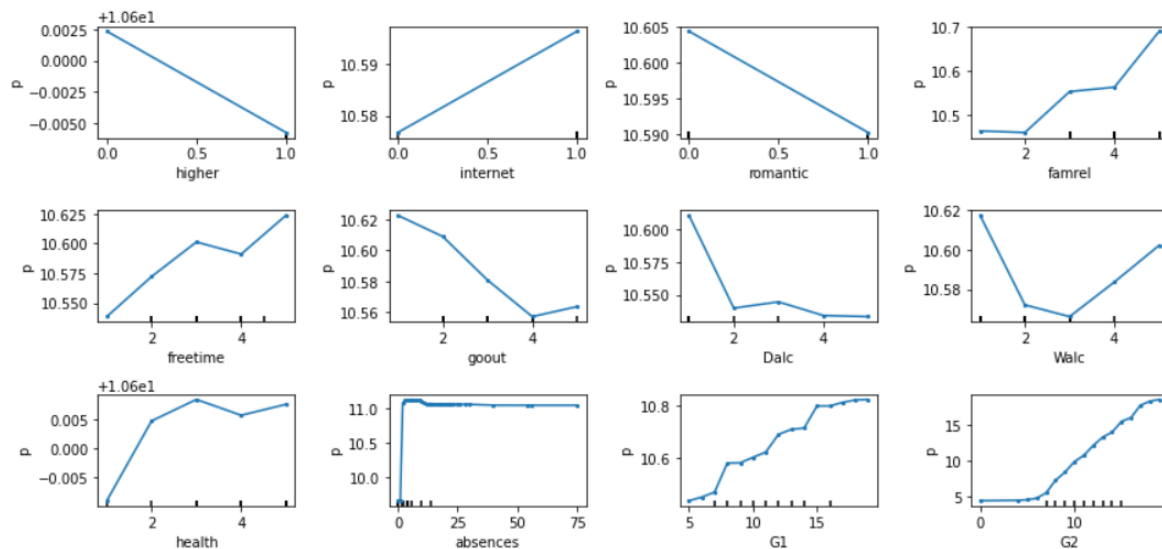
3. Find two observations in the data set, such that they have different CP profiles.

Out of the two models I had learned, only Random Forest has interactions, and the analysis of Linear regression model has been omitted.



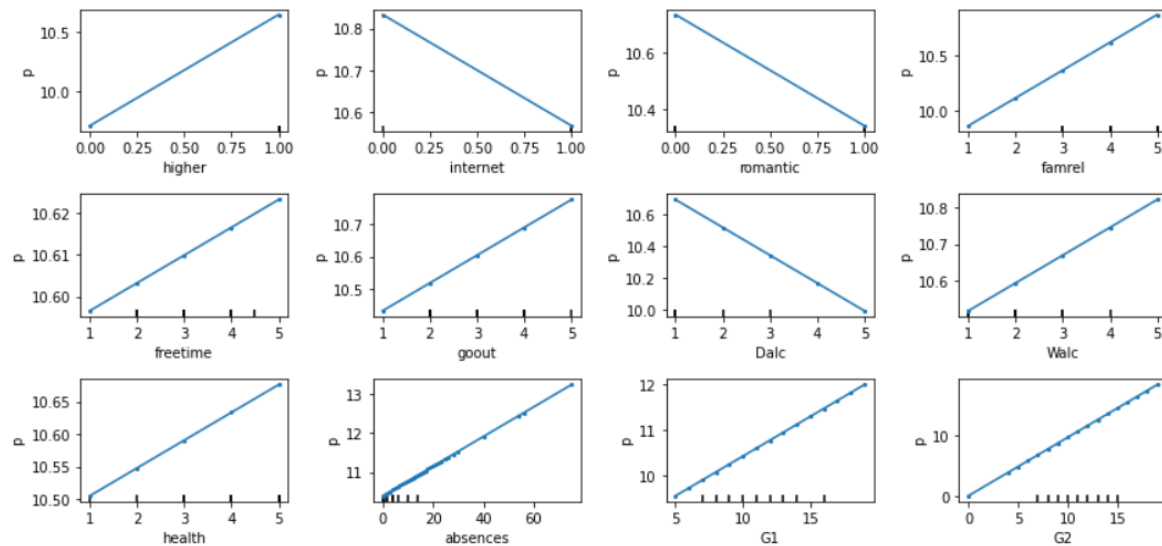
Although the two observations have the same 2nd semester grade of 10, they do not have the same target values. This example highlights the relationship observed in the previous point, that although the relationship converges along with the increase of the values, the values differ when we look at the lower values of the variable.

4. Compare CP, which is a local explanation, with PDP, which is a global explanation.



The general explanation shows more interesting relationships between the features and the target variable. The 2nd semester grade plot is consistent with what we have seen on the CP plot previously.

5. Compare PDP between at least two different models.



The Partial Dependence Plot of the Linear Regression model looks less precise, since it only has linear dependencies, however, most features share the general direction of the dependence - for example the 4 features in the last row all show a mutual growth of the features' values and the outcoming final grade.