D3 + DALEX = ?

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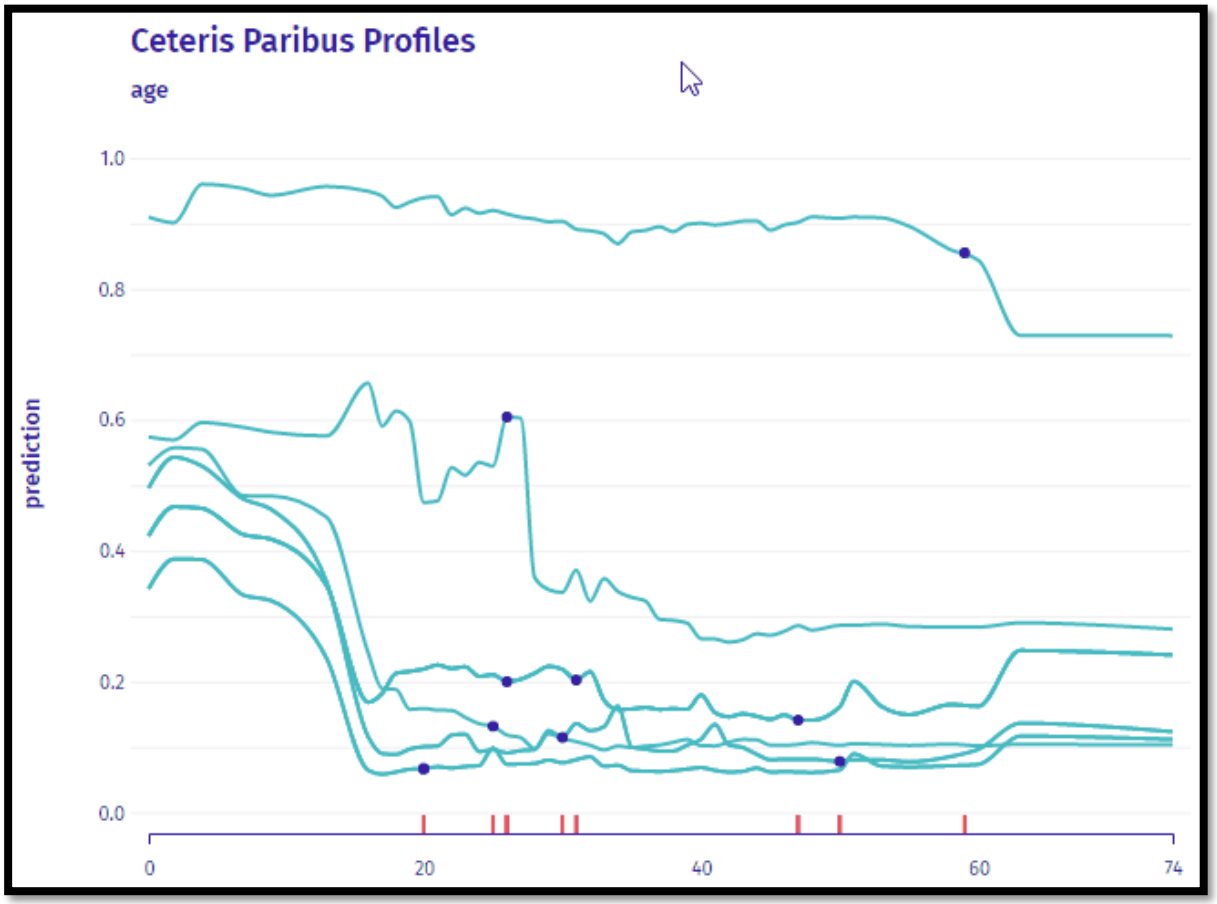
WhyR? 2019
Warsaw 29.09.2019

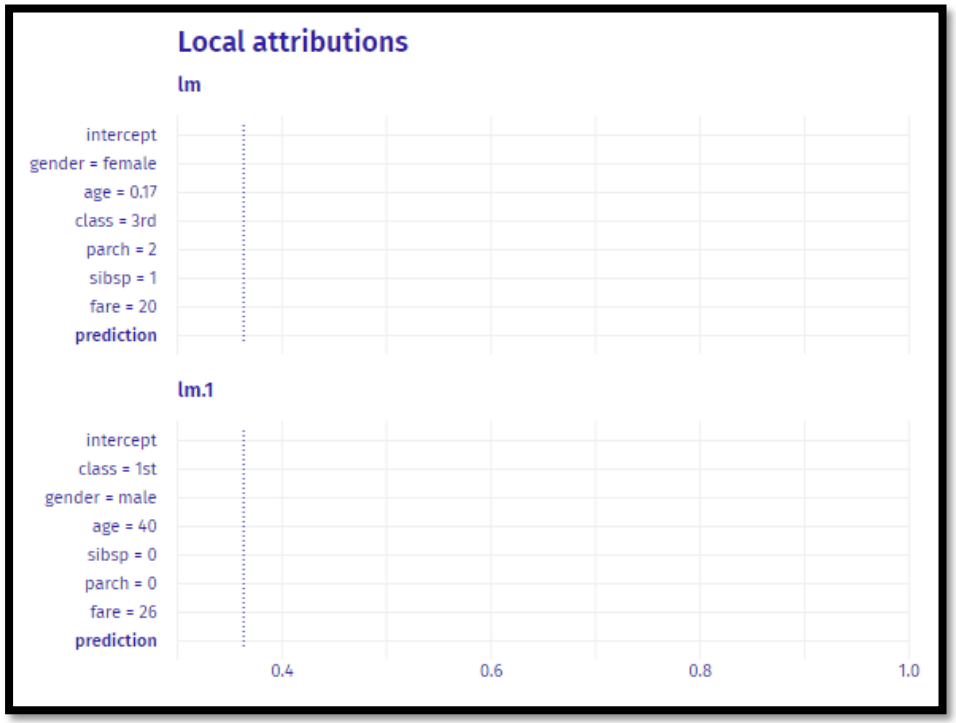
- JavaScript library for producing dynamic, interactive data visualisations
- Operates on HTML, CSS and SVG
- Simple plots or advanced visualisations

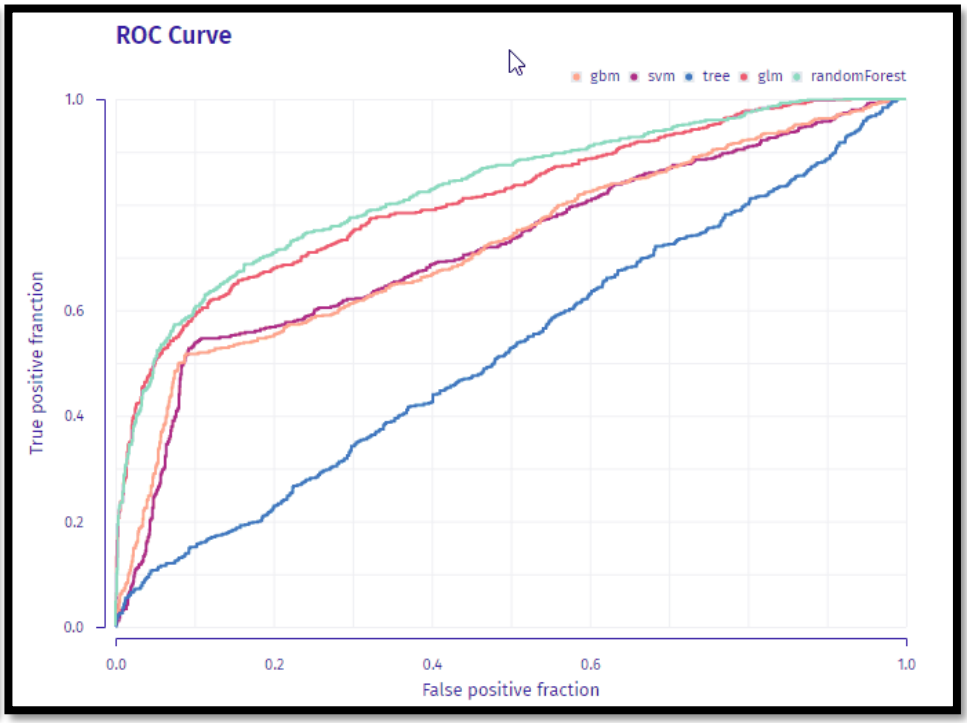
- Descriptive mAchine Learning EXplanations R package
- Explainable AI and Interpretable ML area
- Wrapper for other packages, that produce local and global model explanations

plotD3 – new form of explanation



Interactivity adds another dimension



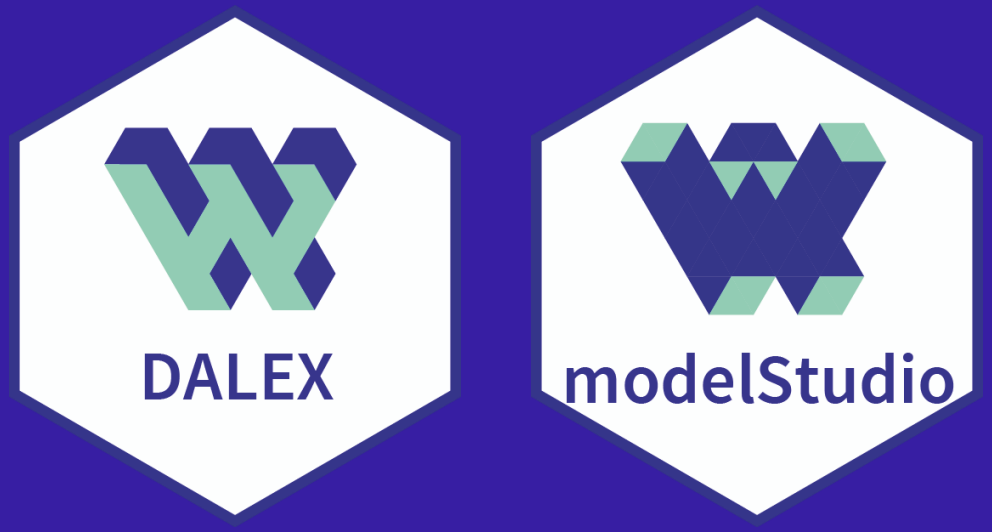


tooltip, clickable legend, mouseover highlight, animation

D3 + DALEX =

Interactive Studio with Explanations for ML Predictive Models

in R

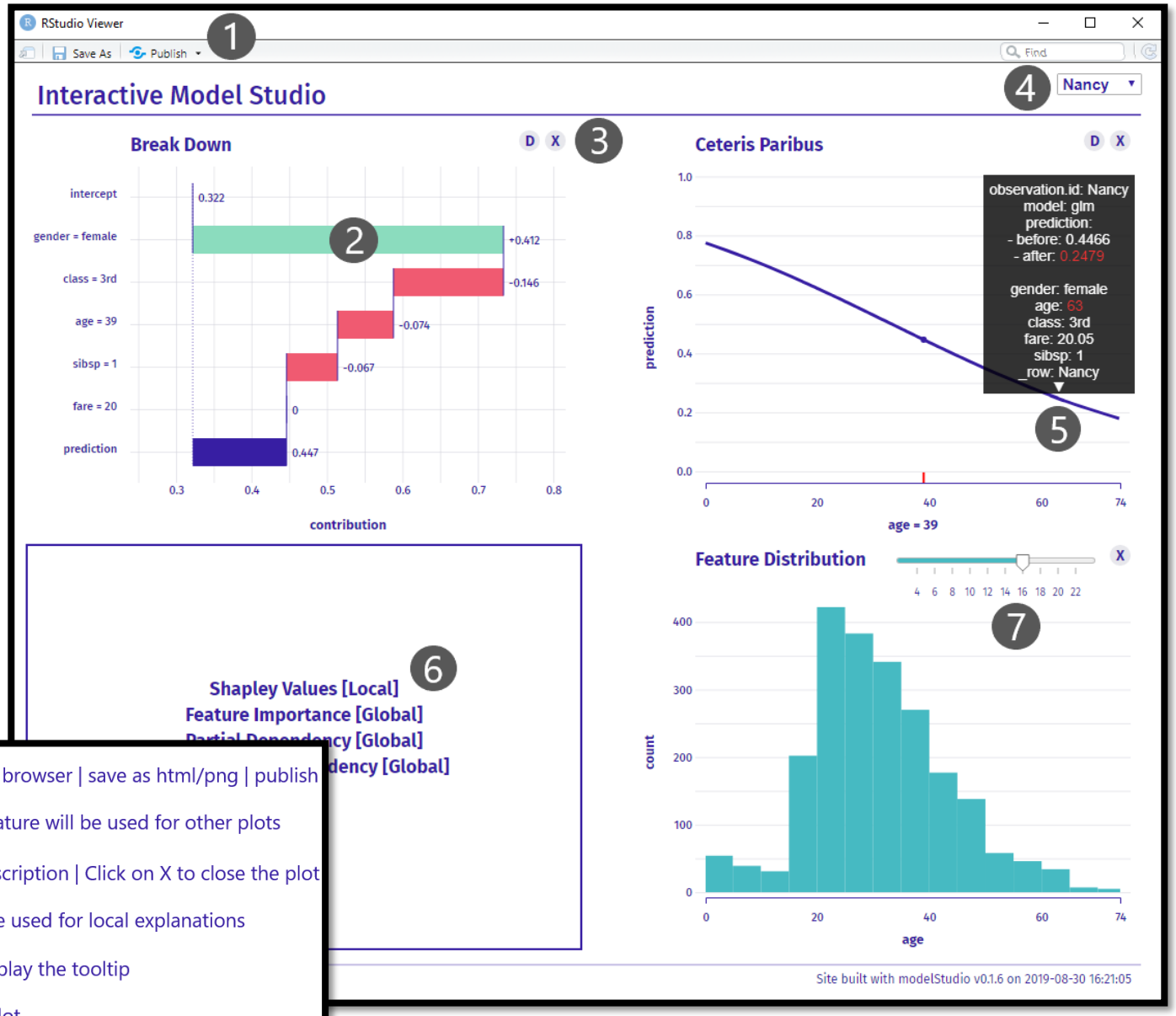


Basic Workflow:

1. Create a model
2. Wrap it into an explainer
3. Pick some data points
4. Use modelStudio

```
library(modelStudio)

# Create a model:
model <- glm(target ~., data = train)

# Wrap it into an explainer:
explainer <- DALEX::explain(model,
                            data = test,
                            y = test$target,
                            label = "glm")

# Pick some data points:
new_observations <- test[1:4,]

# Make a studio for the model:
modelStudio(explainer, new_observations)
```

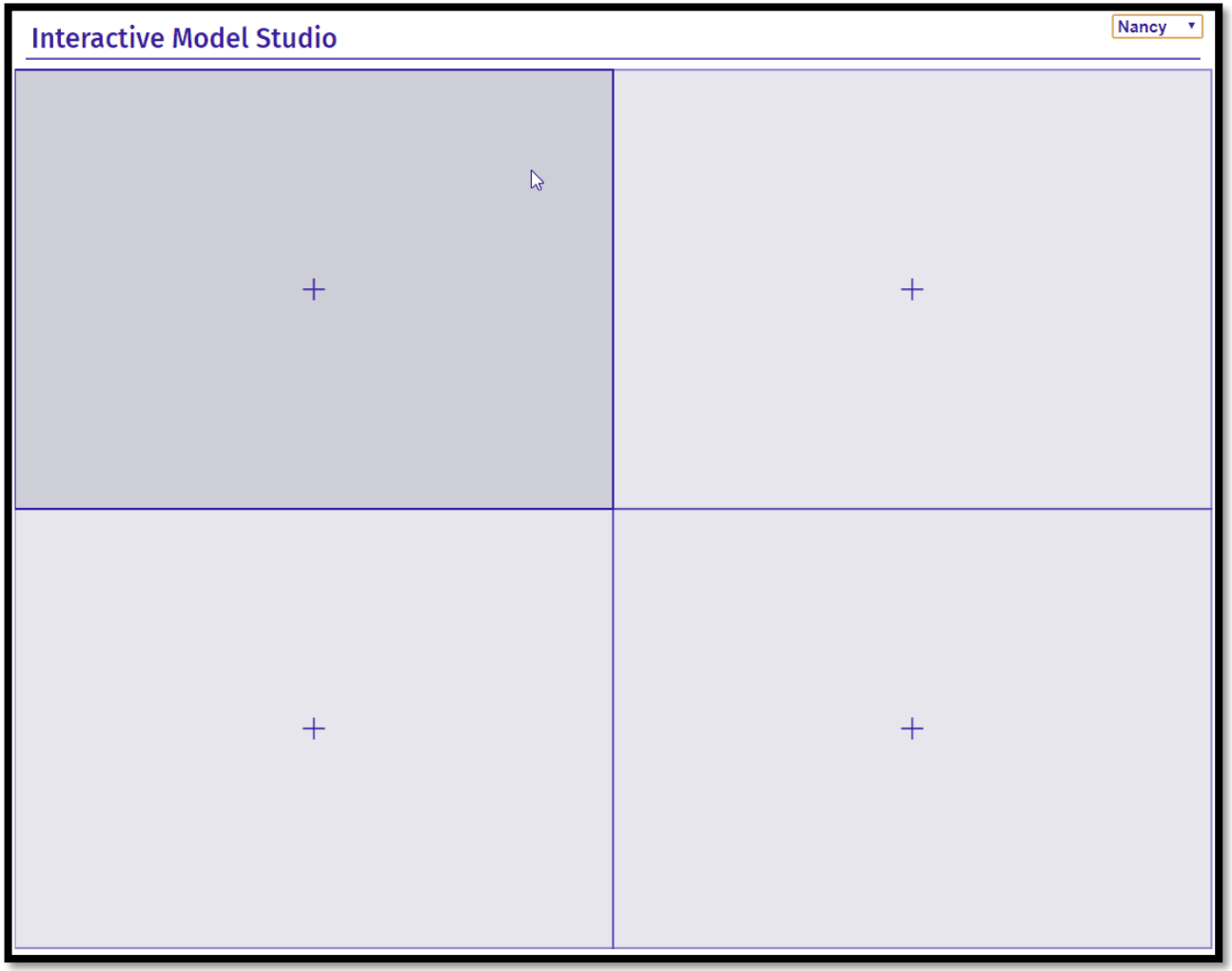
Cheat Sheet



1. RStudio Viewer controls: open in browser | save as html/png | publish
2. Click on bars to choose which feature will be used for other plots
3. Mouse over D to display plot description | Click on X to close the plot
4. Choose which observation will be used for local explanations
5. Mouse over lines and bars to display the tooltip
6. Click on the text to choose the plot
7. Interact with other elements like slider

WhyModelStudio?

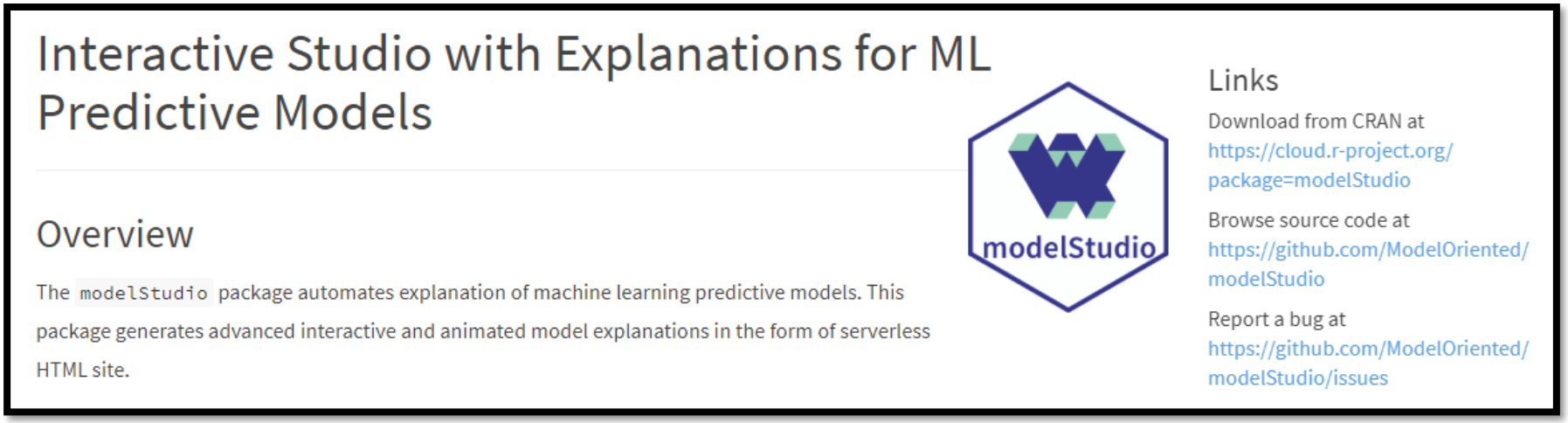
- Less time coding = More time analysing
- Wider context = Better explanations



Advantages:

- Automation
- Customisation
- New information
- Engaging experience
- Save, send, share

https://github.com/ModelOriented/modelStudio



References:

- **modelStudio** cran.r-project.org/package=modelStudio
- **DALEX** github.com/ModelOriented/DALEX
- **Model Oriented** github.com/ModelOriented
- **DrWhy** github.com/ModelOriented/DrWhy
- **r2d3** rstudio.github.io/r2d3/
- **Predictive Models: Explore, Explain, and Debug** pbiecek.github.io/PM_VEE/
- **D3.js** d3js.org

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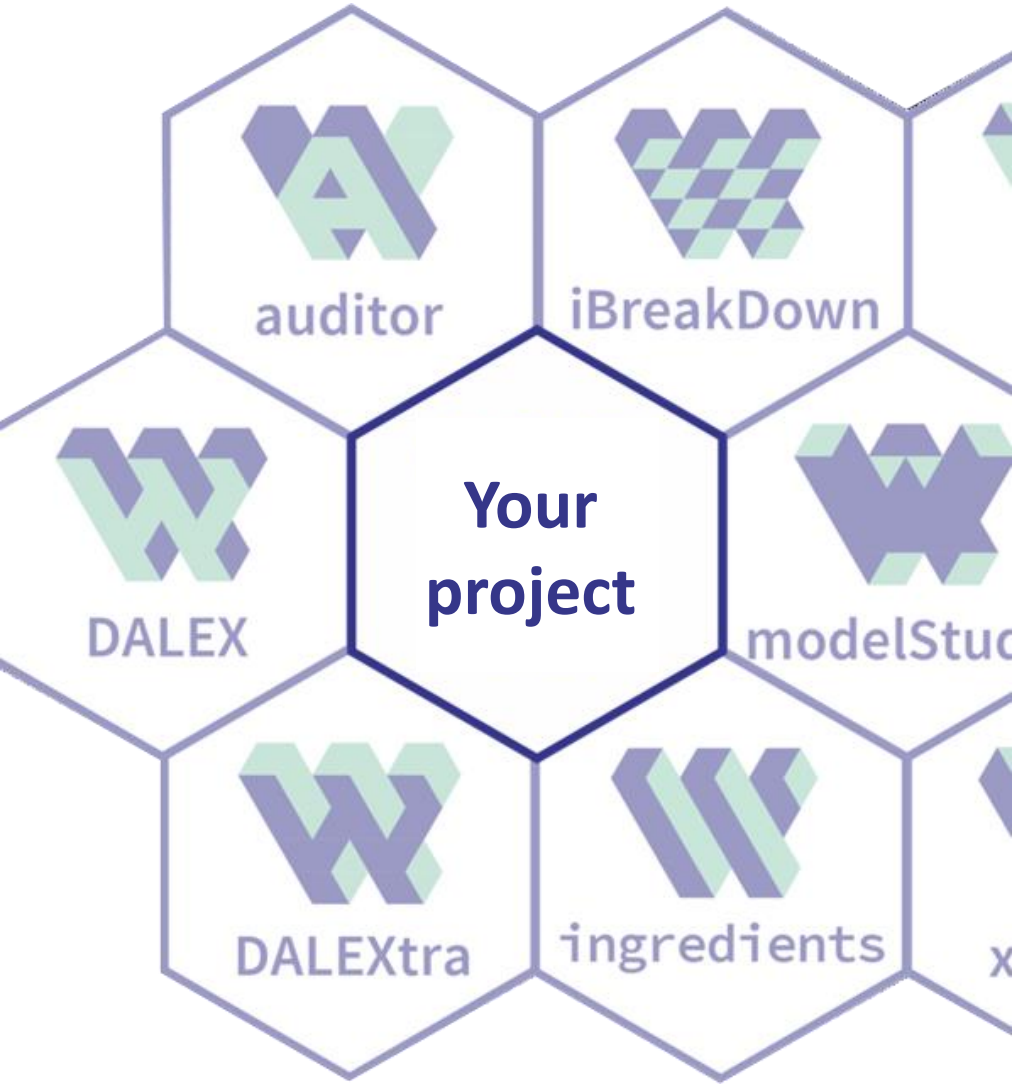

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