Appendix A - Feature List

FDD0000 - Display Forecast systems

- Feature description: Working backend service extracting data from Forecast System and providing data to GUI front end.
- OS1: The solution should be designed for use by a Machine learning engineer or system admin in a hospital (technical minded person)
- OS2: The system should have an interactive front-end in form as a web application
- OS3: The solution system should be designed in such way, that it can easily be extended to monitor multiple forecast systems, which each contains multiple forecast pipelines at the same time.
- OS4: The system should provide an overview of all the monitored forecast systems

FDD0001 - Display unit information

- Feature description: User have overview of the given pipeline/model statistics
- OS5: For each monitored system, there should be an overview of all the monitored forecast pipelines
- PP1: The solution system should be able to display the Prediction Performance (in form as different evaluation metrics, only MAE score is guaranteed supported in this project) of the historical forecast compared to the historical result in intervals that is configurable, but two weeks as the default backwards.
- PP4: The solution system should be able to display performance information in a sorted manner, so the presentation of Region, Client and Unit are ordered by MAE in descending order.

- PP5: The solution system should be able to indicate current prediction performance in color code, so it satisfies the following:
    - a. Each unit has a color indication for its current prediction performance, where:
        - i. Red - indicates MAE≥3std
          ii. Yellow - indicates 1.5std≤MAE<3std
          iii. Green - indicates MAE<1.5std
    - b. Clients has the same color indication as its worst performing unit
    - c. Regions has the same color indication as its worst performing client
- PP6: The solution system will automatically unfold any client with red performance indication, while the rest remains folded.

FDD0002 - Display unit prediction performance evaluation plot

- Feature description: Show current prediction using a plot like in PatientFlowDashboard
- PP2: The system should be able to display an evaluation plot, comparing the forecast result and the actual result in intervals that is configurable, but two weeks as the default backwards as two different series in one graph.

FDD0003 - Display Model information

- Feature description: Show list of models per unit in a table
- MI1: The system should be able to present the current active model for each unit, and it should provide these information about the model:
    - Finished Training on
    - Model info (id number)
    - Backtesting MAE
    - number of BacktestingData Instances
    - Train MAE
    - number of TrainData Instances
    - Test MAE
    - number of TestData Instances

FDD0004 - Trigger model retrain for a certain unit

- Feature description:
- OS7: The system should be able to provide a way (possibly via button click) to trigger a new training process for one specific pipeline

FDD0005 - Display feature importances

- Feature description: Show overview of feature importances in a plot and list of excluded features
- FS1: The system should be able to visualize feature importances in barplot

FDD0006 - Display Client prediction performance

- Feature description: display prediction performance for all units within a client using heatmap
- PP10: The solution system can display prediction performance for all units within a client using heatmap

FDD0007 - Display training data metrics

- Feature description: show other training metrics from FS (defined in dbo.Forecast.ScoreMetrics //TODO: figure out endpoint)
- PP3: The system should be able to display the metrics based on the training data retrieved from the forecast system.

FDD0008 - Indicate current model performance

- Feature description: Send a notification when model's performance drops significally (//TODO: clarify what sort of notification)
- OS6: The solution should be able to inform about significant changes in prediction performance. The significant change is defined by:
    - a. Comparing the current model MAE against historical absolute errors

FDD0009 - Display feature value against frequency as histogram

- FS2: The system should be able to visualize different feature value in either continuous or discrete format against frequency (distribution of feature value) appeared as histogram, this should be applied to both training data and real time data