

Web App for Creating Pharmacometric Analysis Dataset Specification Form

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Introduction

- The quality of the pharmacometric analysis dataset specification is crucial for pharmacometric programming, analysis, and eSub datasets.
- Currently, the specification is a word document and it's difficult to validate input in each field
- A new process is necessary to improve the quality and efficiency of the current specification.

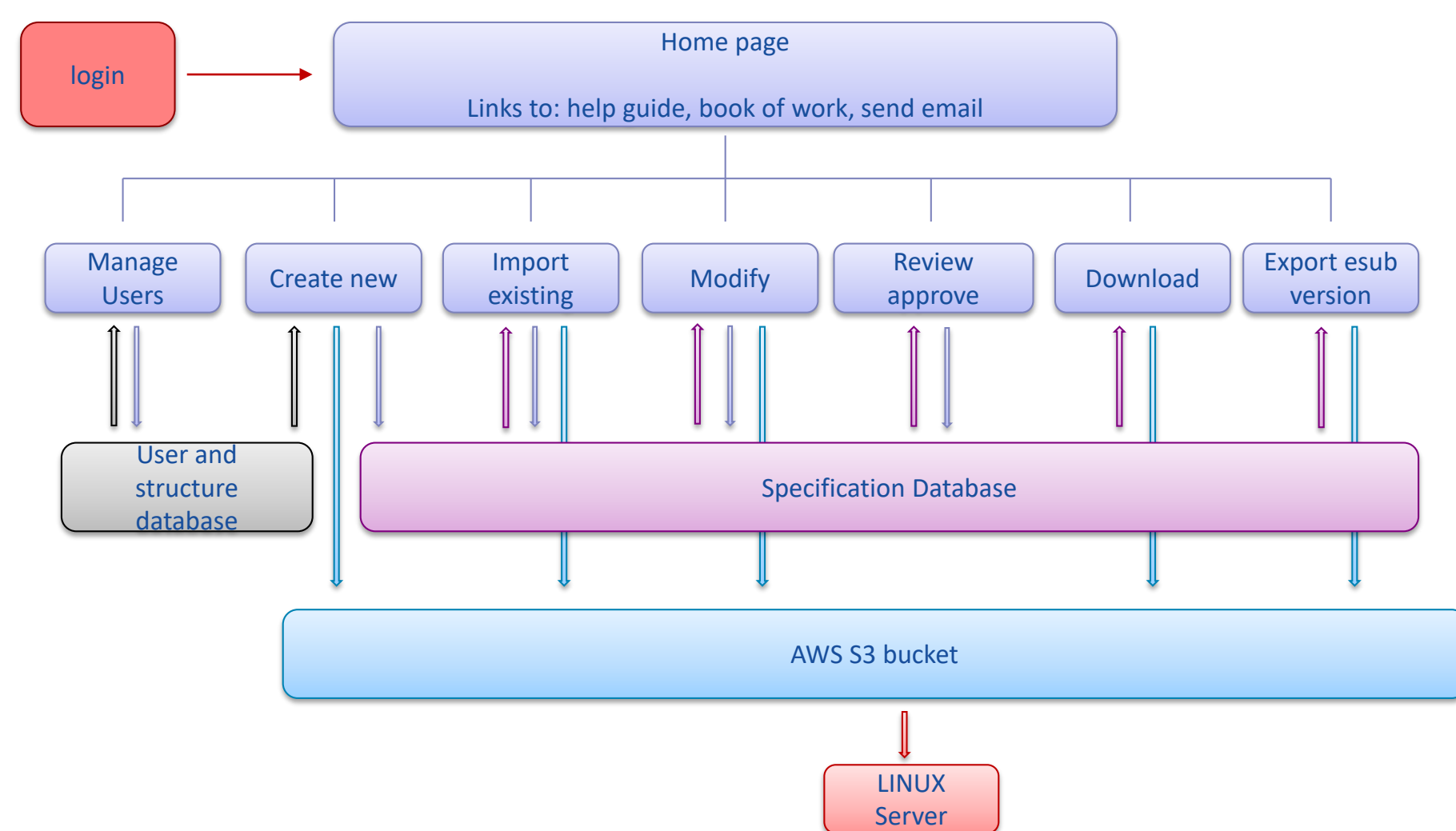
Objectives

- To standardize and pre-populate the pharmacometric analysis dataset specification form in order to minimize the number of iterations between programmers and pharmacometricians.
- To enable automation of information extraction from the specification and programming the dataset

Methods

- This web application is built with PHP, MySQL, UNIX Shell scripts and JavaScript
- It runs on Amazon Web Services (AWS) Elastic Beanstalk environment
- This application will write data into Amazon Relational Database Services (RDS)
- Any attachment and output files will be written to AWS S3 and transferred to Linux server

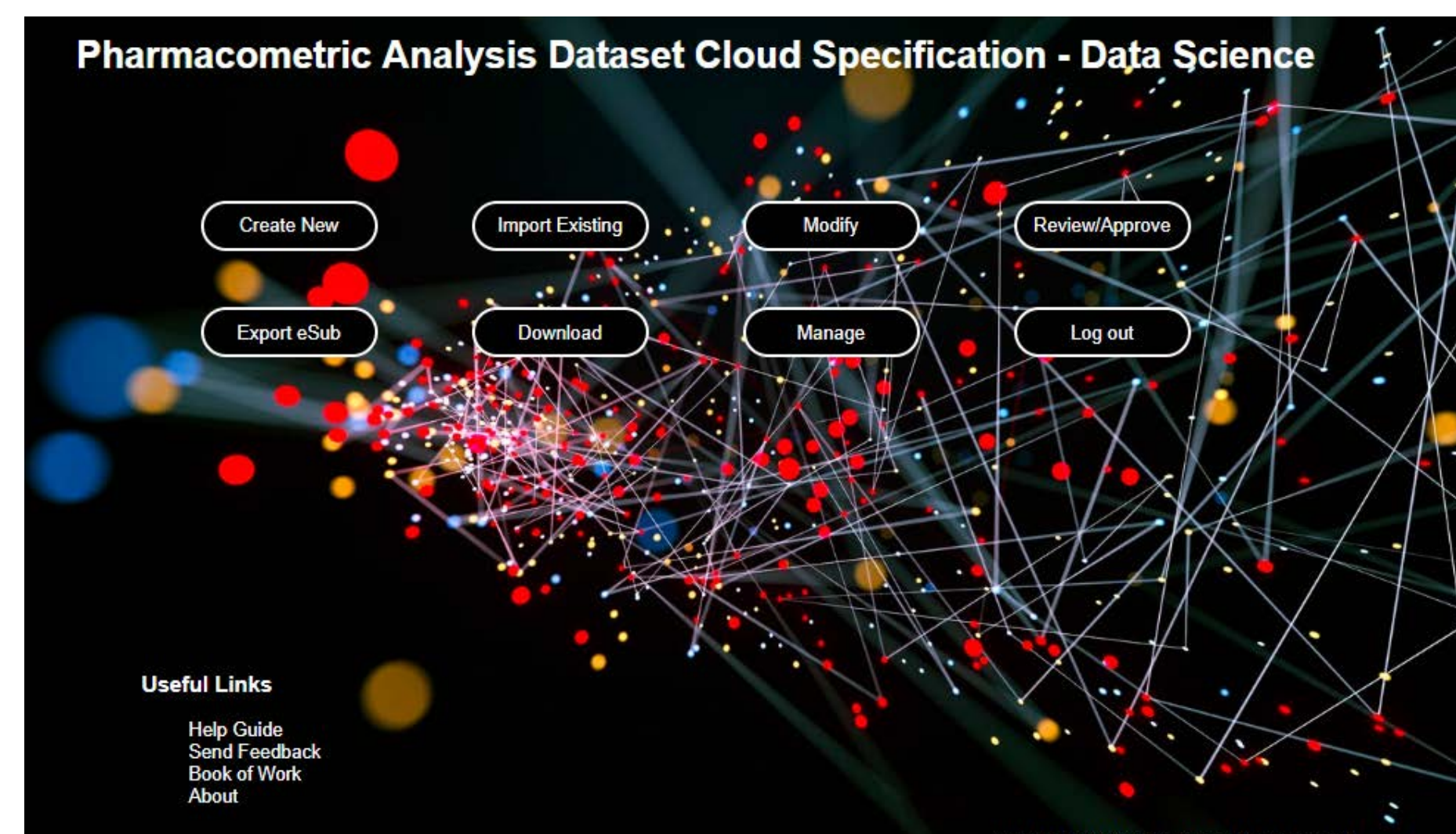
Functionalities:



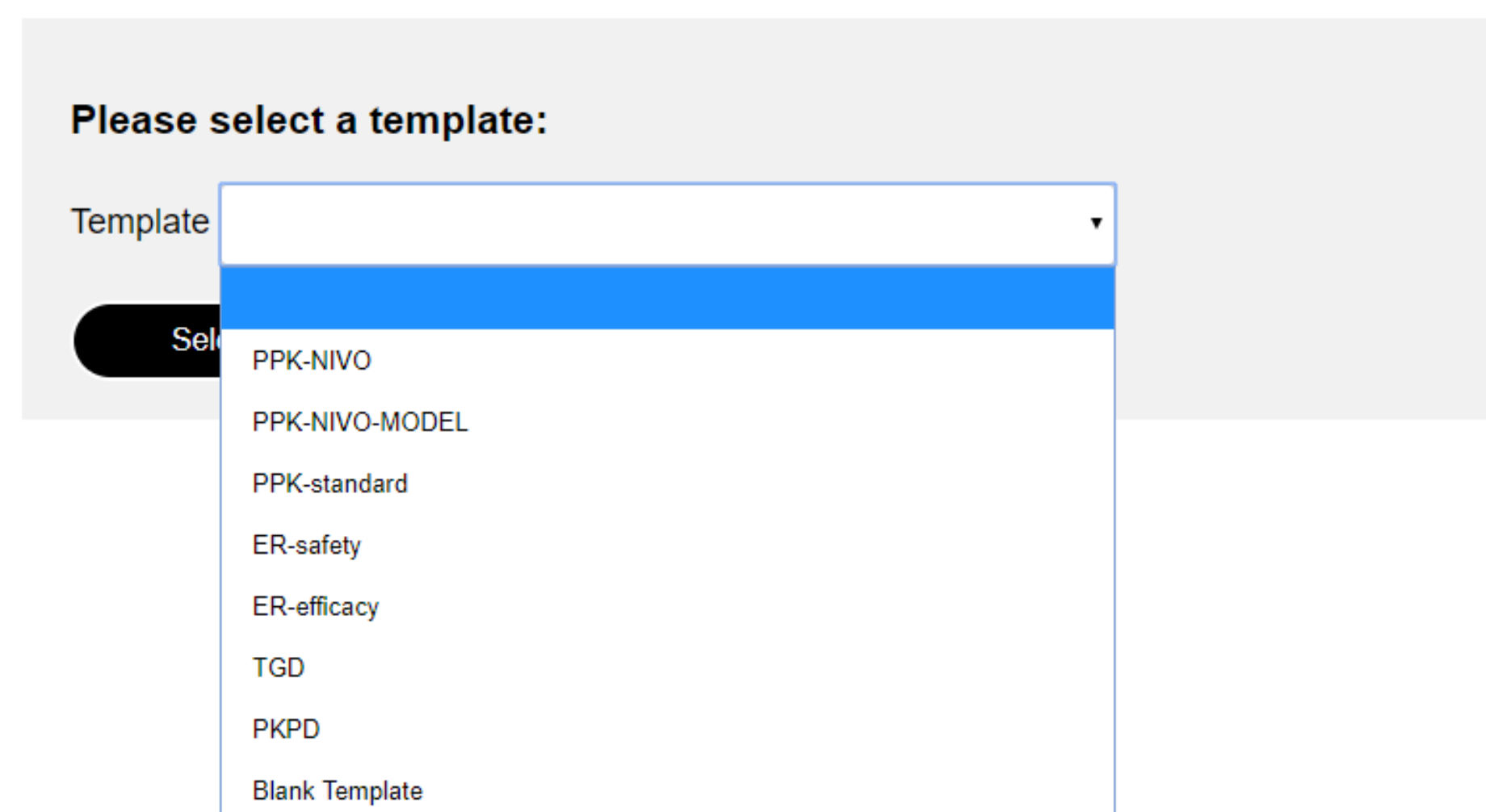
- This tool is designed to pre-populate the data structure, variable names, labels, units, derivations etc. based on the template the user selects.
- Templates for pharmacometric analysis datasets are built into the web application.
- Built-in checks ensure the quality of the specification, e.g. naming conventions, mandatory fields, duplicate variable names/labels and variable/label lengths.

Results

Application User Interface



Built in templates to select from



Auto populates dataset specification based on the selected template

General Information									
Dataset Structure									
Derivations									
Confirmations									
#	Variable Name	Variable Label	Units	Type	Rounding	Missing Value	Notes	Source	
001	PROTOCOL	Project identifier	NA	Num	NA	NA	e.g. CA20909, MDX108-01, PPM000000	Derived according to notes	
002	STUDYID	Study identifier (N)	NA	Num	NA	NA		Last 5 digits of STUDYID	
003	USUBID	Unique subject identifier	NA	Char	NA	NA	NA		
004	TX	Treatment description	NA	Char	NA	NA			
005	CYCL	Cycle label	NA	Num	NA	NA			
006	FORM	Formulation	NA	Num	NA	NA	0 = Capsule 1 = Powder 2 = Tablet 3 = Other		
007	MEAL	Meal	NA	Num	NA	NA	0 = Light Meal 1 = Fasting 2 = High Fat Meal		
008	CIGAR	Cigar smoking status	NA	Char	NA	NA	Never, Current, Former, Unknown		
009	DTIC	Date and time of event	NA	Num	NA	NA	Date and time of event for EVID=1. Date and time of sample for EVID=2. Use ISO8601 format: YYYY-MM-DDTHH:MM:SS	NA	

- To enforce standards some variables and attributes are made non-editable and greyed out
- Users can add new variables or select from optional variables list
- Can remove any non standard variable
- Can sort the variables, move them up/down

Pre-populates derivations, flags and imputations

General Information									
Dataset Structure									
Derivations									
Confirmations									
Programming Algorithms and Imputations									
This section provides the algorithms and imputation rules for the creation of analysis datasets, such as dosing or concomitant medications.									
Flag number	Flag comment					Flag description			
1	No dosing records, no unfilled (1-5) pk samples; missing sample date and time or concentration (but not if PPK-NIVO concentration = NA or NA=0)					this can be due to dosing/sampling date issue. flag=1 also used to flag dose records for subjects having only pk samples with flag=1 through 5 (no analyzable pk records)			
2	Post first dose LLOQ or BLQ or concentration = BD								
3	Day 1 pre-dose samples								
4	Duplicate sample with same concentration at same AT/AD (in toolbox/PAMS set up for NCA analysis)								
5	If concentration > 2000 ug/mL								
6	Duplicate samples with different concentrations								

- User's can add new derivations, flags and delete not applicable flags.
- User's can not delete standard flags

Filters to search the specification database

Pharmacometric Analysis Dataset Cloud Specification - Data Science

Please use the following filters to find your specification

Compound Name OR

Dataset type OR

Created by OR

Indication

Filter/Author

Results

You can sort the table by each column clicking the column header. If you want to sort by approval, please sort by Approved by

Specification ID	Created by	Compound Name	Indication	Dataset type	Creation Date	Approved	Approved by
BMS-123456-PPK-NIVO-MODEL-gastro-2018-08-24-11:00:43am	Lu Chen	BMS-123456	gastro	PPK-NIVO-MODEL	2018-08-24	Yes	
BMS-936558-PPK-NIVO-CRC-2018-08-24-11:00:21am	Lu Chen	BMS-936558	CRC	PPK-NIVO	2018-08-24	Yes	
BMS-936558-PPK-NIVO-NSCLC-2018-08-24-10:28:30am	Lu Chen	BMS-936558	NSCLC	PPK-NIVO	2018-08-24	Yes	
BMS-936558-PPK-NIVO-NSCLC-2018-09-10-07:17:28am	Lu Chen	BMS-936558	NSCLC	PPK-NIVO	2018-09-10	Yes	

Please select a specification:

Next

Results

Specification ID	Version ID	Modification Date	Revised by	Changes made
BMS-936558-PPK-NIVO-CRC-2018-08-24-11:00:21am	1	2018-08-24	Lu Chen	Initial Request
BMS-936558-PPK-NIVO-CRC-2018-08-24-11:00:21am	2	2018-08-24	Lu Chen	test
BMS-936558-PPK-NIVO-CRC-2018-08-24-11:00:21am	3	2018-08-29	Lu Chen	test attachment
BMS-936558-PPK-NIVO-CRC-2018-08-24-11:00:21am	4	2018-09-11	Lu Chen	test

Please select a version:

Import Existing, Modify, Review/Approve, Export eSub specs for define.pdf

Please select a version:

Download PDF Download CSV Download spec in PDF or CSV format to Linux server

Review and approve the specification form

Pharmacometric Analysis Dataset Cloud Specification - Data Science

Cover page:

Population Pharmacokinetic Analysis of BMS-936558

Project: CA209-009, 010, 016, 025, 214, 227, 817

Version: 3

Modification Date: 2018-08-29

Review and Approve

Please review the content above and sign your name if you approve it. Once you approve it, you cannot make any change.

Pharmacometricians can sign and approve the final spec. The signature will be saved in the database.

- Spec can be reviewed in pdf and/or HTML format

Export eSub dataset spec for define.pdf creation

Pharmacometric Analysis Dataset Cloud Specification - Data Science

Please note that dataset label must be less than or equal to 40 characters

Dataset Label: * (using pre-Pharmacometrics)

Please note that variable name must be less than or equal to 8 characters and variable label must be less than or equal to 40 characters

Variable Name	Variable Label	Comment	Codes (if the codes column is longer than 100 characters, please copy the content to the Comment column)
PROTOCOL	Original Protocol Number		e.g. CA20909, MDX108-01, PPM000000
USUBID	Unique subject identifier		
ATVPD	Actual time after first dose(h)		
TVTPD	Normal time after first dose(h)		
TVTPD	Normal time after previous dose(h)		
ATVPD	Actual time after previous dose(h)		
FLAG	Evaluation flag		
FLAGCOM	Evaluation flag comment		
BLQ_DT	Dataset Creation Date		

Add another test result

Delete selected variables

Select variable to move up or down

Export

- Export eSub option creates and exports esub specs for the creation of define.pdf .

Conclusions

- This app has brought efficiency and quality in specification creation, enforced standards across projects and enables automation of dataset creation.
- The built-in templates eliminate the burden on pharmacometricians to manually populate all the standard variables, attributes, derivations, flags and imputation rules.
- Enables automation of define.pdf

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