

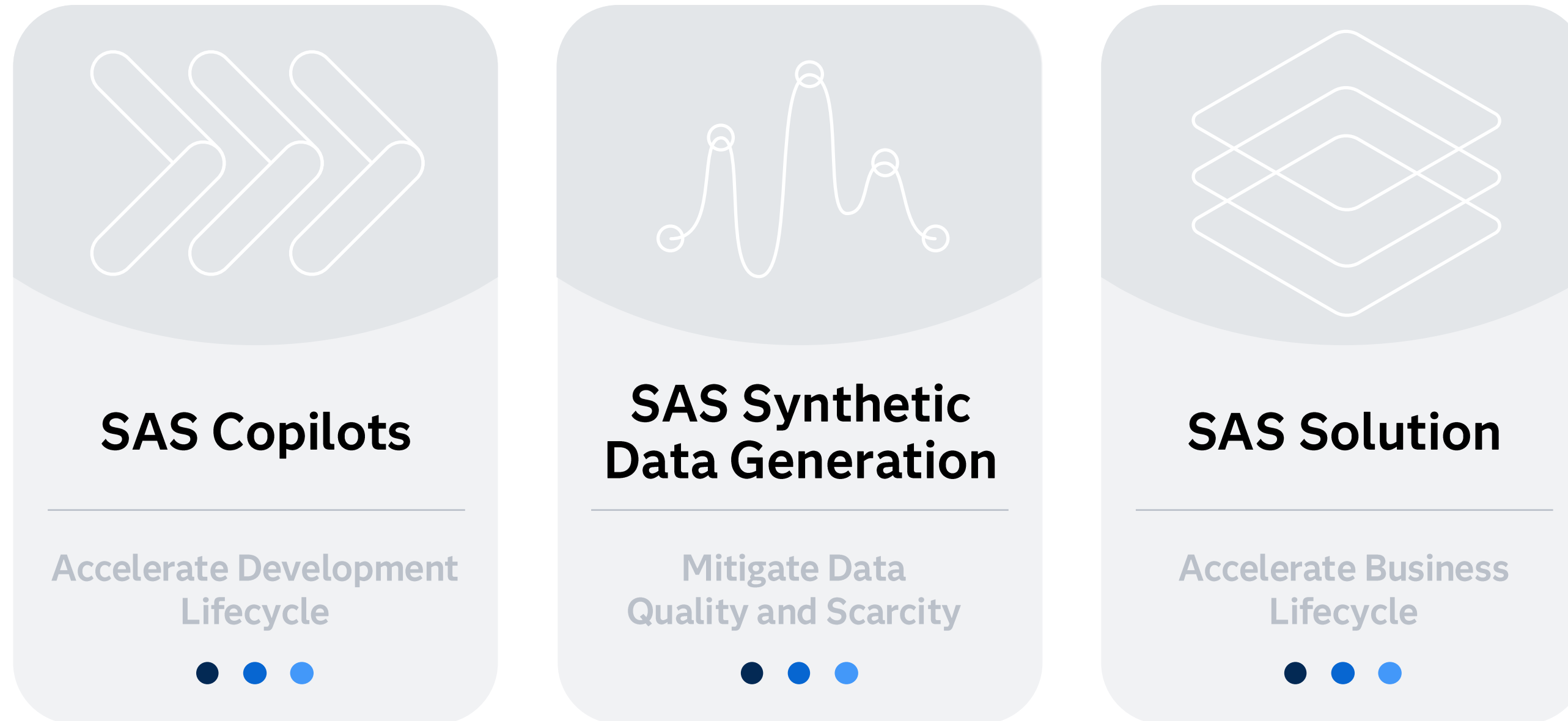
SAS® AI in Programming

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SAS Global HLS Team
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SAS - AI in Programming



Help with day-to-day development tasks

Improve the end-to-end development process

Embedding Gen AI into the full range of SAS Solutions

Help with day-to-day development tasks



SAS Copilots

Accelerate Development Lifecycle



SAS Synthetic Data Generation

Mitigate Data Quality and Scarcity

● ● ●



SAS Solution

Accelerate Business Lifecycle

● ● ●

SAS Copilot

SAS Copilot
Integrating GenAI
in the
development
environment

**Available
Q4 2025**

1

Generate code from a description

Use SAS Gen AI to
create code based
on a description of
the requirements



2

Add Comments

Use SAS GenAI to
add comments to
existing codes



3

Explanation of existing code

Use SAS GenAI to
create a
comprehensive
summary and
explanation of
existing code



Users > limabe >  Copilot Demo Generation.sas > ...

```
13  /*rename the variable bad to default in work.hmeq
14  from set work.hmeq*/
15  data work.hmeq;
16  |   set work.hmeq(rename=(bad=default));
17  run;
18
19
20
21
22  /*frequencies of "default" variable for work.hmeq*/
23  proc freq data=work.hmeq;
24  |   tables default;
25  run;
26
27
28
29
30  /*logistic regression model on work.hmeq
31  using target "default"
32  and predictors loan, mortdue, delinq, Y0J*/
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
```

SAS Code Copilot Preview - Feedback

From Executive Director of Biostatistics at Global Pharma

“In summary, the SAS Viya Copilot and its ability to provide detailed insight into our code represents a transformative asset for generating regulatory documentation. By improving clarity, fostering efficient communication, and streamlining the review process”

“The SAS Code Copilot has the potential to significantly enhance the interactions with regulatory agencies, ultimately leading to a more effective pathway for approval and implementation of critical therapeutic strategies.”

Help with day-to-day development tasks



SAS Copilots

Accelerate Development Lifecycle



SAS Synthetic Data Generation

Mitigate Data Quality and Scarcity



SAS Solution

Accelerate Business Lifecycle



Synthetic Data Generation

SAS Data Maker
Address gaps and
limitations in
real-world data

**Available
Q4 2025**

1

**Train
using your
Real World Data**

SAS Gen AI
creates new data
with the same
characteristics,
statistical
properties and
distributions



2

**Evaluate
synthetic data
quality**

Evaluate the
results using a
simple GUI with
and detailed visual
evaluation metrics



3

**Generate
data on demand**

Users can reuse
the approved
model on demand



[SAS Data Maker Video](#)

[SAS Data Maker Weblink](#)



SAS - Generative AI in Action



SAS Copilots

Accelerate Development
Lifecycle



SAS Synthetic Data Generation

Mitigate Data
Quality and Scarcity



SAS Solution

Accelerate Business
Lifecycle

Improving the end-to-end clinical trial development process

Clinical Trial
Protocol

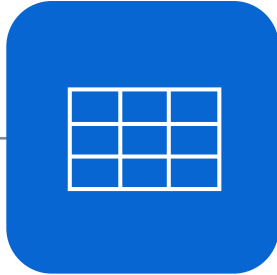


Data
Collection



eCRF / eSource

Data
Tabulation



SDTM

Statistical
Analysis



ADaM / TLFs

Clinical Study
Report



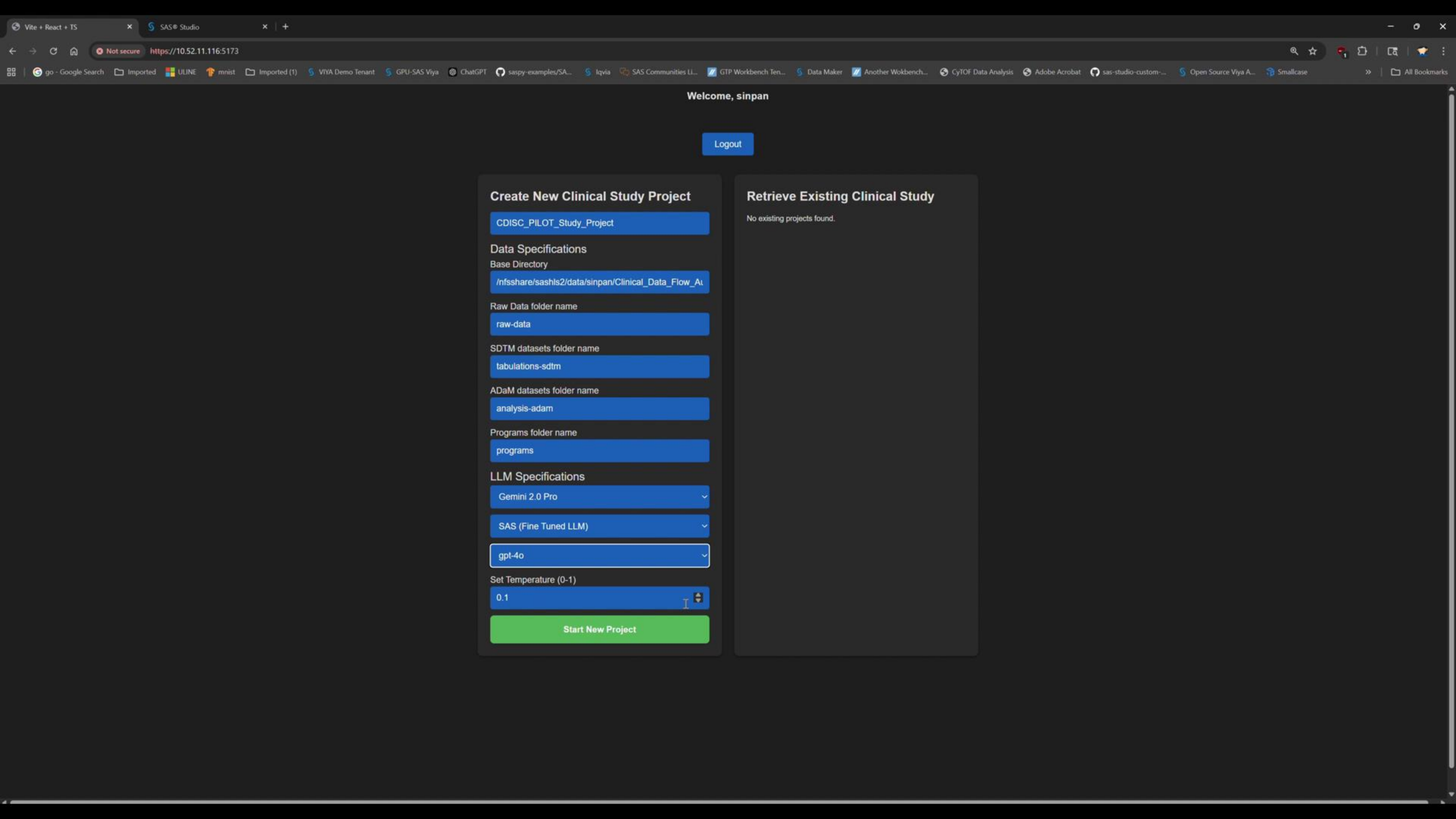
Raw data to SDTM format

SDTM to ADaM

ADaM Validation

Creation of define.xml

Creation of TLFs



Welcome, sinpan

Logout

Create New Clinical Study Project

CDISC_PILOT_Study_Project

Data Specifications

Base Directory

/nfsshare/sashls2/data/sinpan/Clinical_Data_Flow_At

Raw Data folder name

raw-data

SDTM datasets folder name

tabulations-sdtm

ADaM datasets folder name

analysis-adam

Programs folder name

programs

LLM Specifications

Gemini 2.0 Pro

SAS (Fine Tuned LLM)

gpt-4o

Set Temperature (0-1)

0.1

Start New Project

Retrieve Existing Clinical Study

No existing projects found.

SDTM Domains for Study:

☐SU

☒TI

☐UR

☐SUPPQUAL

☐TM

☒VS

☒SV

☐TR

☒TA

☒TS

☐TD

☐TU

Convert Raw Data to SDTM standards

Start here as the first step. Press Begin next to 'Identify' to get SDTM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce SDTM Datasets & SAS code.

Identify SDTM Datasets:

Begin

Generate SDTM Datasets:

Start

State:

In-Process

Extract TFL shells logic

After indicating valid SDTM and ADaM IG versions and SDTM domains upload the TFL shells document. After uploading, press Start to extract TFL shell details. When content is satisfactory, select "Approved" in status to proceed.

TFL Shells:

Choose FileNo file chosen

Extract

State:

In-Process

Identify and Generate ADaM Datasets

Upload the SAP document and press Begin next to 'Identify' to get ADAM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce ADaM Datasets & SAS code.

Clinical Data Flow AI Assistant

Study Lineage

Logout

Project History

New Session

Agent Outputs

SDTM Datasets

Tables - Listings - Figures

ADaM Datasets

Generated SAS Code

AE	USUBJID	required	Identifier used to uniquely id	Map from ADVERSE_EVENTS.UNIQUE_SUBJ_ID.
AE	AESEQ	required	Sequence number given to e	Generate a unique sequence number for each adverse event
AE	AETERM	required	Verbatim name of the event.	Map from ADVERSE_EVENTS.AE_TERM.
AE	AEDECOD	required	Dictionary-derived text descri	Map from ADVERSE_EVENTS.AE_DECODE.
AE	AESTDTC	expected	Start date/time of the advers	Map from ADVERSE_EVENTS.START_DATE and format as
AE	AEENDTC	expected	End date/time of the adverse	Map from ADVERSE_EVENTS.END_DATE and format as
AE	AESER	expected	Is this a serious event? Valid	Map from ADVERSE_EVENTS.IS_SERIOUS.
AE	AEREL	expected	Records the investigator's op	Map from ADVERSE_EVENTS.CAUSALITY and convert to
AE	AEACN	expected	Describes changes to the st	Map from ADVERSE_EVENTS.ACTION_TAKEN. If null,
AE	AEBODSYS	expected	Dictionary derived. Body sys	Map from ADVERSE_EVENTS.AE_BODYSYSTEMS.
AE	AESOC	expected	Dictionary-derived text descri	Map from ADVERSE_EVENTS.AE_SOC.
AE	AELLT	expected	Dictionary-derived text descri	Map from ADVERSE_EVENTS.AE_LLTERMS.
AE	AEHLT	expected	Dictionary-derived text descri	Map from ADVERSE_EVENTS.AE_HLT.

Outputs, Logs & History

Last Run Log

Last Run Output

Last Run Code

No LOG file loaded

SDTM dataset/variables list generated successfully. See details in the SDTM Datasets tab.

Type your message here...

Send

SDTM Domains for Study:

☐ SS

☒ TE

☒ TV

☐ SU

☒ TI

☐ UR

☐ SUPPQUAL

☐ TM

☒ VS

☒ SV

☐ TR

☒ TA

☒ TS

☐ TD

☐ TU

Convert Raw Data to SDTM standards

Start here as the first step. Press Begin next to 'Identify' to get SDTM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce SDTM Datasets & SAS code.

Identify SDTM Datasets:

Begin

Generate SDTM Datasets:

Start

State:

In-Process

Extract TLF shells logic

After indicating valid SDTM and ADaM IG versions and SDTM domains upload the TLF shells document. After uploading, press Start to extract TLF shell details. When content is satisfactory, select "Approved" in status to proceed.

TLF Shells:

Choose File No file chosen

Extract

State:

In-Process

Identify and Generate ADaM Datasets

Upload the SAP document and press Begin next to 'Identify' to get ADAM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce ADaM Datasets & SAS code.

SAP:

Choose File No file chosen

Identify ADaM Datasets:

Begin

Clinical Data Flow AI Assistant

Study Lineage

Logout

Project History

New Session

Agent Outputs

SDTM Datasets

SDTM Code

TLF Logic

ADaM Datasets

ADaM Code

TLF Code

AE

CM

DM

DS

EX

LB

MH

QS

RELREC

SC

SE

SV

TA

TI

TS

TV

VS

Code

Last Run Log

Last Run Output

Last Run Code

Run Code

Save Code

Run Status: Success

options nocenter ls=132 ps=64;

-----;

* Define LIBNAMES for source Raw data and target SDTM datasets. *;

-----;

libname RAW "/nfsshare/sashls2/data/sinpan/Clinical_Data_Flow_AutomationwithLLMs/CDISCPILOT_DEMO/raw-data";

libname SDTM "/nfsshare/sashls2/data/sinpan/Clinical_Data_Flow_AutomationwithLLMs/CDISCPILOT_DEMO/tabulations-sdtm";

-----;

* 1. PRE-PROCESSING: Create helper dataset with subject-level reference start date (RFSTDTC). *;

-----;

data dm_info;

/* Keep only necessary variables from patient_information raw data. */;

set RAW.PATIENT_INFORMATION(keep=UNIQUE_SUBJ_ID FIRST_TREATMENT_DATE);

/* Rename variables for consistency with SDTM naming conventions. */;

rename UNIQUE_SUBJ_ID = USUBJID

FIRST_TREATMENT_DATE = RFSTDTC;

/* Keep only subjects who have a reference start date. */;

if not missing(RFSTDTC);

run;

/* Sort helper dataset by USUBJID to prepare for merging. */;

proc sort data=dm_info;

by USUBJID;

run;

-----;

* 2. MAIN PROCESSING: Read raw AE data and derive SDTM variables. *;

-----;

data ae_01;

/* Merge raw adverse events data with the reference start date information. */;

merge RAW.ADVERSE_EVENTS(rename=(UNIQUE_SUBJ_ID=USUBJID))

dm_info;

by USUBJID;

/*-----*;

/* DERIVE REQUIRED AND EXPECTED IDENTIFIER VARIABLES */;

/*-----*;

* STUDYID: Set to 'CDISCPILOT01', the study identifier for this trial.;

STUDYID = 'CDISCPILOT01';

* DOMAIN: Set to 'AE'.;

DOMAIN = 'AE';

SDTM dataset/variables list generated successfully. See details in the SDTM Datasets tab.

SDTM Datasets creation request completed. Check SDTM Code tab for details.

Type your message here...

Send

Convert Raw Data to SDTM standards

Start here as the first step. Press *Begin* next to 'Identify' to get SDTM datasets, variables, and mapping logic. Once satisfied, click *Start* next to 'Generate' to produce SDTM Datasets & SAS code.

Identify SDTM Datasets:

Begin

Generate SDTM Datasets:

Start

State:

In-Process

Extract TLF shells logic

After indicating valid SDTM and ADaM IG versions and SDTM domains upload the TLF shells document. After uploading, press *Start* to extract TLF shell details. When content is satisfactory, select "Approved" in status to proceed.

TLF Shells:

Choose File No file chosen

Extract

State:

In-Process

Identify and Generate ADaM Datasets

Upload the SAP document and press *Begin* next to 'Identify' to get ADAM datasets, variables, and mapping logic. Once satisfied, click *Start* next to 'Generate' to produce ADaM Datasets & SAS code.

SAP:

Choose File No file chosen

Identify ADaM Datasets:

Begin

```
* AEENDY: Calculated as (date part of AEENDTC - date part of RFSTDTC) + 1 if AEENDTC is on or after RFSTDTC, or (date part of AEENDTC - date part of RFSTDTC) if before.;
if not missing(aeendtc_n) and not missing(rfstdtc_n) then do;
  if aeendtc_n >= rfstdtc_n then AEENDY = aeendtc_n - rfstdtc_n + 1;
  else AEENDY = aeendtc_n - rfstdtc_n;
end;

/*-----*/
/* DERIVE EVENT CHARACTERISTICS AND SERIOUSNESS FLAGS */
/*-----*/

* AESER: Mapped from ADVERSE_EVENTS.IS_SERIOUS.;
AESER = IS_SERIOUS;

* AEACN: Mapped from ADVERSE_EVENTS.ACTION_TAKEN. If null, set to 'NOT APPLICABLE'.;
if missing(ACTION_TAKEN) then AEACN = 'NOT APPLICABLE';
else AEACN = ACTION_TAKEN;

* AEREL: Mapped from ADVERSE_EVENTS.CAUSALITY and converted to uppercase.;
AEREL = upcase(CAUSALITY);

* AEOUT: Mapped from ADVERSE_EVENTS.OUTCOME and converted to uppercase.;
AEOUT = upcase(OUTCOME);

* AESEV: Mapped from ADVERSE_EVENTS.SEVERITY and converted to uppercase.;
AESEV = upcase(SEVERITY);

* AESDTH: Mapped from ADVERSE_EVENTS.DEATH_FLAG.;
AESDTH = DEATH_FLAG;

* AESLIFE: Mapped from ADVERSE_EVENTS.LIFETHREAT_FLAG.;
AESLIFE = LIFETHREAT_FLAG;

* AESHOSP: Mapped from ADVERSE_EVENTS.HOSP_FLAG.;
AESHOSP = HOSP_FLAG;

* AESDISAB: Mapped from ADVERSE_EVENTS.DISABILITY_FLAG.;
AESDISAB = DISABILITY_FLAG;

* AESCONG: Mapped from ADVERSE_EVENTS.CONGENITAL_FLAG.;
AESCONG = CONGENITAL_FLAG;

* AESCAN: Mapped from ADVERSE_EVENTS.CANCER_FLAG.;
AESCAN = CANCER_FLAG;

/* Keep only required variables for the next step. */
keep STUDYID DOMAIN USUBJID AESPID AETERM AEDECOD AELLT AELLTCD AEPTCD AEHLT AEHLTCD AEHLGT
AEHLGTCD AEBODSYS AEBDSYCD AESOC AESOCCD AESTDTC AEENDTC AESTDY AEENDY AESER AEACN
AEREL AEOUT AESEV AESDTH AESLIFE AESHOSP AESDISAB AESCONG AESCAN;
```

Type your message here...

Send

Extract TLF shells logic

After indicating valid SDTM and ADaM IG versions and SDTM domains upload the TLF shells document. After uploading, press Start to extract TLF shell details. When content is satisfactory, select "Approved" in status to proceed.

TLF Shells:

Choose File No file chosen

Extract

State:

In-Process

Identify and Generate ADaM Datasets

Upload the SAP document and press Begin next to 'Identify' to get ADAM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce ADaM Datasets & SAS code.

SAP:

Choose File No file chosen

Identify ADaM Datasets:

Begin

```
* AEREL: Mapped from ADVERSE_EVENTS.CAUSALITY and converted to uppercase.;
AEREL = upcase(CAUSALITY);

* AEOUT: Mapped from ADVERSE_EVENTS.OUTCOME and converted to uppercase.;
AEOUT = upcase(OUTCOME);

* AESEV: Mapped from ADVERSE_EVENTS.SEVERITY and converted to uppercase.;
AESEV = upcase(SEVERITY);

* AESDTH: Mapped from ADVERSE_EVENTS.DEATH_FLAG.;
AESDTH = DEATH_FLAG;

* AESLIFE: Mapped from ADVERSE_EVENTS.LIFETHREAT_FLAG.;
AESLIFE = LIFETHREAT_FLAG;

* AESHOSP: Mapped from ADVERSE_EVENTS.HOSP_FLAG.;
AESHOSP = HOSP_FLAG;

* AESDISAB: Mapped from ADVERSE_EVENTS.DISABILITY_FLAG.;
AESDISAB = DISABILITY_FLAG;

* AESCONG: Mapped from ADVERSE_EVENTS.CONGENITAL_FLAG.;
AESCONG = CONGENITAL_FLAG;

* AESCAN: Mapped from ADVERSE_EVENTS.CANCER_FLAG.;
AESCAN = CANCER_FLAG;

/* Keep only required variables for the next step. */;
keep STUDYID DOMAIN USUBJID AESPID AETERM AEDECOD AELLT AELLTCD AEPTCD AEHLT AEHLTCD AEHLGT
    AEHLGTC D AEBODSYS AEBDSYCD AESOC AESOCCD AESTDTC AEENDTC AESTDY AEENDY AESER AEACN
    AEREL AEOUT AESEV AESDTH AESLIFE AESHOSP AESDISAB AESCONG AESCAN;
```

Type your message here...

Send

Identify and Generate ADaM Datasets

Upload the SAP document and press Begin next to 'Identify' to get ADAM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce ADaM Datasets & SAS code.

SAP:

Choose File No file chosen

Identify ADaM Datasets:

Begin

```
* AESDISAB: Mapped from ADVERSE_EVENTS.DISABILITY_FLAG.;
AESDISAB = DISABILITY_FLAG;

* AESCONG: Mapped from ADVERSE_EVENTS.CONGENITAL_FLAG.;
AESCONG = CONGENITAL_FLAG;

* AESCAN: Mapped from ADVERSE_EVENTS.CANCER_FLAG.;
AESCAN = CANCER_FLAG;

/* Keep only required variables for the next step.
keep STUDYID DOMAIN USUBJID AESPID AETERM AEDECOD AELLT AELLTCD AEPTCD AEHLT AEHLTCD AEHLGT
AEHLGTC AEBODSYS AEBDSYCD AESOC AESOCCD AESTDTC AEENDTC AESTDY AEENDY AESER AEACN
AEREL AEOUT AESEV AESDTH AESLIFE AESHOSP AESDISAB AESCONG AESCAN;
*/;
```

Type your message here...

Send

SDTM Domains for Study:

☐ SS

☒ TE

☒ TV

☐ SU

☒ TI

☐ UR

☐ SUPPQUAL

☐ TM

☒ VS

☒ SV

☐ TR

☐

☒ TA

☒ TS

☐

☐ TD

☐ TU

☐

Convert Raw Data to SDTM standards

Start here as the first step. Press Begin next to 'Identify' to get SDTM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce SDTM Datasets & SAS code.

Identify SDTM Datasets:

Begin

Generate SDTM Datasets:

Start

State:

In-Process

Extract TLF shells logic

After indicating valid SDTM and ADaM IG versions and SDTM domains upload the TLF shells document. After uploading, press Start to extract TLF shell details. When content is satisfactory, select "Approved" in status to proceed.

TLF Shells:

Choose File

No file chosen

Extract

State:

In-Process

Identify and Generate ADaM Datasets

Upload the SAP document and press Begin next to 'Identify' to get ADAM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce ADaM Datasets & SAS code.

SAP:

Choose File

No file chosen

Identify ADaM Datasets:

Begin

Agent Outputs

SDTM Datasets

SDTM Code

TLF Logic

ADaM Datasets

ADaM Code

TLF Code

AE

CM

DM

DS

EX

LB

MH

QS

RELREC

SC

SE

SV

TA

TI

TS

TV

VS

Code

Last Run Log

Last Run Output

Last Run Code

Run Code

Save Code

Run Status: Success

* Define LIBNAMEs for source Raw data and target SDTM datasets.*

libname RAW "/nfsshare/sashls2/data/sinpan/Clinical_Data_Flow_AutomationwithLLMs/CDISCPILOT_DEMO/raw-data";

libname SDTM "/nfsshare/sashls2/data/sinpan/Clinical_Data_Flow_AutomationwithLLMs/CDISCPILOT_DEMO/tabulations-sdtm";

* 1. Create SDTM DM dataset from the raw patient information data.*

data SDTM.DM;

/* Retain the order of variables as specified */

retain STUDYID DOMAIN USUBJID SUBJID SITEID RFSTDTC RFENDTC RFPENDTC RFICDTC RFXSTDTC RFXENDTC DTHDTC DTHFL AGE AGEU SEX

RACE ETHNIC ARMCD ARM ACTARMCD ACTARM ARMNRS COUNTRY;

/* Set lengths for character variables to avoid truncation */

length STUDYID \$12

DOMAIN \$2

USUBJID \$20

SUBJID \$10

SITEID \$10

RFSTDTC \$20

RFENDTC \$20

RFPENDTC \$20

RFICDTC \$20

RFXSTDTC \$20

RFXENDTC \$20

DTHDTC \$20

DTHFL \$1

AGEU \$10

SEX \$1

RACE \$40

ETHNIC \$40

ARMCD \$20

ARM \$100

ACTARMCD \$20

ACTARM \$100

ARMNRS \$20

COUNTRY \$3;

/* Set the source raw dataset */

set RAW.PATIENT_INFORMATION;

/* Derivations for SDTM DM variables */

* --- Identifier Variables --- *

STUDYID = 'CDISCPILOT01';

/* Description: Unique identifier for a study.; */

/* Mapping Rule: Set to 'CDISCPILOT01', the study identifier

for this trial.; */

SDTM dataset/variables list generated successfully. See details in the SDTM Datasets tab.

SDTM Datasets creation request completed. Check SDTM Code tab for details.

Type your message here...

Send

SDTM Domains for Study:

☐ SS

☒ TE

☒ TV

☐ SU

☒ TI

☐ UR

☐ SUPPQUAL

☐ TM

☒ VS

☒ SV

☐ TR

☒ TA

☒ TS

☐ TD

☐ TU

Convert Raw Data to SDTM standards

Start here as the first step. Press Begin next to 'Identify' to get SDTM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce SDTM Datasets & SAS code.

Identify SDTM Datasets:

Begin

Generate SDTM Datasets:

Start

State:

In-Process

Extract TLF shells logic

After indicating valid SDTM and ADaM IG versions and SDTM domains upload the TLF shells document. After uploading, press Start to extract TLF shell details. When content is satisfactory, select "Approved" in status to proceed.

TLF Shells:

Choose File

 No file chosen

Extract

State:

In-Process

Identify and Generate ADaM Datasets

Upload the SAP document and press Begin next to 'Identify' to get ADAM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce ADaM Datasets & SAS code.

SAP:

Choose File

 No file chosen

Identify ADaM Datasets:

Begin

Clinical Data Flow AI Assistant

Study Lineage

Logout

Project History

New Session

Agent Outputs

SDTM Datasets

SDTM Code

TLF Logic

ADaM Datasets

ADaM Code

TLF Code

AE

CM

DM

DS

EX

LB

MH

QS

RELREC

SC

SE

SV

TA

TI

TS

TV

VS

Code

Last Run Log

Last Run Output

Last Run Code

source: 1

/* _STARTMACROCODE_ */

source: 2

/*-----*/

source: 3

/

source: 4

/ SASStudio initialization file for SAS workspace connections

source: 5

/

source: 6

/*-----*/

source: 7

source: 8

/* Get the Git version */

source: 9

DATA _NULL_;

source: 10

GITVERSION = GIT_VERSION();

source: 11

CALL SYMPUT('_GITVERSION', GITVERSION);

source: 12

RUN;

note:

note: NOTE: Numeric values have been converted to character values at the places given by: (Line):(Column).

note:

11:30

note: NOTE: Libgit2 version 1.3.0

note: NOTE: DATA statement used (Total process time):

note:

real time

0.01 seconds

note:

cpu time

0.01 seconds

note:

note:

source: 13

source: 14

source: 15

%MACRO resolveHomeDirectory;

source: 16

%GLOBAL _USERHOME;

source: 17

%LOCAL _HOMEVAR;

title: 2

The SAS System

Thursday, September 4, 2025

02:53:00 AM

title:

source: 18

source: 19

%IF (&SYSSCP=WIN) %THEN

source: 20

%DO;

source: 21

%LET _HOMEVAR=USERPROFILE;

source: 22

%END;

source: 23

%ELSE

source: 24

%DO;

source: 25

%LET _HOMEVAR=HOME;

source: 26

%END;

source: 27

source: 28

%LET _USERHOME= %SYSFUNC(SYSGET(&_HOMEVAR));

..

SDTM dataset/variables list generated successfully. See details in the SDTM Datasets tab.

SDTM Datasets creation request completed. Check SDTM Code tab for details.

Type your message here...

Send

SAS® Studio - Develop Code and Flows

NewOptionsViewOpenSave All

SAS Studio compute context

SAS Server

Name

NFScontent

sashls2

data

sinpan

Clinical_Data_Flow_Automationwith...

CDISCPILOT_DEMO

raw-data

tabulations-sdtm

ae.sas7bdat

cm.sas7bdat

dm.sas7bdat

ds.sas7bdat

ex.sas7bdat

lb.sas7bdat

mh.sas7bdat

qs.sas7bdat

relrec.sas7bdat

sc.sas7bdat

se.sas7bdat

sv.sas7bdat

ta.sas7bdat

ti.sas7bdat

ts.sas7bdat

tv.sas7bdat

vs.sas7bdat

CDISCPILOT_Study

SampleData

Study01

RawDataPreprocessing.sas

CyTOF_all_subjects_100KCells

CyTOF_all_subjects_100KCells_Meta...

CyTOF_SDY112_Data

Start Pageae.sas7bdat

_TEMP1.ae

Columns: 33Rows: 1,191

Enter expression

#	STUDYID	DOMAIN	USUBJID	AESQ	AESPID	AETERM	AEDECOD	AELLT
1	CDISCPILOT01	AE	01-701-1015	1	E07	APPLICATION SITE ERYTHEMA	APPLICATION SITE ERYTHEMA	APPLICATION SITE REDNESS
2	CDISCPILOT01	AE	01-701-1015	2	E08	APPLICATION SITE PRURITUS	APPLICATION SITE PRURITUS	APPLICATION SITE ITCHING
3	CDISCPILOT01	AE	01-701-1015	3	E06	DIARRHOEA	DIARRHOEA	DIARRHEA
4	CDISCPILOT01	AE	01-701-1023	1	E08	ERYTHEMA	ERYTHEMA	ERYTHEMA
5	CDISCPILOT01	AE	01-701-1023	2	E09	ERYTHEMA	ERYTHEMA	LOCALIZED ERYTHEMA
6	CDISCPILOT01	AE	01-701-1023	3	E08	ERYTHEMA	ERYTHEMA	ERYTHEMA
7	CDISCPILOT01	AE	01-701-1023	4	E10	ATRIOVENTRICULAR BLOCK SECOND DEGREE	ATRIOVENTRICULAR BLOCK SECOND DEGREE	AV BLOCK SECOND DEGREE
8	CDISCPILOT01	AE	01-701-1028	1	E04	APPLICATION SITE ERYTHEMA	APPLICATION SITE ERYTHEMA	APPLICATION SITE ERYTHEMA
9	CDISCPILOT01	AE	01-701-1028	2	E05	APPLICATION SITE PRURITUS	APPLICATION SITE PRURITUS	APPLICATION SITE ITCHING
10	CDISCPILOT01	AE	01-701-1034	1	E08	APPLICATION SITE PRURITUS	APPLICATION SITE PRURITUS	APPLICATION SITE ITCHING
11	CDISCPILOT01	AE	01-701-1034	2	E07	FATIGUE	FATIGUE	FATIGUE
12	CDISCPILOT01	AE	01-701-1047	1	E06	HIATUS HERNIA	HIATUS HERNIA	HERNIA HIATAL
13	CDISCPILOT01	AE	01-701-1047	2	E06	HIATUS HERNIA	HIATUS HERNIA	HERNIA HIATAL
14	CDISCPILOT01	AE	01-701-1047	3	E08	UPPER RESPIRATORY TRACT INFECTION	UPPER RESPIRATORY TRACT INFECTION	UPPER RESPIRATORY INFECTION
15	CDISCPILOT01	AE	01-701-1047	4	E09	BUNDLE BRANCH BLOCK LEFT	BUNDLE BRANCH BLOCK LEFT	LEFT BUNDLE BRANCH BLOCK
16	CDISCPILOT01	AE	01-701-1097	1	E04	ERYTHEMA	ERYTHEMA	ERYTHEMA
17	CDISCPILOT01	AE	01-701-1097	2	E07	APPLICATION SITE VESICLES	APPLICATION SITE VESICLES	APPLICATION SITE BLISTER
18	CDISCPILOT01	AE	01-701-1097	3	E05	PRURITUS GENERALISED	PRURITUS GENERALISED	GENERALIZED PRURITUS
19	CDISCPILOT01	AE	01-701-1097	4	E06	APPLICATION SITE PRURITUS	APPLICATION SITE PRURITUS	APPLICATION SITE ITCHING
20	CDISCPILOT01	AE	01-701-1097	5	E06	APPLICATION SITE PRURITUS	APPLICATION SITE PRURITUS	APPLICATION SITE ITCHING
21	CDISCPILOT01	AE	01-701-1097	6	E08	PRURITUS GENERALISED	PRURITUS GENERALISED	GENERALIZED PRURITUS
22	CDISCPILOT01	AE	01-701-1097	7	E12	PRURITUS GENERALISED	PRURITUS GENERALISED	GENERALIZED PRURITUS
23	CDISCPILOT01	AE	01-701-1097	8	E11	NASAL CONGESTION	NASAL CONGESTION	NASAL CONGESTION
24	CDISCPILOT01	AE	01-701-1097	9	E10	PHARYNGOLARYNGEAL PAIN	PHARYNGOLARYNGEAL PAIN	SORE THROAT
--								

Recover (100)Submission (0)

Start here as the first step. Press Begin next to 'Identify' to get SDTM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce SDTM Datasets & SAS code.

Identify SDTM Datasets:

Begin

Generate SDTM Datasets:

Start

State:

Approved

Extract TLF shells logic

After indicating valid SDTM and ADaM IG versions and SDTM domains upload the TLF shells document. After uploading, press Start to extract TLF shell details. When content is satisfactory, select "Approved" in status to proceed.

TLF Shells:

Choose File

CDISCPILOT...ells_Small.pdf

Extract

State:

In-Process

Identify and Generate ADaM Datasets

Upload the SAP document and press Begin next to 'Identify' to get ADAM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce ADaM Datasets & SAS code.

SAP:

Choose File

No file chosen

Identify ADaM Datasets:

Begin

Macros File:

Choose File

No file chosen

Generate ADaM Datasets:

Start

State:

In-Process

Generate TLFs

Use this section to generate the TLF reports using specifications derived in Step 1 and 2.

Start

Clinical Data Flow AI Assistant

Study Lineage

Logout

Project History

New Session

Agent Outputs

SDTM Datasets

SDTM Code

TLF Logic

ADaM Datasets

ADaM Code

TLF Code

AE

CM

DM

DS

EX

LB

MH

QS

RELREC

SC

SE

SV

TA

TI

TS

TV

VS

Code

Last Run Log

Last Run Output

Last Run Code

Run Code

Save Code

Run Status: Success

/* PROGRAM: create_sdtm_ae.sas
/* DESCRIPTION: Creates the SDTM Adverse Events (AE) domain from raw data.
/*
/* INPUT: raw.adverse_events, raw.patient_information
/* OUTPUT: sdtm.ae
/*
/* AUTHOR: Clinical Data Programmer AI
/* DATE: 20 August 2025
/*
/* NOTES: This program adheres to the provided SDTM specifications.
/*

options nocenter ls=132 ps=64;

-----;
* Define LIBNAMEs for source Raw data and target SDTM datasets.
-----;
libname RAW "/nfsshare/sashls2/data/sinpan/Clinical_Data_Flow_AutomationwithLLMs/CDISCPILOT_DEMO/raw-data";
libname SDTM "/nfsshare/sashls2/data/sinpan/Clinical_Data_Flow_AutomationwithLLMs/CDISCPILOT_DEMO/tabulations-sdtm";

-----;
* 1. PRE-PROCESSING: Create helper dataset with subject-level reference start date (RFSTDTC).
-----;

data dm_info;
/* Keep only necessary variables from patient_information raw data.
set RAW.PATIENT_INFORMATION(keep=UNIQUE_SUBJ_ID FIRST_TREATMENT_DATE);

/* Rename variables for consistency with SDTM naming conventions.
rename UNIQUE_SUBJ_ID = USUBJID
FIRST_TREATMENT_DATE = RFSTDTC;

/* Keep only subjects who have a reference start date.
if not missing(RFSTDTC);
run;

/* Sort helper dataset by USUBJID to prepare for merging.
proc sort data=dm_info;
by USUBJID;
run;

-----;
* 2. MAIN PROCESSING: Read raw AE data and derive SDTM variables.
-----;

data ae_01;
/* Merge raw adverse events data with the reference start date information

SDTM dataset/variables list generated successfully. See details in the SDTM Datasets tab.

SDTM Datasets creation request completed. Check SDTM Code tab for details.

Thinking...

Type your message here...

Send

CDISCPIL0T01

Page 1 of n

Population	Placebo (N=xxx)	Xanomeline Low Dose (N=xxx)	Xanomeline High Dose (N=xxx)	Total (N=xxx)
Intent-To-Treat (ITT)	xxx (xx%)	xxx (xx%)	xxx (xx%)	xxx (xx%)
Safety	xxx (xx%)	xxx (xx%)	xxx (xx%)	xxx (xx%)
Efficacy	xxx (xx%)	xxx (xx%)	xxx (xx%)	xxx (xx%)
Completer Week 24	xxx (xx%)	xxx (xx%)	xxx (xx%)	xxx (xx%)
Complete Study	xxx (xx%)	xxx (xx%)	xxx (xx%)	xxx (xx%)

- 19 -

Generate SDTM Datasets:

Start

State:

Approved

Extract TLF shells logic

After indicating valid SDTM and ADaM IG versions and SDTM domains upload the TLF shells document. After uploading, press Start to extract TLF shell details. When content is satisfactory, select "Approved" in status to proceed.

TLF Shells:

Choose File CDISCPILOT...ells_Small.pdf

Extract

State:

In-Process

Identify and Generate ADaM Datasets

Upload the SAP document and press Begin next to 'Identify' to get ADaM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce ADaM Datasets & SAS code.

SAP:

Choose File No file chosen

Identify ADaM Datasets:

Begin

Macros File:

Choose File No file chosen

Generate ADaM Datasets:

Start

State:

In-Process

Generate TLFs

Use this section to generate the TLF reports using specifications derived in Step 1 and 2.

Start:

Start

State:

In-Process

Clinical Data Flow AI Assistant

Study Lineage

Logout

Agent Outputs

SDTM Datasets

SDTM Code

TLF Logic

ADaM Datasets

ADaM Code

TLF Code

TLF 1

TLF 2

TLF 3

TLF 1

Tables Layout:

* **Title**: Template 1 Summary of Populations

* **Column Headers**: Placebo (N=xxx), Xanomeline > Low Dose (N=xxx), Xanomeline > High Dose (N=xxx), Total (N=xxx)

* **Sub-Column Headers (under each treatment arm)**:

* **Row Headers**:

* Intent-To-Treat (ITT)

* Safety

* Efficacy

* Completer Week 24

* Complete Study

Data Population Rules:

* **Population**: All Subjects

* **N for columns**: N in column headers represents the number of subjects entered in study (i.e., signed informed consent) for each respective treatment arm or the total.

* **Intent-To-Treat (ITT)**:

* Value: `XXX (XX%)`

* N: Count of subjects belonging to the Intent-To-Treat population within the respective column.

* Percentage: Based on the "N" for the column.

* Definition: The ITT population includes all subjects randomized.

* **Safety**:

* Value: `XXX (XX%)`

* N: Count of subjects belonging to the Safety population within the respective column.

* Percentage: Based on the "N" for the column.

* Definition: The Safety population includes all randomized subjects known to have taken at least one dose of randomized study drug.

* **Efficacy**:

* Value: `XXX (XX%)`

* N: Count of subjects belonging to the Efficacy population within the respective column.

* Percentage: Based on the "N" for the column.

* Definition: The Efficacy population includes all subjects in the safety population who also have at least one post-baseline ADAS-Cog and CIBIC+ assessment.

* **Completer Week 24**:

* Value: `XXX (XX%)`

* N: Count of subjects who completed Week 24 within the respective column.

* Percentage: Based on the "N" for the column.

* **Complete Study**:

* Value: `XXX (XX%)`

* N: Count of subjects who completed the entire study within the respective column.

* Percentage: Based on the "N" for the column.

Footnotes/Notes:

* NOTE: N in column headers represents number of subjects entered in study (i.e., signed informed consent). The ITT population includes all subjects randomized. The Safety population includes all randomized subjects known to have taken at least one dose of randomized study drug. The Efficacy population includes all subjects in the safety population who also have at least one post-baseline ADAS-Cog and CIBIC+ assessment.

TLF Logic extraction request completed. Check TLF Logic tab for details.

Type your message here...

Send

Menu

Home

CDISCPILOT_SAP.pdf

CDISCPILOT_TFL_Shells_Small...

Create

All tools

Edit

Convert

E-Sign

Find text or tools

Share

Ask AI Assistant

All tools

Export a PDF

Edit a PDF

Create a PDF

Combine files

Organize pages

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This appears to be a long document. Save time by reading a summary.

View Summary

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Clinical Data Flow AI Assistant

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Datasets:

Begin

Generate SDTM Datasets:

Start

State:

Approved

Extract TLF shells logic

After indicating valid SDTM and ADaM IG versions and SDTM domains upload the TLF shells document. After uploading, press Start to extract TLF shell details. When content is satisfactory, select "Approved" in status to proceed.

TLF Shells:

Choose File

CDISCPILOT...ells_Small.pdf

Extract

State:

Approved

Identify and Generate ADaM Datasets

Upload the SAP document and press Begin next to 'Identify' to get ADAM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce ADaM Datasets & SAS code.

SAP:

Choose File

CDISCPILOT_SAP.pdf

Identify ADaM Datasets:

Begin

Macros File:

Choose File

Pre_DefinedMacros.sas

Generate ADaM Datasets:

Start

State:

In-Process

Generate TLFs

Use this section to generate the TLF reports using specifications derived in Step 1 and 2.

Start:

Start

State:

In-Process

Agent Outputs

SDTM Datasets	SDTM Code	TLF Logic	ADaM Datasets	ADaM Code	TLF Code
ADSL	COMP24FL	conditional	Completer Week 24 Popula	Derived flag ('Y'/'N') indicating if the subject completed Week 24 of the study.	SAP/TLF: TFL 1
ADSL	ARM	required	Description of Planned Arm	Direct mapping from SDTM DM.ARM.	ADaM IG
ADSL	TRT01P	required	Planned Treatment for Peri	Subject-level identifier for planned treatment in period 01, potentially derived from SDTM	ADaM IG
ADSL	TRT01A	conditional	Actual Treatment for Period	Subject-level identifier for actual treatment in period 01, derived from SDTM EX or other	SAP/TLF: Q4
ADSL	TRTSDT	conditional	Date of First Exposure to Tr	Derived date of first exposure to treatment, often from the minimum date in the SDTM EX	ADaM IG
ADSL	TRTEDT	conditional	Date of Last Exposure to Tr	Derived date of last exposure to treatment, often from the maximum date in the SDTM EX	ADaM IG
ADSL	EOSSTT	permissible	End of Study Status	Subject's status at the end of study or data cutoff, likely sourced from SDTM DS.DSDECD	SAP/TLF: TFL 2
ADSL	DCDECD	permissible	Reason for Discontinuation	Reason for discontinuation from the study, sourced from the SDTM DS dataset. Null for subjects	SAP/TLF: TFL 2
ADSL	DCSREAS	permissible	Reason for Discontinuation	Reason for discontinuation from the study, sourced from the SDTM DS dataset. Null for subjects	SAP/TLF: TFL 2
ADSL	RANDDT	conditional	Date of Randomization	Date of randomization, derived from randomization records or SDTM.	ADaM IG
ADSL	DTHDT	permissible	Date of Death	Derived from SDTM DM.DTHDTC.	SAP/TLF: TFL 2
ADSL	MMSEBL	permissible	Baseline Mini-Mental State	Defined per study requirements. Sourced from relevant SDTM findings domain (e.g., QS).	SAP/TLF: TFL 3
ADSL	DURDIS	permissible	Duration of Disease	Defined per study requirements. Computed as months between date of enrollment and date of onset	SAP/TLF: TFL 3
ADSL	BMIBL	permissible	Baseline Body Mass Index	Defined per study requirements. Sourced from SDTM VS at baseline.	SAP/TLF: TFL 3

SDTM dataset/variables list generated successfully. See details in the SDTM Datasets tab.

SDTM Datasets creation request completed. Check SDTM Code tab for details.

TLF logic extratction complete. See details in the 'Tables-Fiures-Listings' tab.

ADaM dataset/variables list generated successfully. See details in the ADaM Datasets tab.

Type your message here...

Send

Datasets:

Begin

Generate SDTM Datasets:

Start

State:

Approved

Extract TLF shells logic

After indicating valid SDTM and ADaM IG versions and SDTM domains upload the TLF shells document. After uploading, press Start to extract TLF shell details. When content is satisfactory, select "Approved" in status to proceed.

TLF Shells:

Choose File

CDISCPILOT...ells_Small.pdf

Extract

State:

Approved

Identify and Generate ADaM Datasets

Upload the SAP document and press Begin next to 'Identify' to get ADAM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce ADaM Datasets & SAS code.

SAP:

Choose File

CDISCPILOT_SAP.pdf

Identify ADaM Datasets:

Begin

Macros File:

Choose File

Pre_DefinedMacros.sas

Generate ADaM Datasets:

Start

State:

In-Process

Generate TLFs

Use this section to generate the TLF reports using specifications derived in Step 1 and 2.

Start:

Start

State:

In-Process

Clinical Data Flow AI Assistant

Study Lineage

Logout

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New Session

Agent Outputs

SDTM Datasets

SDTM Code

TLF Logic

ADaM Datasets

ADaM Code

TLF Code

ADSL

ADADAS

ADCIBIC

ADNPI

ADLB

ADVS

ADTTE

ADAE

ADCM

ADEX

Code

Last Run Log

Last Run Output

Last Run Code

Run Code

Save Code

Run Status: Success

/* PROGRAM: create_adam_adsl.sas */
/* DESCRIPTION: Creates the Subject-Level Analysis Dataset (ADSL) from SDTM datasets. */
/*
/* INPUT: sdtm.dm, sdtm.ex, sdtm.ds, sdtm.qs, sdtm.vs, sdtm.mh */
/* OUTPUT: adam.adsl */
/*
/* AUTHOR: Clinical Data Programmer AI */
/* DATE: 20 August 2025 */
/*
/* NOTES: This program adheres to the provided ADAM specifications and uses CDISC Pilot SDTM data as input. Version 2 corrects a syntax error in the BMIBL derivation logic. */
/*
/*

options nocenter ls=132 ps=64;

-----;
* Define LIBNAMEs for source SDTM data and target ADAM datasets. *;
-----;
libname SDTM "/nfsshare/sashls2/data/sinpan/Clinical_Data_Flow_AutomationwithLLMs/CDISCPILOT_DEMO/tabulations-sdtm";
libname ADAM "/nfsshare/sashls2/data/sinpan/Clinical_Data_Flow_AutomationwithLLMs/CDISCPILOT_DEMO/analysis-adam";

-----;
* 1. PRE-PROCESSING: Create helper datasets for merging into ADSL. *;
-----;

* 1.1 First and Last Exposure Dates from SDTM.EX for TRTSDT, TRTEDT, and SAFFL derivation *;
proc sql noprint;
create table work.ex_sum as
select distinct
USUBJID,
min(input(EXSTDTC, anydtdte.)) as TRTSDT format=date9.,
max(input(EXENDTC, anydtdte.)) as TRTEDT format=date9.
from sdtm.ex
where EXDOSE is not null and EXDOSE > 0
group by USUBJID;
quit;

* 1.2 Disposition Information from SDTM.DS for EOSSTT, DCDECOD, and COMP24FL derivation *;
data work.ds_dispo;
set sdtm.ds;
where DSCAT = 'DISPOSITION EVENT';
keep USUBJID DSDECOD;
run;

**** sent data=work.ds_dispo code=work.ds_dispo ****

SDTM dataset/variables list generated successfully. See details in the SDTM Datasets tab.

SDTM Datasets creation request completed. Check SDTM Code tab for details.

TFL logic extratction complete. See details in the 'Tables-Fiures-Listings' tab.

ADaM dataset/variables list generated successfully. See details in the ADaM Datasets tab.

ADaM Datasets creation request completed. Check ADaM Code tab for details.

Type your message here...

Send

Datasets:

Begin

Generate SDTM Datasets:

Start

State:

Approved

Extract TLF shells logic

After indicating valid SDTM and ADaM IG versions and SDTM domains upload the TLF shells document. After uploading, press Start to extract TLF shell details. When content is satisfactory, select "Approved" in status to proceed.

TLF Shells:

Choose File

CDISCPILLOT...ells_Small.pdf

Extract

State:

Approved

Identify and Generate ADaM Datasets

Upload the SAP document and press Begin next to 'Identify' to get ADAM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce ADaM Datasets & SAS code.

SAP:

Choose File

CDISCPILLOT_SAP.pdf

Identify ADaM Datasets:

Begin

Macros File:

Choose File

Pre_DefinedMacros.sas

Generate ADaM Datasets:

Start

State:

In-Process

Generate TLFs

Use this section to generate the TLF reports using specifications derived in Step 1 and 2.

Start:

Start

State:

In-Process

Clinical Data Flow AI Assistant

Study Lineage

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Agent Outputs

SDTM Datasets

SDTM Code

TLF Logic

ADaM Datasets

ADaM Code

TLF Code

ADSL

ADADAS

ADCIBIC

ADNPI

ADLB

ADVS

ADTTE

ADAE

ADCM

ADEX

Code

Last Run Log

Last Run Output

Last Run Code

Run Code

Save Code

Run Status: Success

```
/* *****
/* PROGRAM:      create_adam_adnpi.sas
/* DESCRIPTION:  Creates the ADNPI (Neuropsychiatric Inventory) analysis dataset.
/*
/* INPUT:       sdtm.dm, sdtm.qs
/* OUTPUT:      adam.adnpi
/*
/* AUTHOR:      Clinical Data Programmer AI
/* DATE:        20 August 2025
/*
/* NOTES:       This program adheres to the provided ADAM specifications for ADNPI.
/*               The source SDTM.QS data provided does not contain records for the
/*               Neuropsychiatric Inventory (QTESTCD='NPIX'). As a result, the output
/*               dataset ADAM.ADNPI will be empty. The logic is valid for data that
/*               contains the necessary records.
/*
/* V2.0 Fixes:   - Corrected ADAM libname path to an accessible path.
/*               - Corrected data step merge logic to apply WHERE condition only to the
/*               SDTM.QS dataset using a dataset option, resolving the "Variable not found"
/*               error.
/* *****

options nocenter ls=132 ps=64;

*-----*
* Define LIBNAMEs for source SDTM data and target ADAM datasets.
*-----*
libname SDTM "/nfsshare/sashls2/data/sinpan/Clinical_Data_Flow_AutomationwithLLMs/CDISCPILLOT_DEMO/tabulations-sdtm";
libname ADAM "/nfsshare/sashls2/data/sinpan/Clinical_Data_Flow_AutomationwithLLMs/CDISCPILLOT_DEMO/analysis-adam";

*-----*
* 1. PRE-PROCESSING: Create a subject-level helper dataset from SDTM.DM.
*   This dataset serves as a base for ADSL variables like STUDYID and USUBJID.
*-----*
proc sort data=sdtm.dm out=dm_sorted;
  by usubjid;
run;

data adsl_base;
  set dm_sorted;
  /* Per ADSL IG, only keep subjects who were randomized/treated. */
  /* ARMCD is non-missing for such subjects. */
  if armcd ne "" and armcd ne "Scrnfail";
  keep studyid usubjid;
run;

*-----*
* 2. DATA DERIVATION: Create the ADAM ADNPI dataset
*-----*
```

SDTM dataset/variables list generated successfully. See details in the SDTM Datasets tab.

SDTM Datasets creation request completed. Check SDTM Code tab for details.

TFL logic extratction complete. See details in the 'Tables-Fiures-Listings' tab.

ADaM dataset/variables list generated successfully. See details in the ADaM Datasets tab.

ADaM Datasets creation request completed. Check ADaM Code tab for details.

Type your message here...

Send

SAS® Studio - Develop Code and Flows

NewOptionsViewOpenSave All

SAS Studio compute context

SAS Server

Name

NFScontent

sashls2

data

sinpan

Adverse Events Chatbot

Bayer

CLI_TEST

CLI_Test2

CLI_Test3

Clinical_Data_Flow_Automationwith...

CDISCPILLOT_DEMO

analysis-adam

adadas.sas7bdat

adae.sas7bdat

adcibic.sas7bdat

adcm.sas7bdat

adex.sas7bdat

adlb.sas7bdat

adnpi.sas7bdat

adsl.sas7bdat

adtte.sas7bdat

advs.sas7bdat

programs

raw-data

tabulations-sdtm

CDISCPILLOT_Study

SampleData

Study01

RawDataPreprocessing.sas

CyTOF_all_subjects_100KCells

CyTOF_all_subjects_100KCells_Meta...

CyTOF_SDY112_Data

...

Start Pageadae.sas7bdat

_TEMP1.adae

Columns: 11Rows: 1,191

Enter expression

#	STUDYID	USUBJID	AESEQ	AETERM	AEDECOD	AEBODSYS
1	CDISCPILLOT01	01-701-1015	1	APPLICATION SITE ERYTHEMA	APPLICATION SITE ERYTHEMA	GENERAL DISORDERS AND ADMINISTRATION SITE CONDITION
2	CDISCPILLOT01	01-701-1015	2	APPLICATION SITE PRURITUS	APPLICATION SITE PRURITUS	GENERAL DISORDERS AND ADMINISTRATION SITE CONDITION
3	CDISCPILLOT01	01-701-1015	3	DIARRHOEA	DIARRHOEA	GASTROINTESTINAL DISORDERS
4	CDISCPILLOT01	01-701-1023	1	ERYTHEMA	ERYTHEMA	SKIN AND SUBCUTANEOUS TISSUE DISORDERS
5	CDISCPILLOT01	01-701-1023	2	ERYTHEMA	ERYTHEMA	SKIN AND SUBCUTANEOUS TISSUE DISORDERS
6	CDISCPILLOT01	01-701-1023	3	ERYTHEMA	ERYTHEMA	SKIN AND SUBCUTANEOUS TISSUE DISORDERS
7	CDISCPILLOT01	01-701-1023	4	ATRIOVENTRICULAR BLOCK SECOND DEGREE	ATRIOVENTRICULAR BLOCK SECOND DEGREE	CARDIAC DISORDERS
8	CDISCPILLOT01	01-701-1028	1	APPLICATION SITE ERYTHEMA	APPLICATION SITE ERYTHEMA	GENERAL DISORDERS AND ADMINISTRATION SITE CONDITION
9	CDISCPILLOT01	01-701-1028	2	APPLICATION SITE PRURITUS	APPLICATION SITE PRURITUS	GENERAL DISORDERS AND ADMINISTRATION SITE CONDITION
10	CDISCPILLOT01	01-701-1034	1	APPLICATION SITE PRURITUS	APPLICATION SITE PRURITUS	GENERAL DISORDERS AND ADMINISTRATION SITE CONDITION
11	CDISCPILLOT01	01-701-1034	2	FATIGUE	FATIGUE	GENERAL DISORDERS AND ADMINISTRATION SITE CONDITION
12	CDISCPILLOT01	01-701-1047	1	HIATUS HERNIA	HIATUS HERNIA	GASTROINTESTINAL DISORDERS
13	CDISCPILLOT01	01-701-1047	2	HIATUS HERNIA	HIATUS HERNIA	GASTROINTESTINAL DISORDERS
14	CDISCPILLOT01	01-701-1047	3	UPPER RESPIRATORY TRACT INFECTION	UPPER RESPIRATORY TRACT INFECTION	INFECTIONS AND INFESTATIONS
15	CDISCPILLOT01	01-701-1047	4	BUNDLE BRANCH BLOCK LEFT	BUNDLE BRANCH BLOCK LEFT	CARDIAC DISORDERS
16	CDISCPILLOT01	01-701-1097	1	ERYTHEMA	ERYTHEMA	SKIN AND SUBCUTANEOUS TISSUE DISORDERS
17	CDISCPILLOT01	01-701-1097	2	APPLICATION SITE VESICLES	APPLICATION SITE VESICLES	GENERAL DISORDERS AND ADMINISTRATION SITE CONDITION
18	CDISCPILLOT01	01-701-1097	3	PRURITUS GENERALISED	PRURITUS GENERALISED	SKIN AND SUBCUTANEOUS TISSUE DISORDERS
19	CDISCPILLOT01	01-701-1097	4	APPLICATION SITE PRURITUS	APPLICATION SITE PRURITUS	GENERAL DISORDERS AND ADMINISTRATION SITE CONDITION
20	CDISCPILLOT01	01-701-1097	5	APPLICATION SITE PRURITUS	APPLICATION SITE PRURITUS	GENERAL DISORDERS AND ADMINISTRATION SITE CONDITION
21	CDISCPILLOT01	01-701-1097	6	PRURITUS GENERALISED	PRURITUS GENERALISED	SKIN AND SUBCUTANEOUS TISSUE DISORDERS
22	CDISCPILLOT01	01-701-1097	7	PRURITUS GENERALISED	PRURITUS GENERALISED	SKIN AND SUBCUTANEOUS TISSUE DISORDERS
23	CDISCPILLOT01	01-701-1097	8	NASAL CONGESTION	NASAL CONGESTION	RESPIRATORY, THORACIC AND MEDIASTINAL DISORDERS
24	CDISCPILLOT01	01-701-1097	9	PHARYNGOLARYNGEAL PAIN	PHARYNGOLARYNGEAL PAIN	RESPIRATORY, THORACIC AND MEDIASTINAL DISORDERS
...	...	...	...	...	...	...

Recover (100)Submission (0)

Study Objectives/Endpoints

Primary Objectives (SAP Section 3.1.1): To determine if there is a statistically significant relationship between the change in both the ADAS-Cog (11) and CIBIC+ scores, and drug dose; To document the safety profile of the xanomeline TTS.

Secondary Objective (SAP Section 3.1.2): To assess the dose-dependent improvement in behavior based on the Revised Neuropsychiatric Inventory (NPI-X).

Primary Endpoints (SAP Section 3.2.1): Alzheimer's Disease Assessment Scale - Cognitive Subscale (ADAS-Cog (11)) at Week 24; Video-referenced Clinician's Interview-based Impression of Change (CIBIC+) at Week 24.

Secondary Endpoints (SAP Section 3.2.2): ADAS-Cog (11) at Weeks 8 and 16; CIBIC+ at Weeks 8 and 16; Mean Revised Neuropsychiatric Inventory (NPI-X) from Week 4 to Week 24.

Safety Endpoints (SAP Section 3.2.2): Adverse events; Vital signs (weight, standing and supine blood pressure, heart rate); Laboratory evaluations.

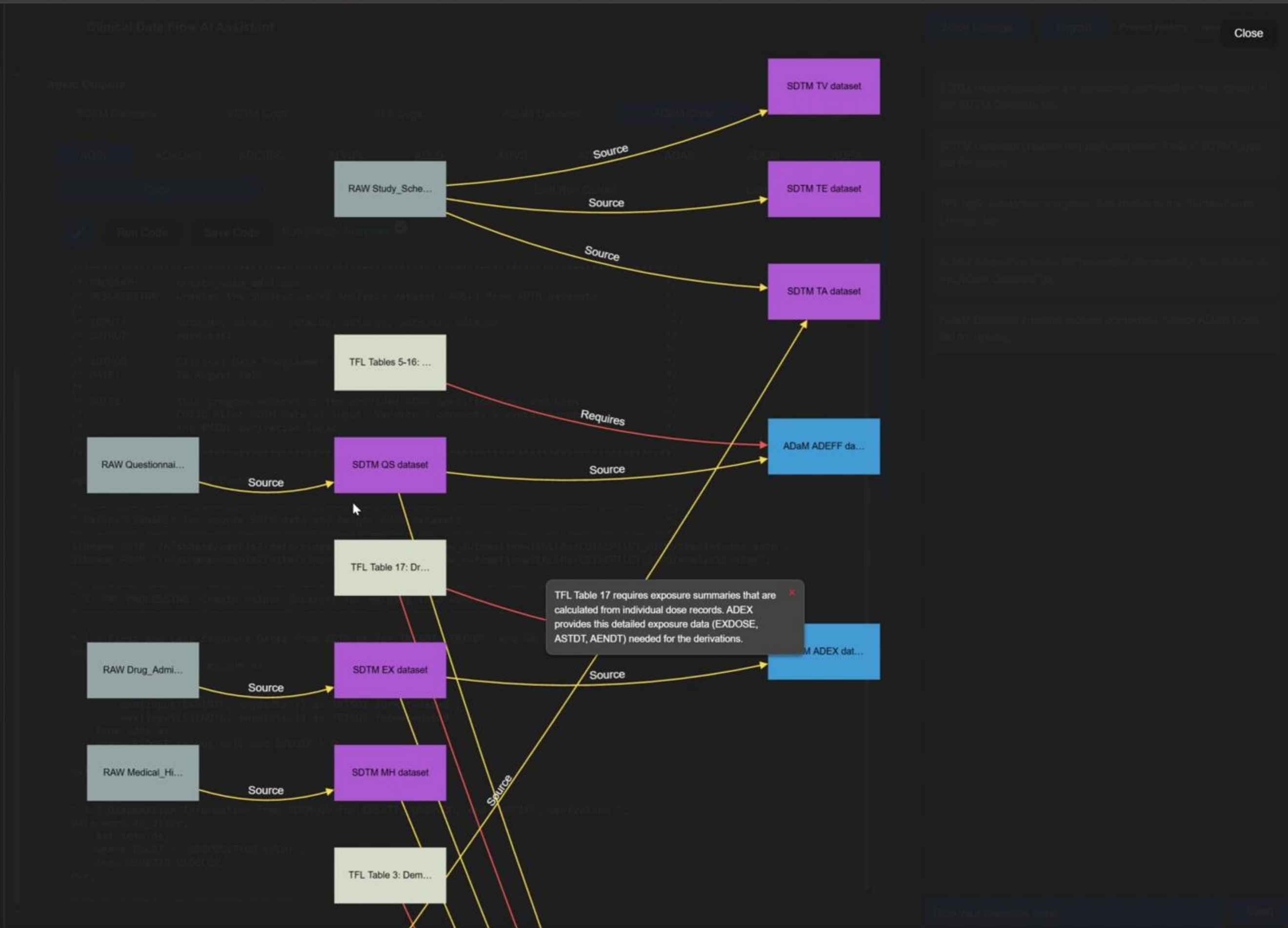
Other Safety Endpoints (SAP Section 11.2): Time to first dermatological event, which will be analyzed using Kaplan-Meier methods.

Graph Node Legend

- Requirement as specified in SAP or TLF
- ADaM Dataset
- SDTM Dataset
- RAW Dataset

Graph Edge Legend

- Source
- Requires



TLF Shells:

Choose File CDISCILOT...ells_Small.pdf

Extract

State:

Approved

Identify and Generate ADaM Datasets

Upload the SAP document and press Begin next to 'Identify' to get ADAM datasets, variables, and mapping logic. Once satisfied, click Start next to 'Generate' to produce ADaM Datasets & SAS code.

SAP:

Choose File No file chosen

Identify ADaM Datasets:

Begin

Macros File:

Choose File No file chosen

Generate ADaM Datasets:

Start

State:

Approved

Generate TLFs

Use this section to generate the TLF reports using specifications derived in Step 1 and 2.

Start:

Start

State:

In-Process

Clinical Data Flow AI Assistant

Study Lineage

Logout

Project History

New Session

Agent Outputs

SDTM Datasets

SDTM Code

TLF Logic

ADaM Datasets

ADaM Code

TLF Code

TLF 1

TLF 2

TLF 3

Code

Last Run Log

Last Run Output

Last Run Code

Run Code

Save Code

Run Status: Success

```
/* *****  
/* 2. INPUT DATA PREPARATION  
/* - Identify subjects for efficacy population.  
/* - Standardize USUBJID length to prevent merge warnings.  
/* *****  
  
* Get subjects with at least one post-baseline ADAS-Cog assessment;  
proc sql noprint;  
  create table eff_adas_tmp as  
  select distinct USUBJID  
  from ADAM.ADADAS  
  where ABLFL ne 'Y';  
quit;  
  
* Get subjects with at least one post-baseline CIBIC+ assessment;  
proc sql noprint;  
  create table eff_cibic_tmp as  
  select distinct USUBJID  
  from ADAM.ADCIBIC  
  where ABLFL ne 'Y';  
quit;  
  
* Create datasets with a standardized, sufficient length for USUBJID to avoid merge warnings;  
data eff_adas;  
  length USUBJID $30;  
  set eff_adas_tmp;  
run;  
  
data eff_cibic;  
  length USUBJID $30;  
  set eff_cibic_tmp;  
run;
```

TLF Logic extraction request completed. Check TLF Logic tab for details.

TLF generation request completed. Check Generated TLF Code tab for status.

TLF generation request completed. Check Generated TLF Code tab for status.

Type your message here...

Send

Vite + React + TS

SAS® Studio

Not secure

https://sashls2.eastus.cloudapp.azure.com/SASStudio/

Relaunch to update

go - Google Search

Imported

ULINE

mnist

Imported (1)

VIYA Demo Tenant

GPU-SAS Viya

ChatGPT

saspy-examples/SA...

Iqvia

SAS Communities Li...

GTP Workbench Ten...

Data Maker

Another Wokbench...

All Bookmarks

SAS® Studio - Develop Code and Flows

New

Options

View

Open

Save All

SAS Studio compute context

SAS Server

Name

NFScontent

sashls2

data

sinpan

Clinical_Data_Flow_Automationwith...

CDISCPILOT_DEMO

analysis-adam

outputs

demographics_summary.html

demographics_summary.rtf

t_populations.html

t_populations.rtf

programs

raw-data

tabulations-sdtm

CDISCPILOT_Study

SampleData

Study01

RawDataPreprocessing.sas

CyTOF_all_subjects_100KCells

CyTOF_all_subjects_100KCells_Meta...

CyTOF_SDY112_Data

Derived Variables - LLM

Forecasting

fruit_images

Start Page

t_populations.html

demographics_summary.html

Display

Chi-Square	4	1.4728	0.0519
Likelihood Ratio Chi-Square	4	2.0929	0.7187
Mantel-Haenszel Chi-Square	1	0.3671	0.5446
Phi Coefficient		0.0761	
Contingency Coefficient		0.0759	
Cramer's V		0.0538	
WARNING: 33% of the cells have expected counts less than 5. Chi-Square may not be a valid test.			

Sample Size = 254

Template 3 Summary of Demographic and Baseline Characteristics

		Placebo (N=86)	Xanomeline Low Dose (N=84)	Xanomeline High Dose (N=84)	Total (N=254)	p-value[1]
Age (y)	<65 yrs	14(16)	8(10)	11(13)	33(13)	
	65-80 yrs	42(49)	47(56)	55(65)	144(57)	
	>80 yrs	30(35)	29(35)	18(21)	77(30)	
Sex	n	86	84	84	254	
	Female	53(62)	50(60)	40(48)	143(56)	
	Male	33(38)	34(40)	44(52)	111(44)	
Origin	n	86	84	84	254	
	Black	8(9)	6(7)	9(11)	23(9)	
	White	78(91)	78(93)	74(88)	230(91)	

SAS Server: /nfsshare/sashls2/data/sinpan/Clinical_Data_Flow_AutomationwithLLMs/CDISCPILOT_DEMO/outputs/demographics_summary.html

Recover (100)

Submission (0)

SAS - Generative AI in Action



SAS Copilots

Accelerate Development
Lifecycle



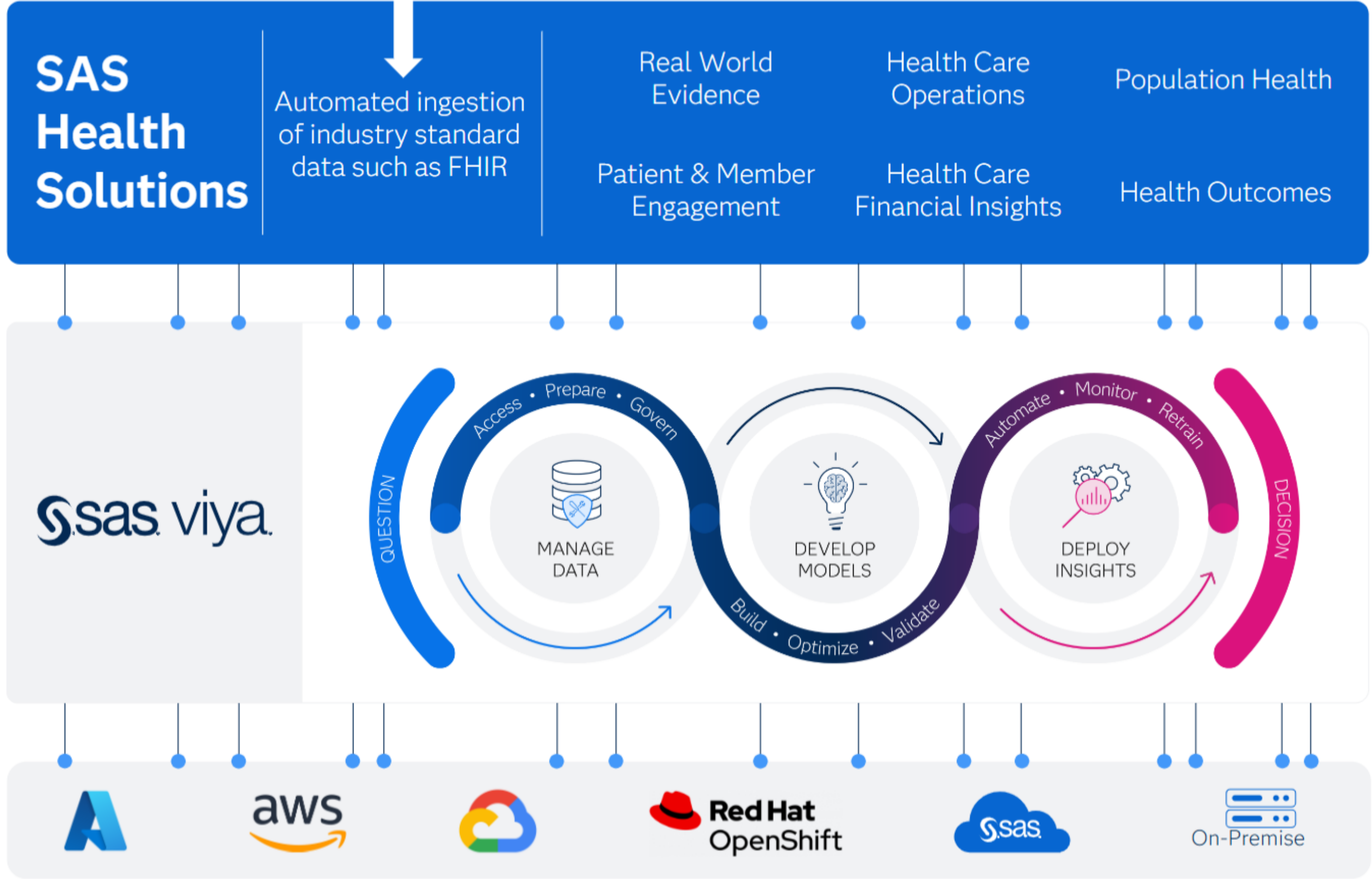
SAS Synthetic Data Generation

Mitigate Data
Quality and Scarcity



SAS Solution

Accelerate Business
Lifecycle



SAS Health Copilot

[Terms and Conditions](#)

Common dataSingleStore Target 2ModelSAS Health GPT4o - Singlestore

model connection:name:*

M Michelle Hagar

Female Patients between 18 to 45 years of age with Type 2 Diabetes

 New conversation

TODAY

Female Patients between 18 to 45 ye...
Female Patients between 18 to 45 ye...
PATIENTS WITH MOST RECENT ENC...
Female Patients between 18 to 45 ye...
Female Patients between 18 to 45 ye...
Female Patients between 18 to 45 ye...

YESTERDAY

Female Patients between 18 to 45 ye...
Female Patients between 18 to 45 ye...
Female Patients between 18 to 45 ye...
Female Patients between 18 to 45 ye...
TEST Sanofi
Female Patients between 18 to 45 ye...
Female Patients between 18 to 45 ye...
Female Patients between 18 to 45 ye...
Female Patients between 18 to 45 ye...
Female Patients between 18 to 45 ye...
Female Patients between 18 to 45 ye...
Create a cohort of pediatric patients ...
Female Patients between 18 to 45 ye...

LAST 7 DAYS

Enter your question or criteria

All generated queries and resulting data sets may be incorrect. Confirm the query captures your desired conditions.

SAS Health Copilot

[Terms and Conditions](#)

Common data SingleStore Target 2 Model SAS Health GPT4o - Singlestore
model connection: name: *

M

 Michelle Hagar
Female Patients between 18 to 45 years of age with Type 2 Diabetes

> SQL:

Data Preview

Create data view

🔍 First_Name	🔍 Last_Name	📅 Birth_Date	🔍 condition_cd	🔍 condition_display	🕒 onset_dttm
Albertine688	Mayer370	Sep 21, 1979	1551000119108	Nonproliferative retinopathy due to type 2 diabetes mellitus (disorder)	Feb 3, 2017, 12:12 PM
Albertine688	Mayer370	Sep 21, 1979	1551000119108	Nonproliferative retinopathy due to type 2 diabetes mellitus (disorder)	Feb 3, 2017, 12:12 PM
Albertine688	Mayer370	Sep 21, 1979	1551000119108	Nonproliferative retinopathy due to type 2 diabetes mellitus (disorder)	Feb 3, 2017, 12:12 PM
Albertine688	Mayer370	Sep 21, 1979	422034002	Retinopathy due to type 2 diabetes mellitus (disorder)	Jan 29, 2016, 12:12 PM
Albertine688	Mayer370	Sep 21, 1979	1551000119108	Nonproliferative retinopathy due to type 2 diabetes mellitus (disorder)	Feb 3, 2017, 12:12 PM
Albertine688	Mayer370	Sep 21, 1979	422034002	Retinopathy due to type 2 diabetes mellitus (disorder)	Jan 29, 2016, 12:12 PM

Enter your question or criteria

AI generated queries and resulting data sets may be incorrect. Confirm the query captures your desired conditions.

New conversation

TODAY

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

PATIENTS WITH MOST RECENT ENC...

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

YESTERDAY

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

TEST Sanofi

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

Create a cohort of pediatric patients ...

Female Patients between 18 to 45 ye...

SAS Health Copilot

Common data model

SingleStore Target 2 ▾

Model

SAS Health GPT4o - Singlestore ▾

connection:

name:*

[Terms and Conditions](#)



S

SAS Administrator

Identify asthma patients (Condition) and measure asthma control over the past 12 months (Observation). Track asthma attacks or hospitalizations as a dependent variable, and use medication type (MedicationRequest), adherence (MedicationRequest) and age (Patient) as covariates

 > SQL:

Data Preview

Create data view

 patient_id	 given_nm	 family_nm	 birth_dt	 asthma_hospitalizations	 medication_types
30b80354-d4ff-560b-82f0-32b9843f7405	Leroy603	Stoltenberg489	Jul 20, 1999	270	albuterol 0.83 MG/ML Inhalation Solution,albuterol 5 MG/ML Inhalation Solution,budesonide 0.25 MG/ML Inhalation
b90ab23f-bba4-f9a7-5d5d-6e474dabaf6c	Jeffery551	VonRueden376	Jan 24, 1997	360	albuterol 0.417 MG/ML Inhalation Solution,72 HR Fentanyl 0.025 MG/HR Transdermal System,Acetaminophen 325 M
7043317e-d41f-e150-0dc4-810e7dc47e99	Newton741	Hansen121	Mar 3, 1998	39	Acetaminophen 325 MG Oral Tablet [Tylenol],120 ACTUAT fluticasone propionate 0.044 MG/ACTUAT Metered Dose
59edec67-25db-6adc-3271-791db9a93364	Melany872	Ruecker817	Mar 31, 1967	335	Hydrochlorothiazide 25 MG Oral Tablet,amLODIPine 2.5 MG Oral Tablet,Breath-Actuated 120 ACTUAT beclomethasc
8b315360-7efa-6338-f902-d15fee9478cd	Cassidy160	Prosacco716	Oct 10, 1995	450	albuterol 0.83 MG/ML Inhalation Solution,budesonide 0.25 MG/ML Inhalation Suspension,Camila 28 Day Pack,ferrou
d6a4a70c-e6e0-eec1-85d4-71d9dc9745fb	Jules135	Rodriguez71	Mar 5, 1998	120	NDA021457 200 ACTUAT albuterol 0.09 MG/ACTUAT Metered Dose Inhaler [ProAir],NDA020800 0.3 ML Epinephrin

 The data view "Asthma_larger_cohort" has been created in the schema "HLS_CDM".

Enter your question or criteria



AI-generated queries and resulting data sets may be incorrect. Confirm the query captures your desired conditions.

 New conversation

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

TEST Si

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

Female Patients between 18 to 45 ye...

Create a cohort of pediatric patients ...

Female Patients between 18 to 45 ye...

YESTERDAY

TEST Colonoscopy Call

TEST Asthma Patients

TEST Adhoc Queries

Adhoc Queries



Editing

Asthma_Cohort_March

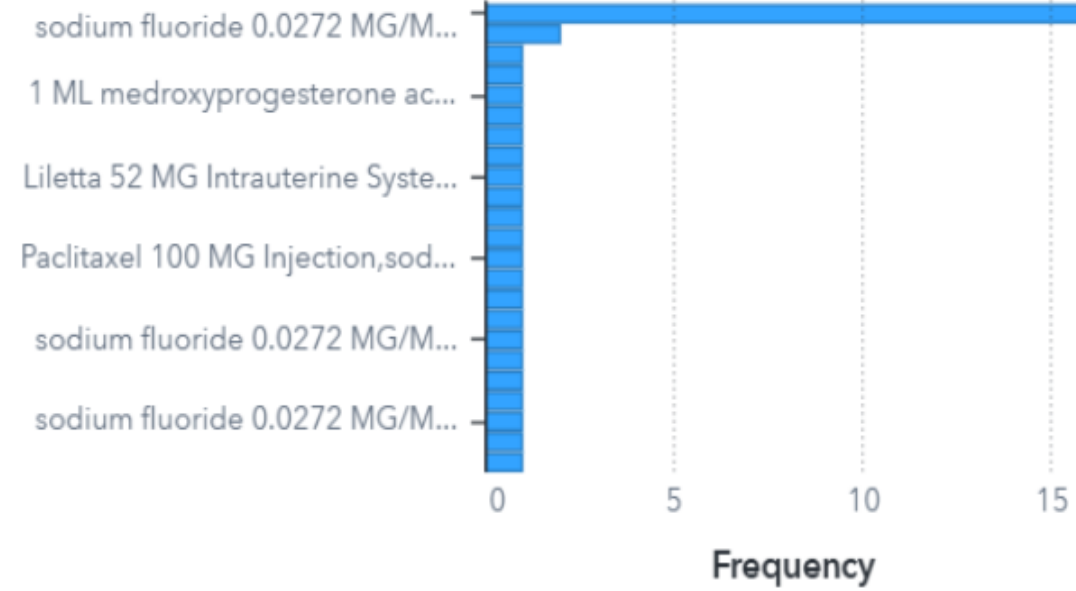


Page 1 : +



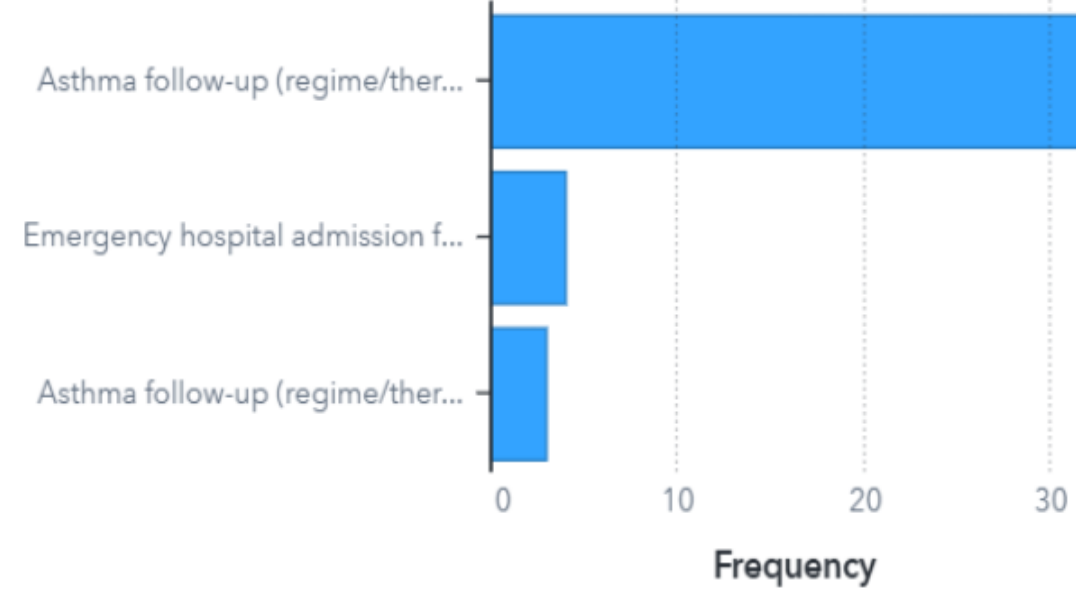
Frequency of Medication Types

Medication_Types

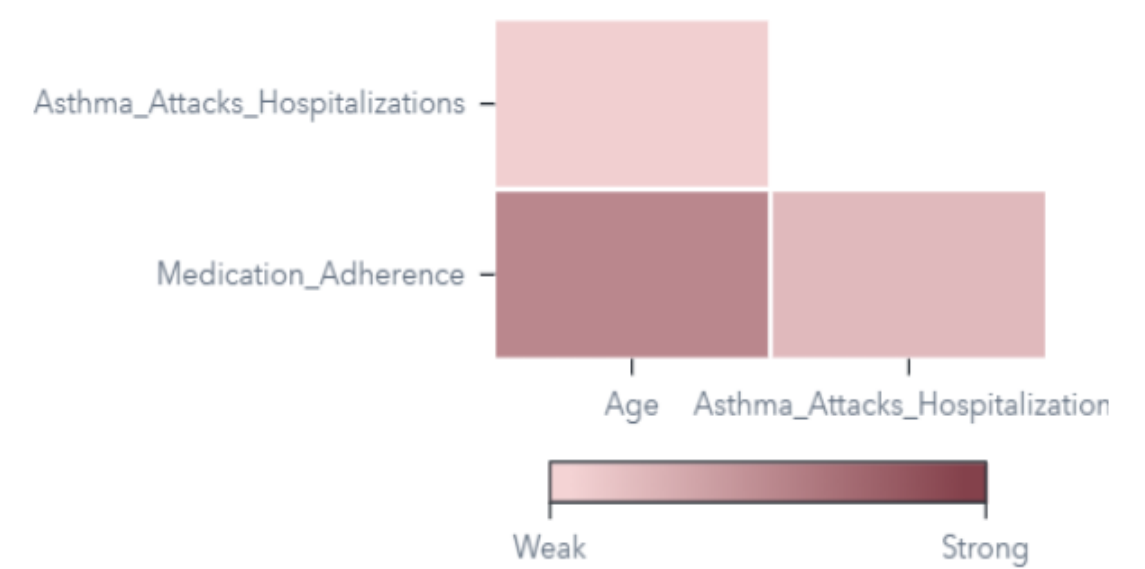


Frequency of Hospital Visit Types

Hospital_Visit_Types

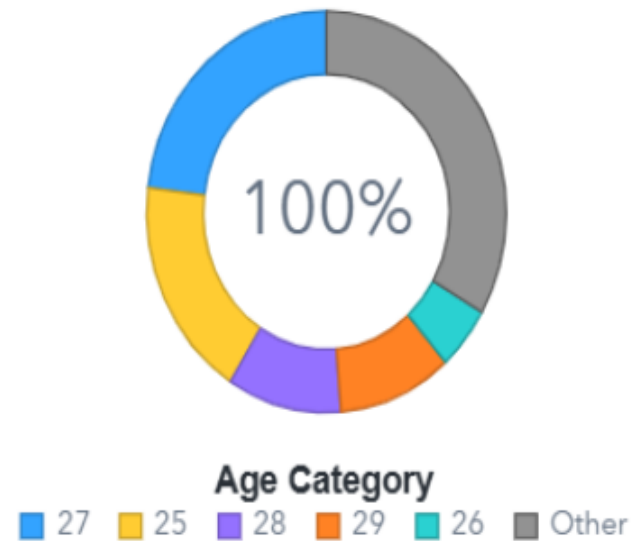


Correlation of Medication Adherence and Asthma Attacks with Age



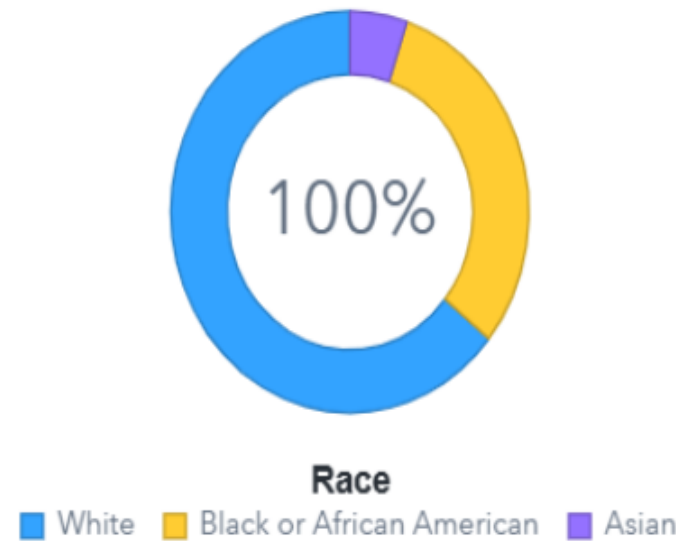
Demographics

Frequency Percent



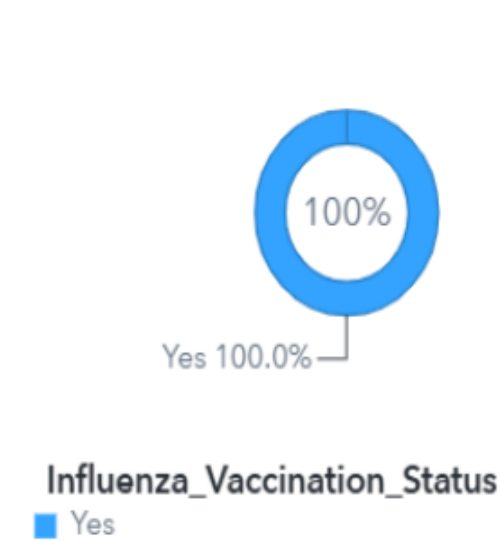
Demographics

Frequency Percent

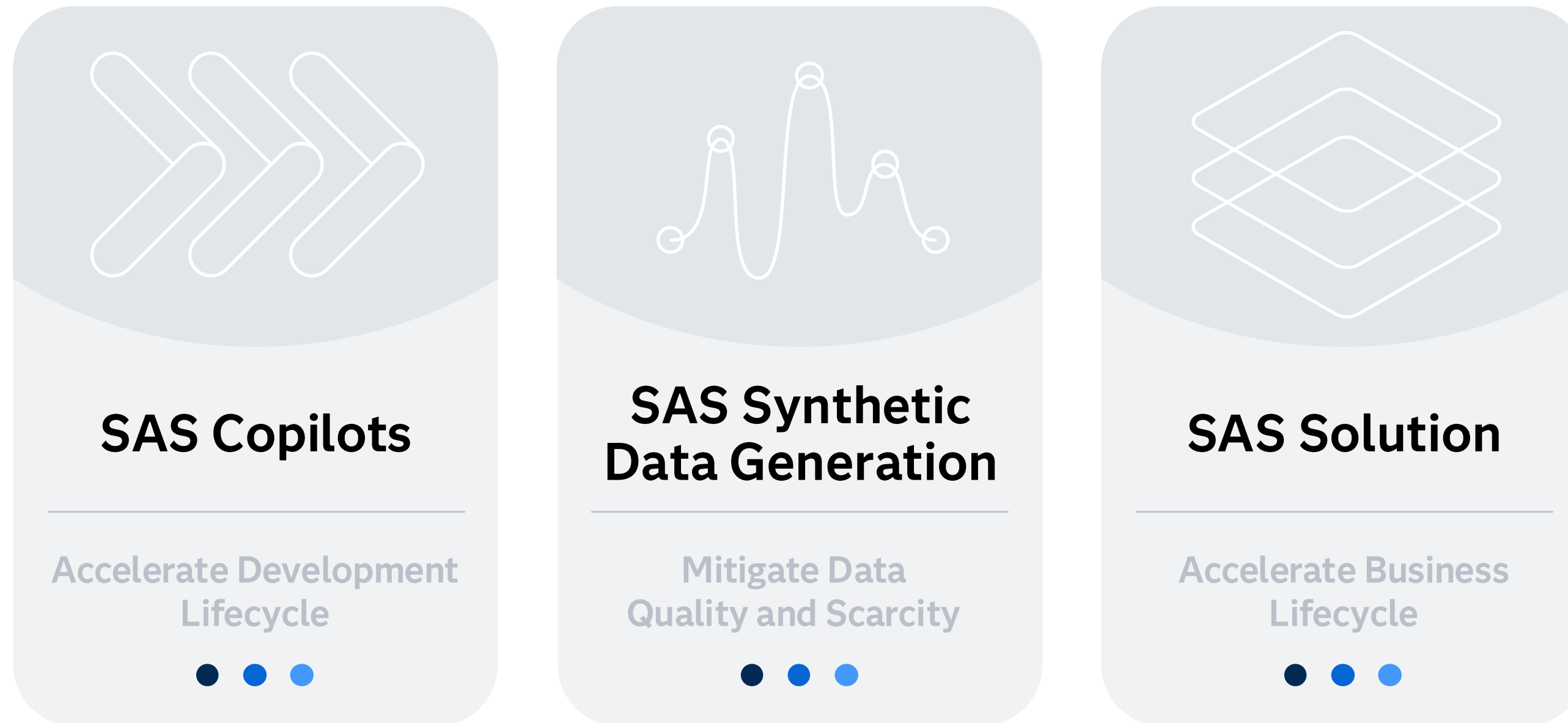


Frequency Percent of Influenza_Vaccination_Status

Frequency Percent



SAS - Generative AI in Action



Help with day-to-day development tasks

Improve the end-to-end development process

Embedding Gen AI into the full range of SAS Solutions

Thank you!

Andy Bayliss

Senior Technical Account Director

SAS Global HLS Team

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sas.com

