

Assignment 9: Process analysis and discovery for patient admissions in a hospital using Celonis

Requirements Specification:

1. Login/signup to Celonis cloud from your personal computer.

Logged into Celonis Cloud.

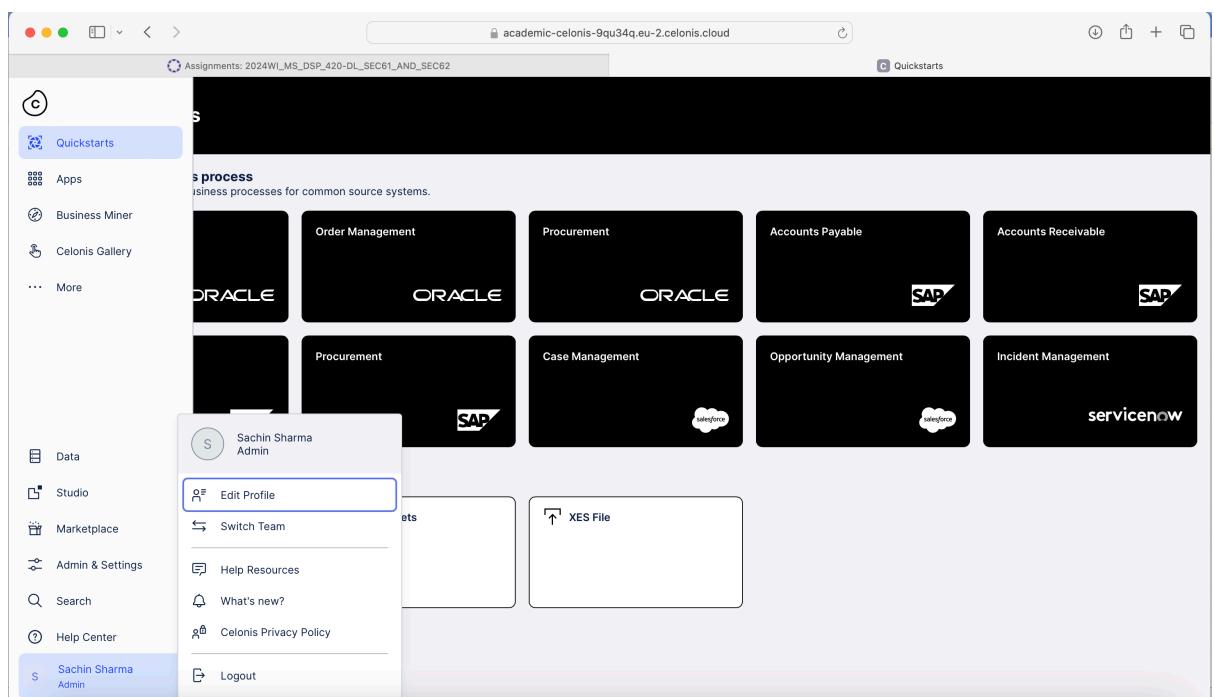


Fig 1: Celonis Dashboard after login

2. Create a New Data Pool for Hospital Dataset in your Celonis account.

Selected the Data Pool option in Celonis Cloud.

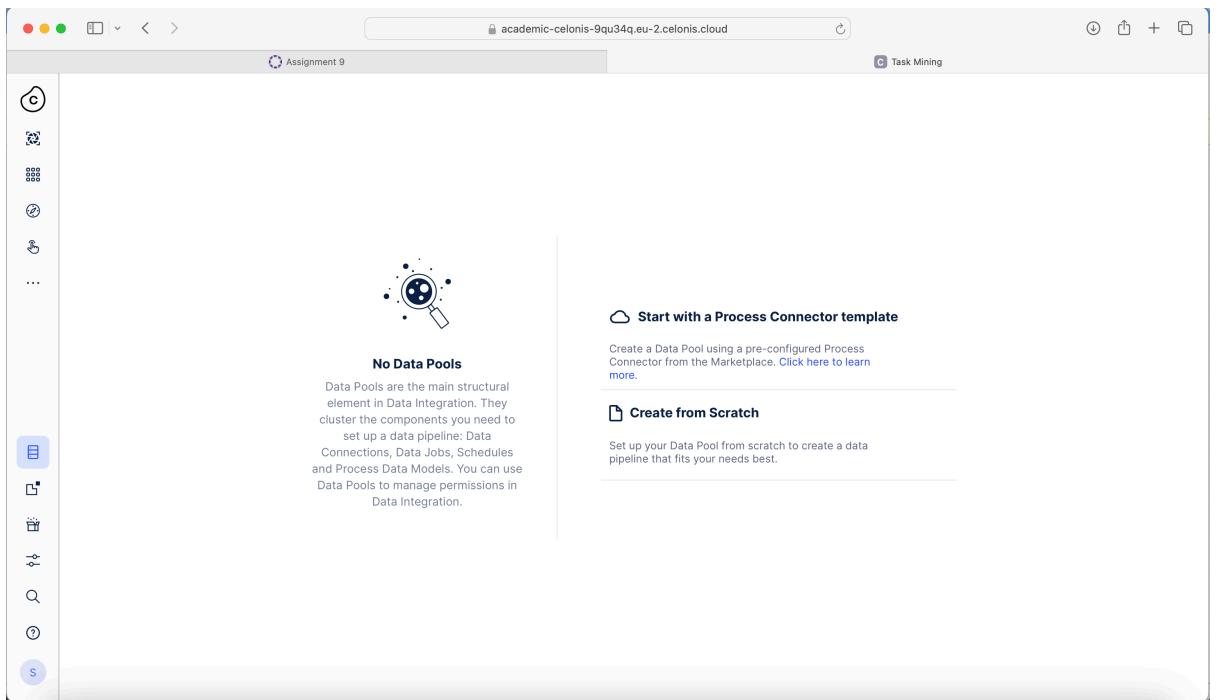


Fig 2: Data Pool Screen

3. Click on Create from Scratch.

Clicked on Create from Scratch option.

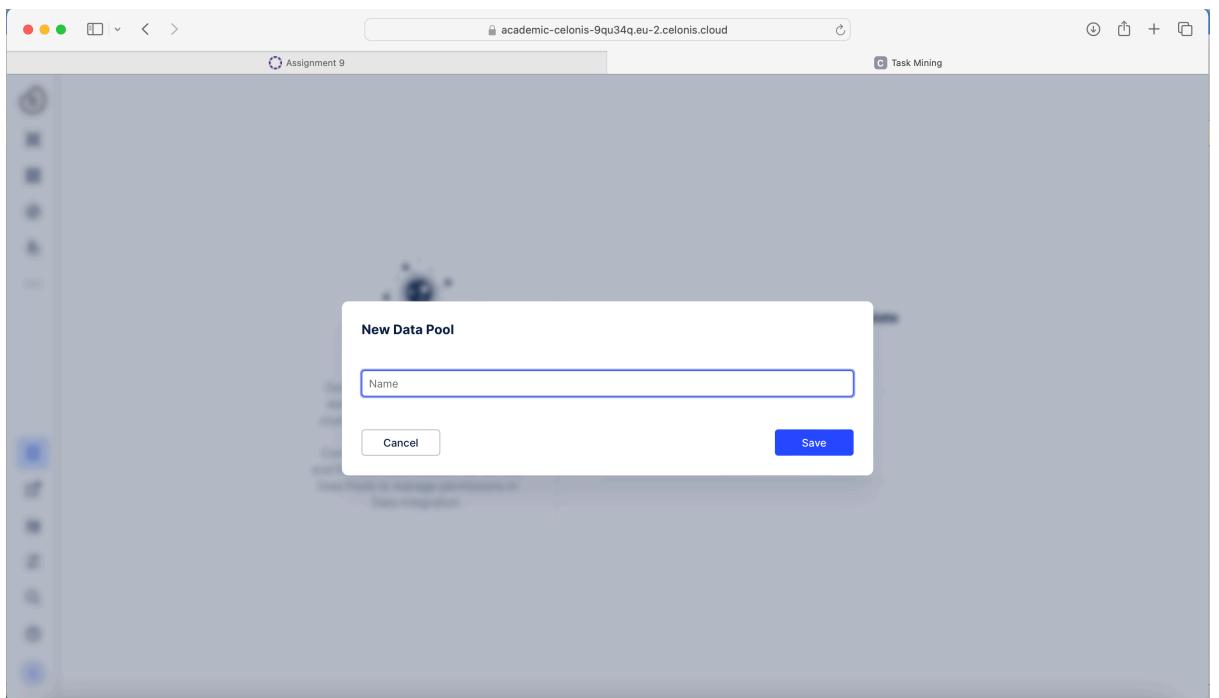


Fig 3: New Data Pool Popup

4. Name your Data Pool and save it

Named Data Pool as: Health_Care_Hospital_WI2024.

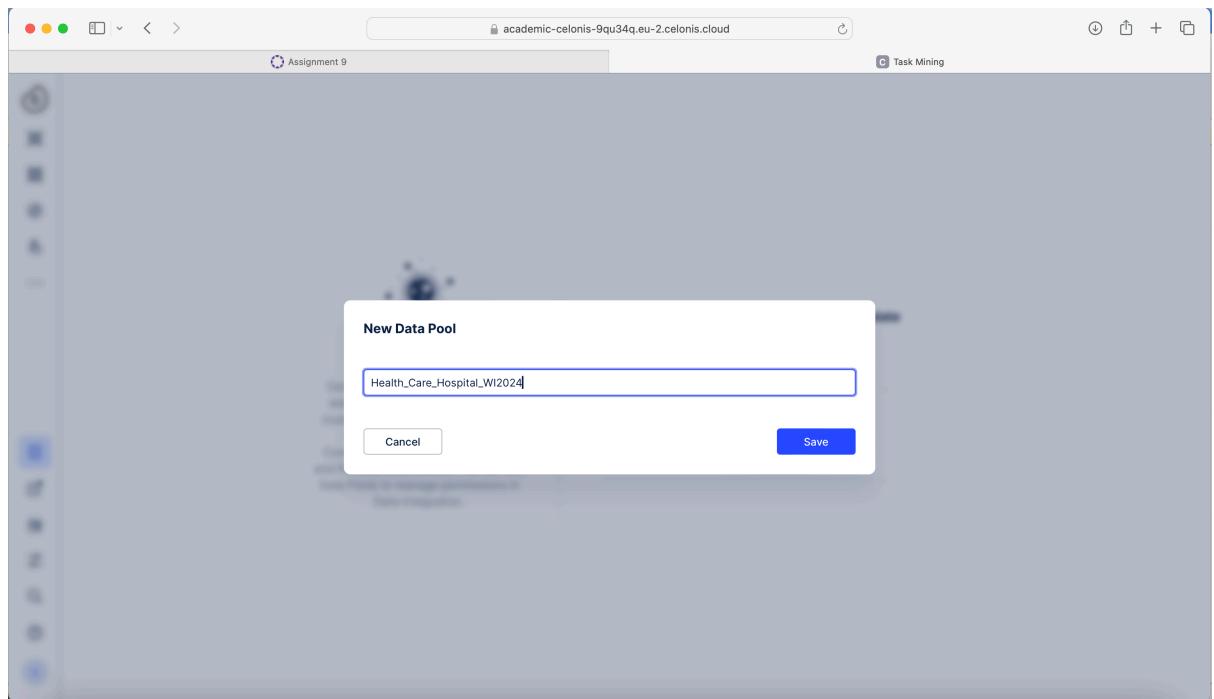


Fig 4: Data Pool Created

5. Click Connect to Data Source.

After the Data Pool created we selected the Connect to Data Source option.

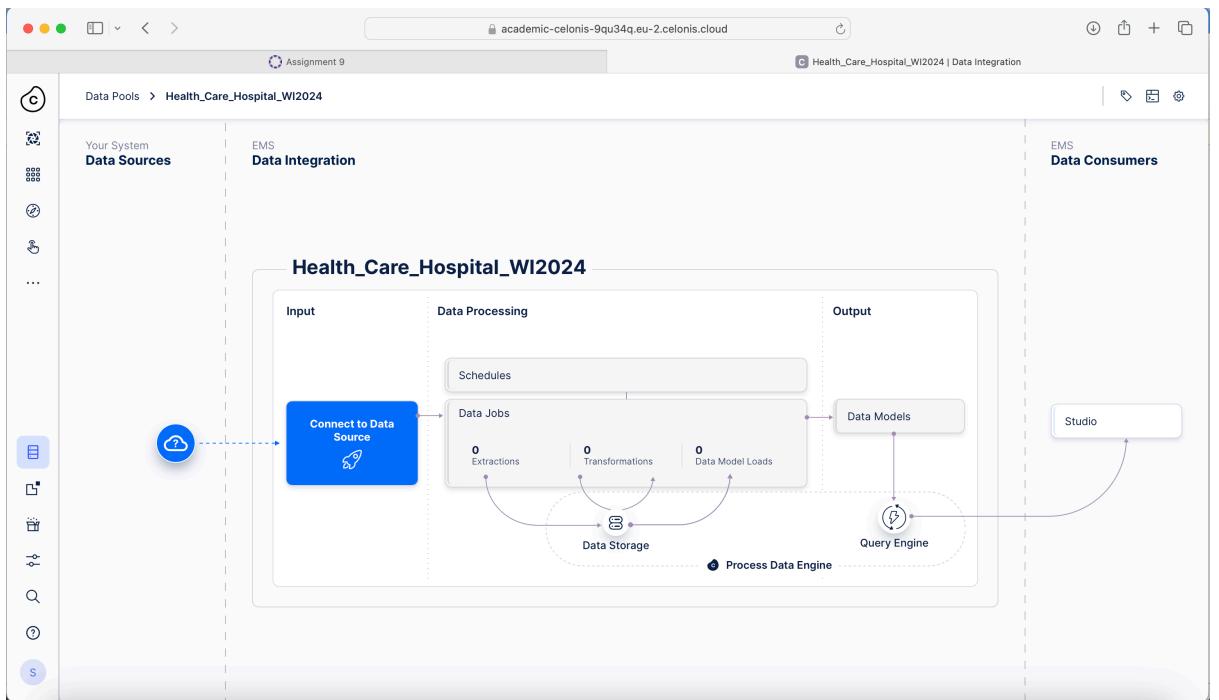


Fig 5: Data Pool Dashboard

6. Click Upload Files.

Available option for uploading data.

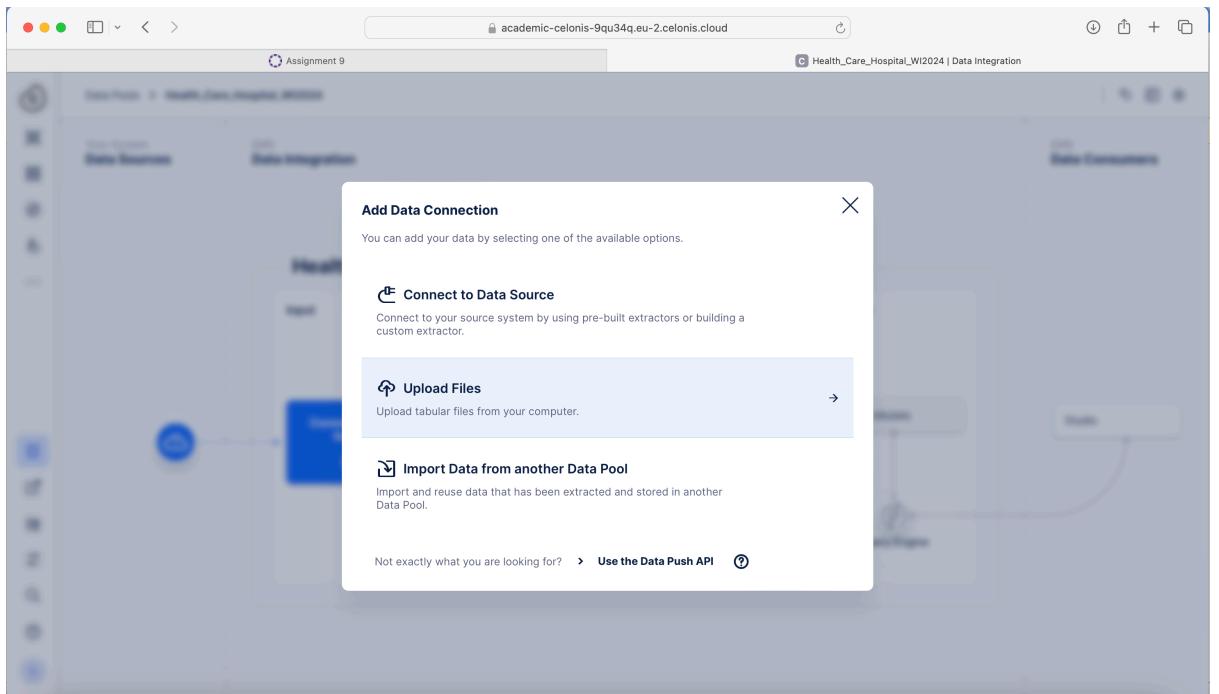


Fig 6: Data Upload Options

7. Drag and drop/upload your data. It might take a while for the upload to complete.

We need to upload the CSV file which is given in assignment.

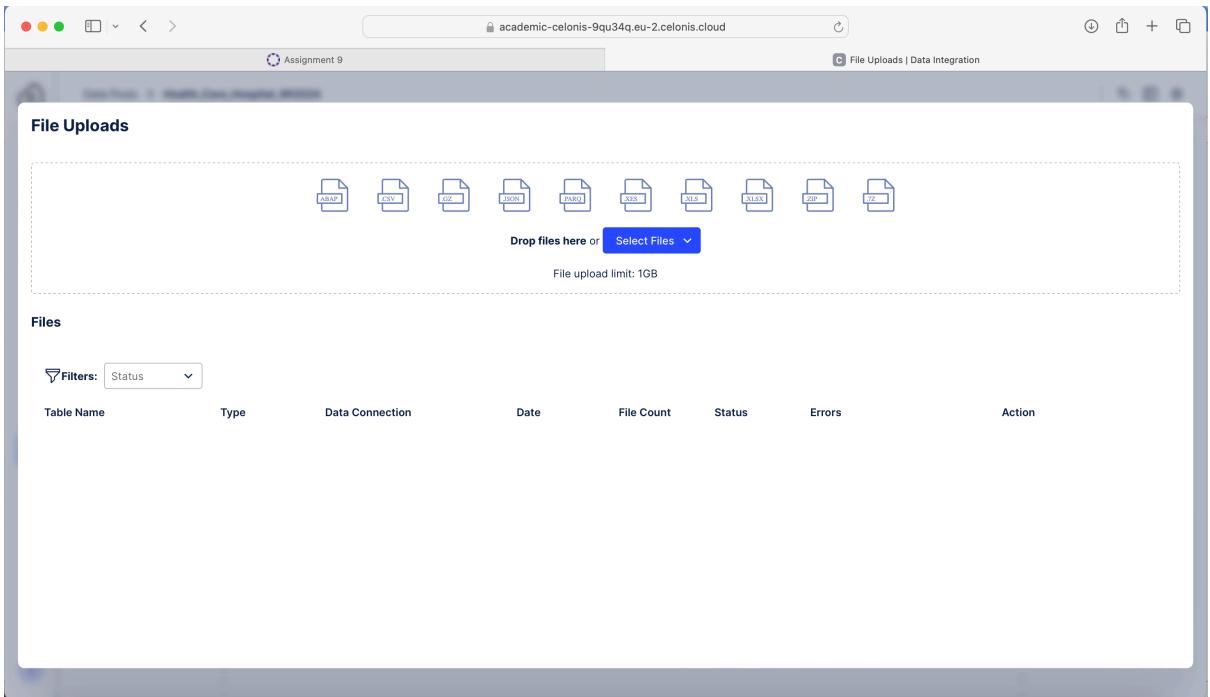


Fig 7: Upload Files Window

8. After completion of the upload, click on the Import button and wait for the status to turn green.

After upload completes we can see the status icon is blue and Import option is available. After clicking on the import the status icon will change to green.

The screenshot shows the 'File Uploads' section of the Celonis Data Integration interface. At the top, there's a large dashed box for dropping files, with icons for various file formats (ARAP, CSV, GZ, JSON, PARQ, XLS, XLSX, ZIP, LZ) above it. Below this is a 'Drop files here or Select Files' button and a note about a 1GB file upload limit. A table below lists the uploaded file: 'Hospital_Mini_Dataset_clean' (Type: Flat File, Data Connection: [Global], Date: 03-03-2024 18:10, File Count: 1). The 'Status' column shows a blue circular icon with a white question mark. To the right of the table are 'Import' and more options buttons.

Fig 8: File Uploaded with Import Action

This screenshot is identical to Fig 8, showing the 'File Uploads' section. The table now shows the same file entry, but the 'Status' column has changed to a green circular icon with a white checkmark, indicating successful import. The other columns remain the same: Table Name, Type, Data Connection, Date, File Count, Errors, and Action.

Fig 9: File Import status changed to green

9. Once the status turns green, press escape to go back to the previous screen. First click on Data Models then the option to add Data Model will appear in the below space. Click on it.

Data Uploaded correctly and we came back to previous screen.

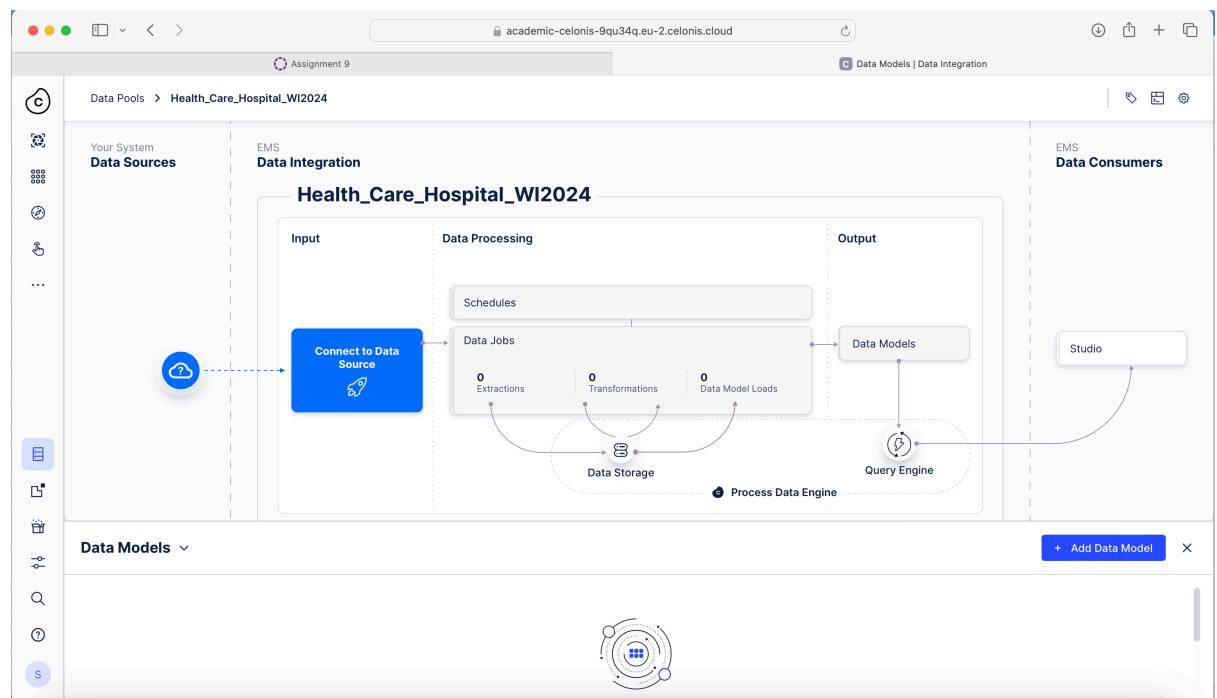


Fig 10: Add Data Model Option

10. Give a name to the New Data Model and click Save.

Provided name: Health_Care_Mini to Data Model window.

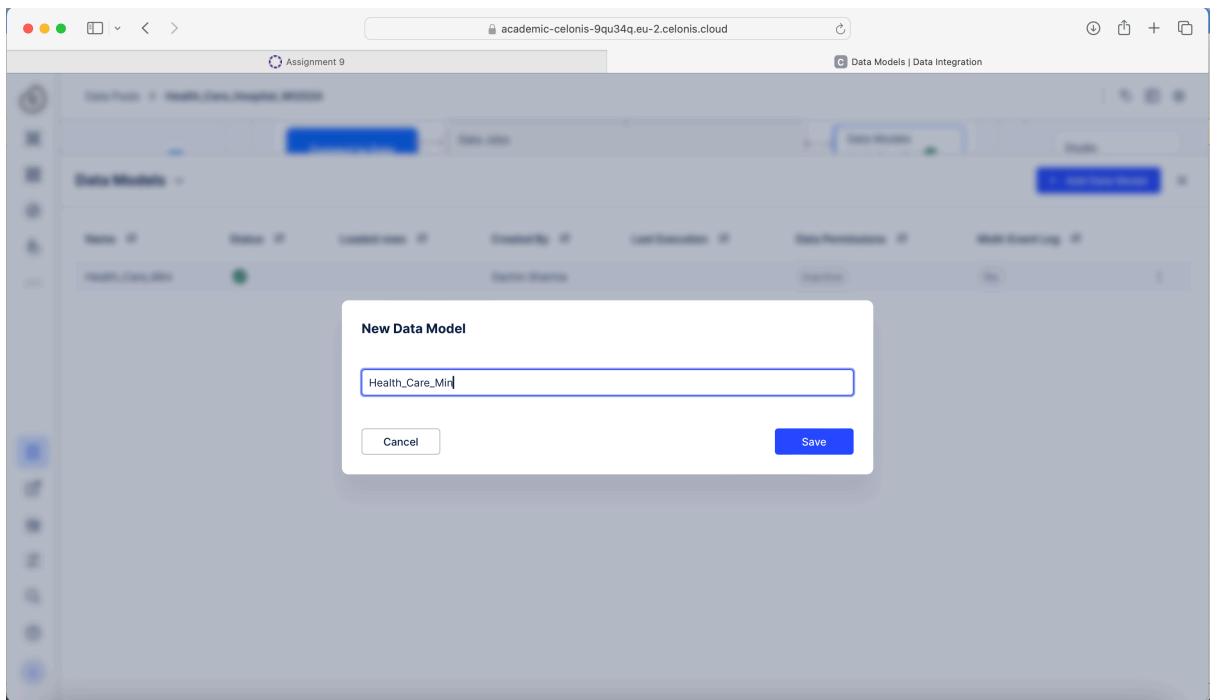


Fig 11: New Data Model window

11. Now your dataset will show up in the available sets. Click on it to move it to selected items. Once it shows up in the selected items list, click next.

Our Dataset shows up in the available list and available for selection.

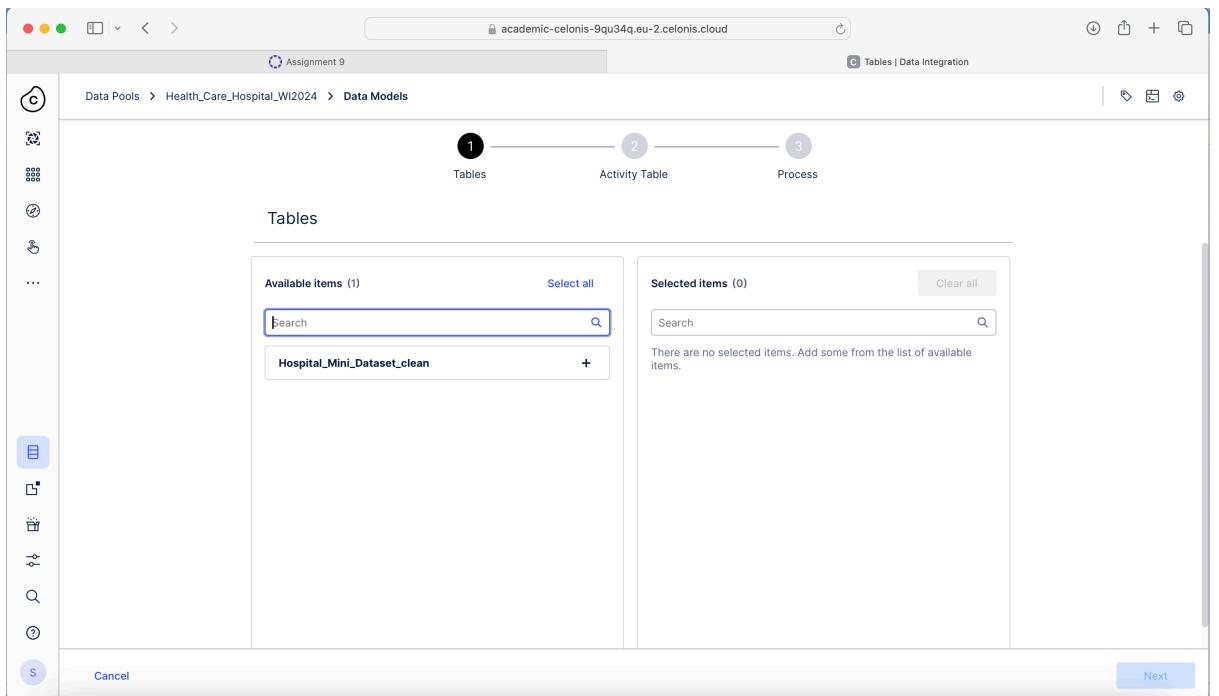


Fig 12: Dataset visible in Available Items

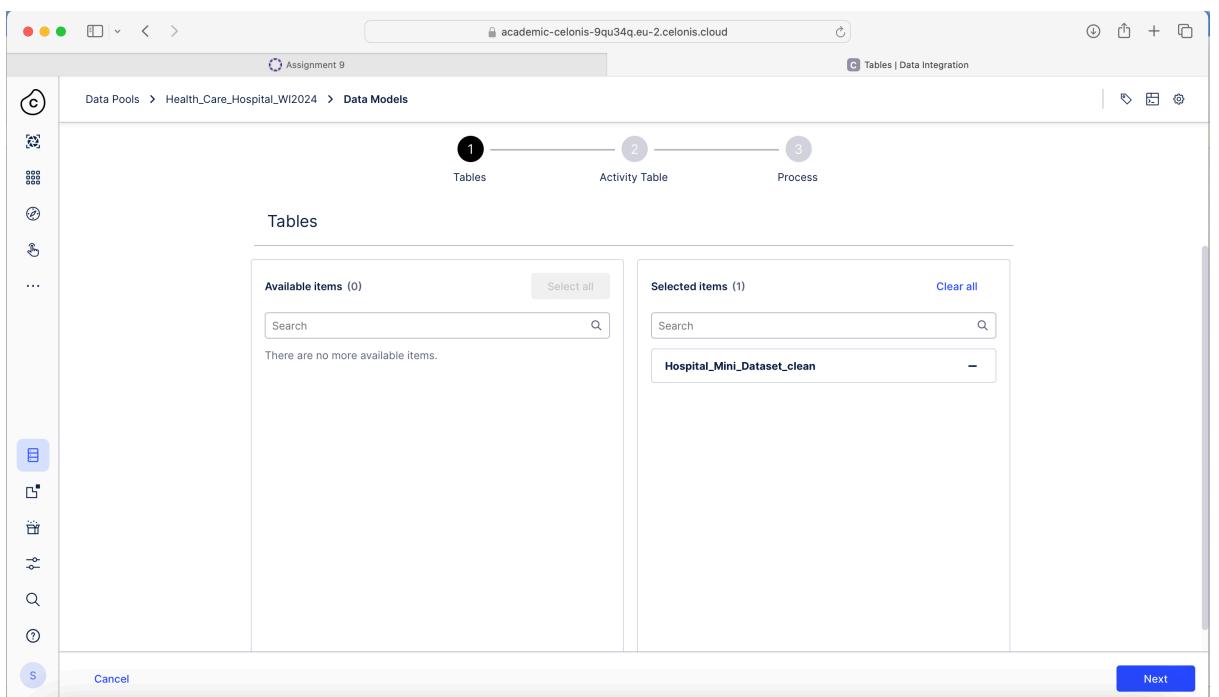


Fig 13: Selected Dataset window

12. Now click on the table name.

We selected the available table name.

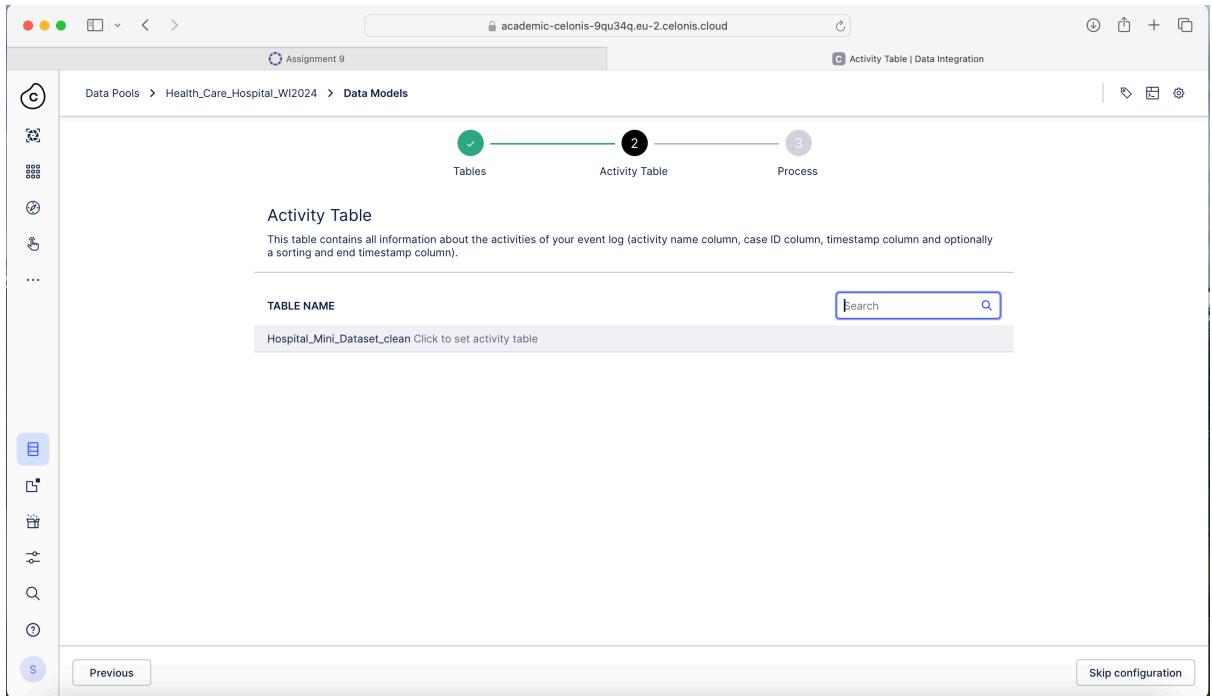


Fig 14: Activity Table Window

13. First configure the MEDICAL_ID, followed by ACTIVITY and TIMESTAMP by clicking on the columns.

Configured the dataset by selecting Medical_id, Activity and Timestamp column.

The screenshot shows the Celonis Data Integration interface. At the top, there's a navigation bar with tabs for 'Assignment 9' and 'Process | Data Integration'. Below the navigation is a process flow diagram with three nodes: 'Tables', 'Activity Table', and 'Process', connected by arrows. On the left, there's a sidebar with various icons for file operations like copy, paste, and search.

Process

Step 4/4: Select sorting column (optional) | Skip step

Click on the column that contains the sorting information for each activity. Sorting information is used to determine the order of activities which have the exact same timestamp. Not all source systems provide sorting information.

The main area displays a table with the following columns:

	123 SORTING	123 PATIENT_ID	123 MEDICAL_ID	ABC GENDER_NAME	ABC ACTIVITY	ABC OUTCOME_NAME	DATE TIMESTAMP	ABC DEPA
1		10000001	20000001	Female	Enter Emergency Inter...	Hospitalization	2004-10-15 14:40:00	Emergenc...
2		10000001	20000001	Female	Enter Internal Medicin...	Released (Home)	2004-10-15 22:06:00	Internal M...
3		10000001	20000001	Female	Enter via Emergency R...	Released (Home)	2004-10-15 14:40:00	NA
4	Sorting	10000001	20000001	Female	Sorting	Release	2004-10-15 22:06:00	NA
5		10000001	20000001	Female	Activity name	Hospitalization	2004-10-15 22:06:00	Emergency
6		10000001	20000001	Female	Leave Emergency Inte...	Released (Home)	2004-10-21 01:24:00	Internal M...
7		10000001	20005668	Female	Leave Internal Medicin...	Released (Home)	2005-04-12 22:39:00	Emergency
8		10000001	20005668	Female	Enter Emergency Inter...	Released (Home)	2005-04-12 22:39:00	NA
9		10000001	20005668	Female	Enter via Emergency R...	Released (Home)	2005-04-13 02:53:00	NA
10		10000001	20005668	Female	Exit via Emergency Ro...	Released (Home)	2005-04-13 02:53:00	Emergency
11		10000001	20066381	Female	Enter Emergency Inter...	Hospitalization	2005-05-07 18:01:00	Emergency

At the bottom right of the table area are buttons for 'Back' and 'Finish'.

Fig 15: Column Selection

14. With this, you have successfully setup the data model. You will see the below screen.

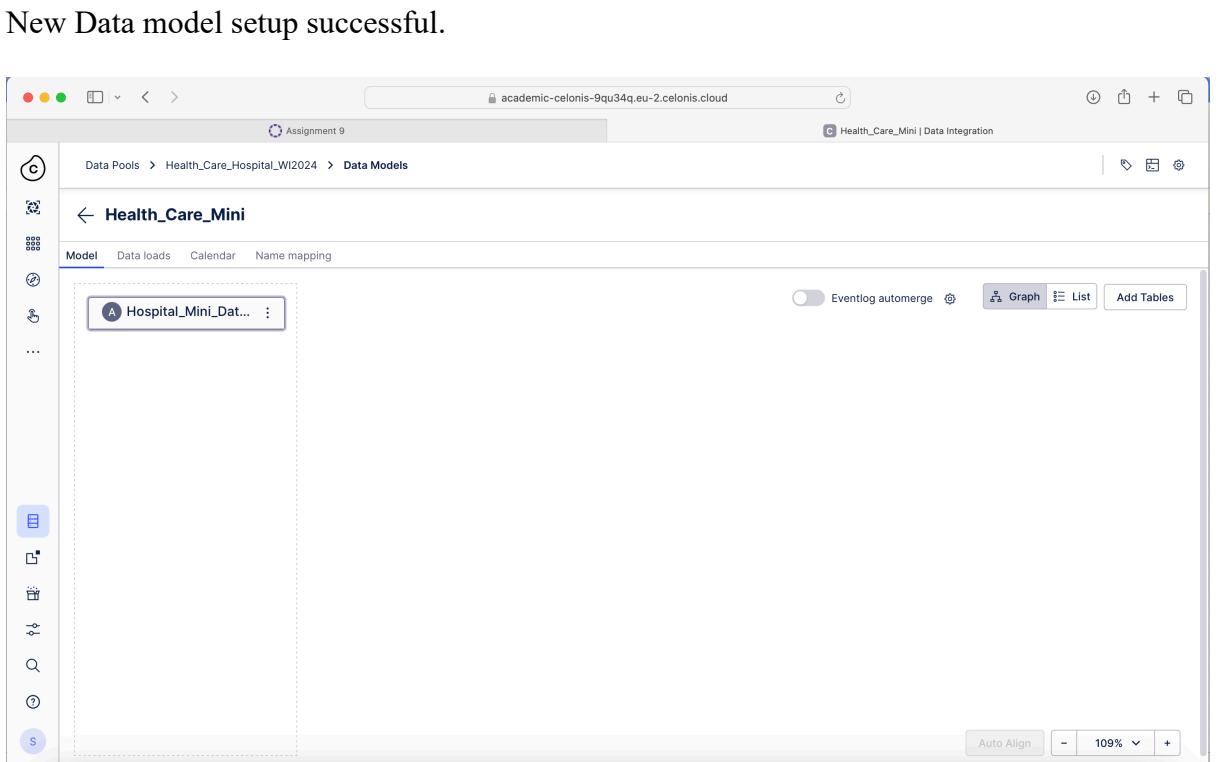


Fig 16: Data Model created

15. Now create a new workspace following the below steps.

We created new workspace by going inside Process Analytics.

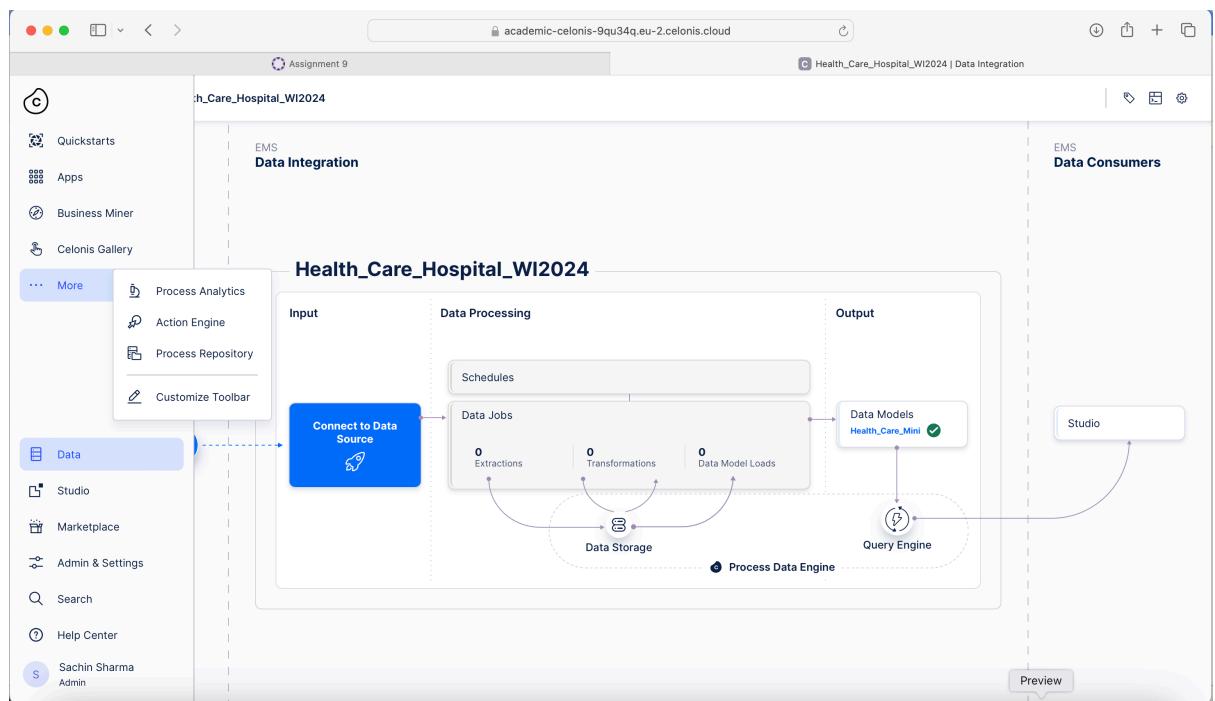


Fig 17: Process Analytics Option

The screenshot shows the Celonis Process Analytics interface. On the left, there is a sidebar with various icons for managing workspaces, including 'All Workspaces', 'New', 'Collapse all', 'Expand all', and a search bar. The main area is divided into sections: 'Workspaces' and 'Analyses'. The 'Workspaces' section lists several workspace names: '1_Welcome to the Celonis Campus!', '2_Pizzeria Mamma Mia', '3_Purchase to Pay', '4_Order to Cash', '5_Accounts Payable', '6_Accounts Receivable', '7_Logistics', and '8_Pizza - Carbon Emission'. The 'Analyses' section contains three main categories: '1>Welcome to the Celonis Campus!', '2>Pizzeria Mamma Mia', and '3>Purchase to Pay'. Each category has a 'New Analysis' button. Under '1>Welcome to the Celonis Campus!', there are three analyses: 'General Information and Learning Materials', 'Some more helpful material', and 'The Celonis Academic Ambassador Program'. Under '2>Pizzeria Mamma Mia', there are three analyses: 'Elsa TTT Test-Pizza', 'example 4', and 'Pizzeria Mamma Mia'. Under '3>Purchase to Pay', there is one analysis: 'Sarah/Elsa Enablement'.

Fig 18: New option available in Workspaces

16. Now select the data model we created and click Connect.

We selected the available Data Model which we created earlier.

The screenshot shows a 'Create Workspace' dialog box. At the top, there is a title 'Create Workspace' and a close button 'X'. Below the title, there is a search bar with the text 'Health'. The main area is divided into two sections: 'Data Model' and 'Parent Data Pool'. In the 'Data Model' section, there is a single entry: 'Health_Care_Mini'. In the 'Parent Data Pool' section, there is also a single entry: 'Health_Care_Hospital_WI2024'. At the bottom of the dialog box, there are two buttons: 'Cancel' on the left and 'Connect' on the right.

Fig 19: Create Workspace window

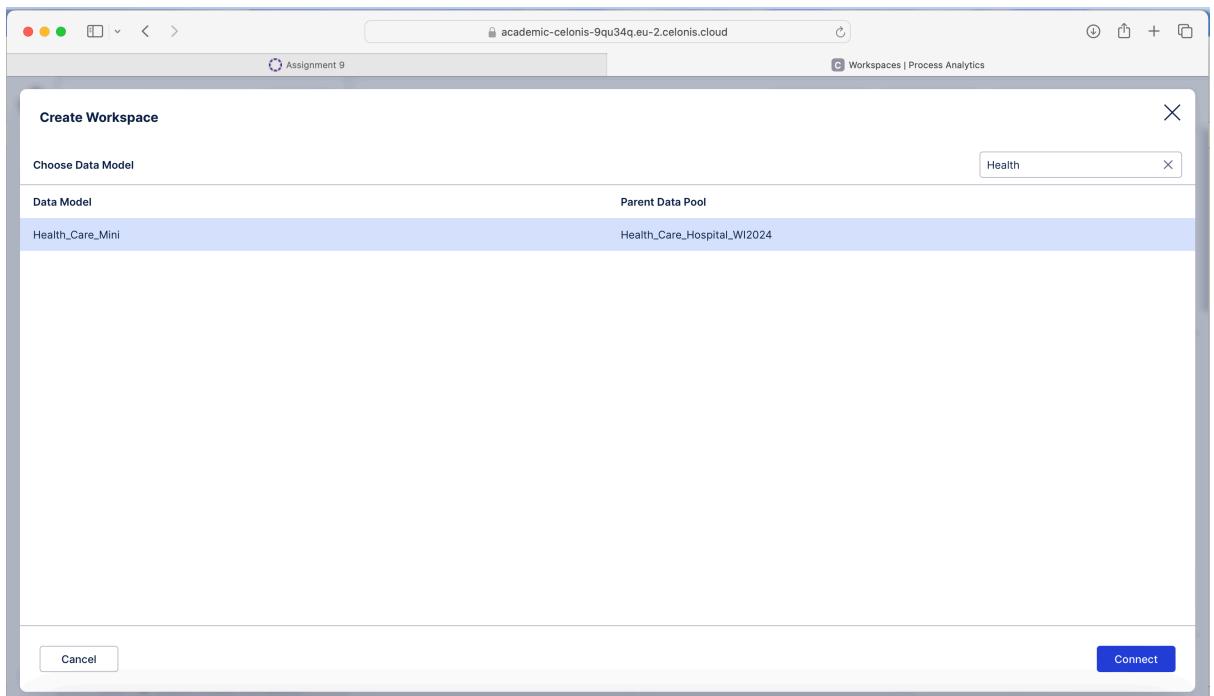


Fig 20: Selected Data Model

17. Enter the Workspace Name and click Create.

Created Workspace with name: Health_Care_Mini_WS24.

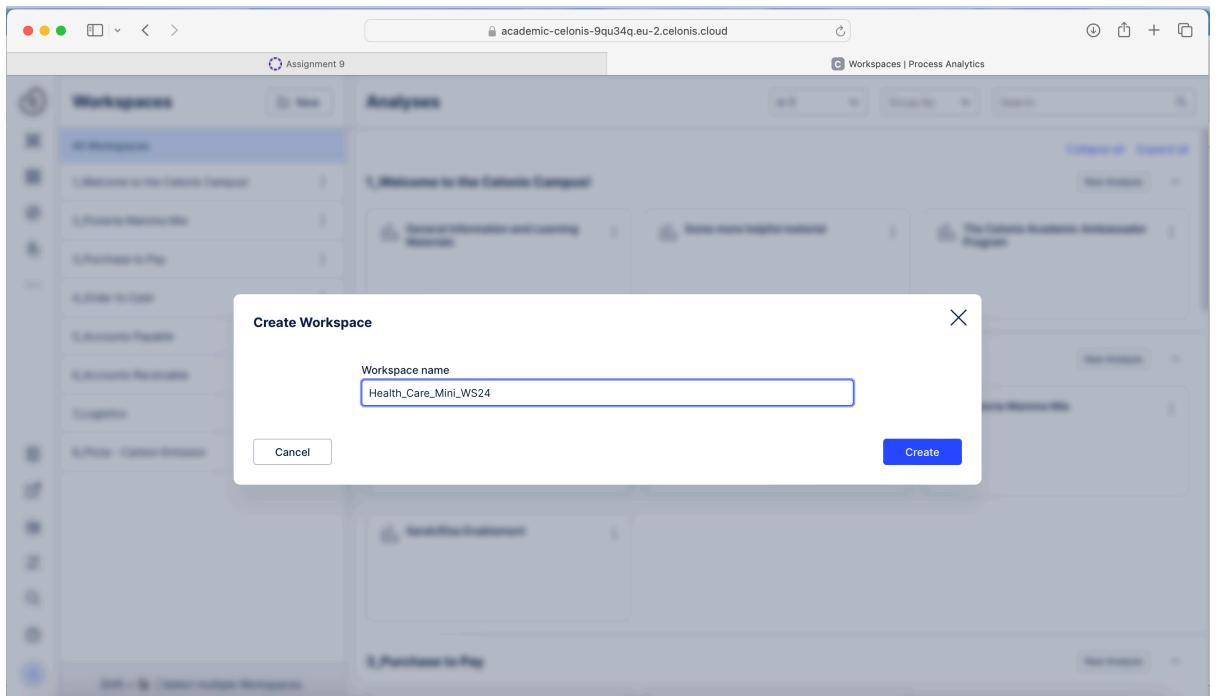


Fig 21: Workspace create window

18. Create a New Analysis by giving it a name.

New Analysis option available.

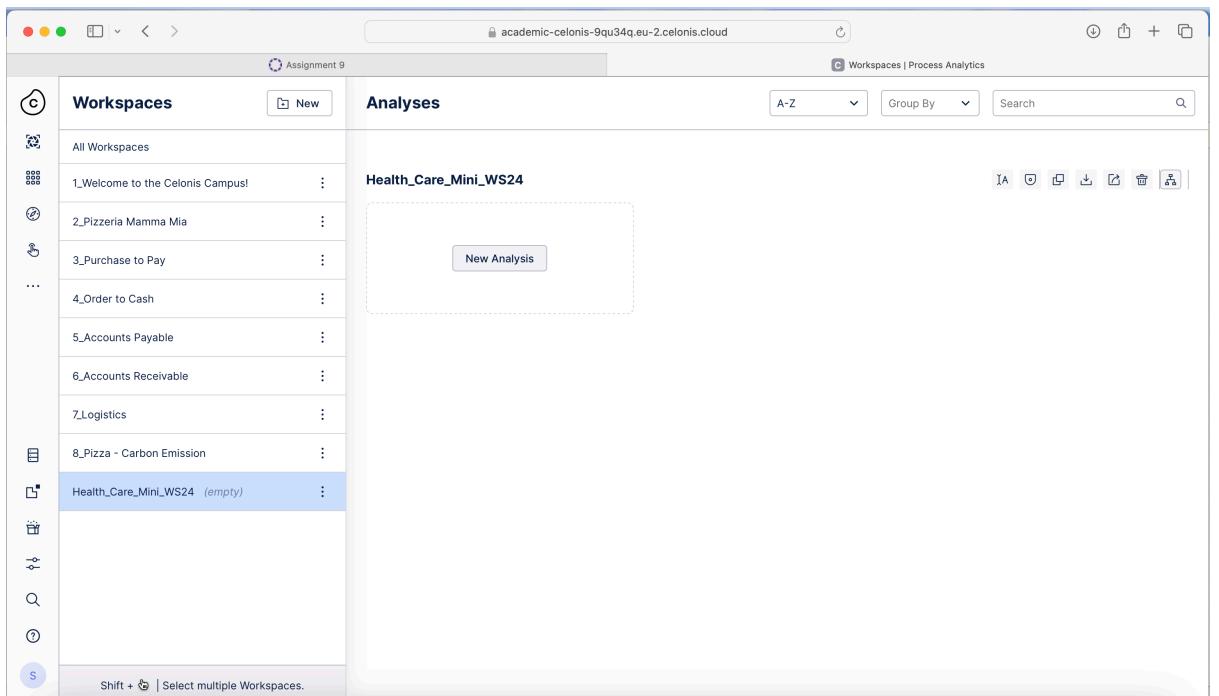


Fig 22: Analyses Window

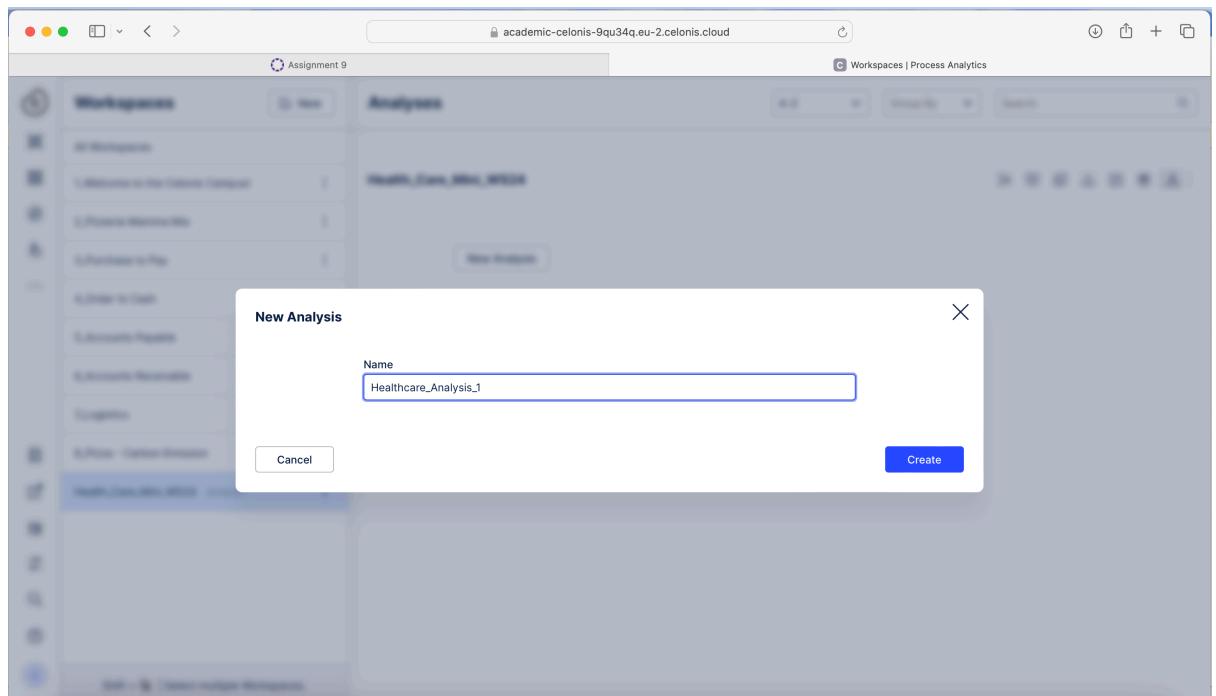


Fig 23: Analysis Created

19. Now click on the new analysis.

Selected the new analysis.

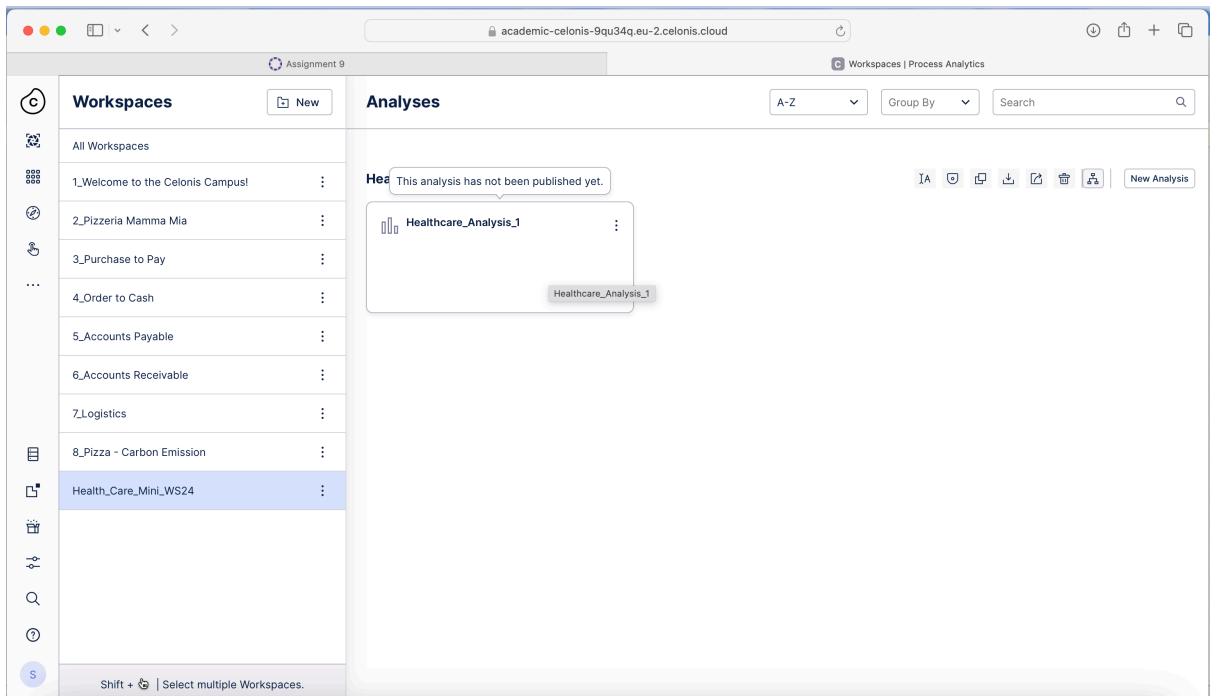


Fig 24: Analyses Created

20. If the data model doesn't load initially and you get the following message, click on the Reload button.

We could see the following warning message with reload option inside data model.

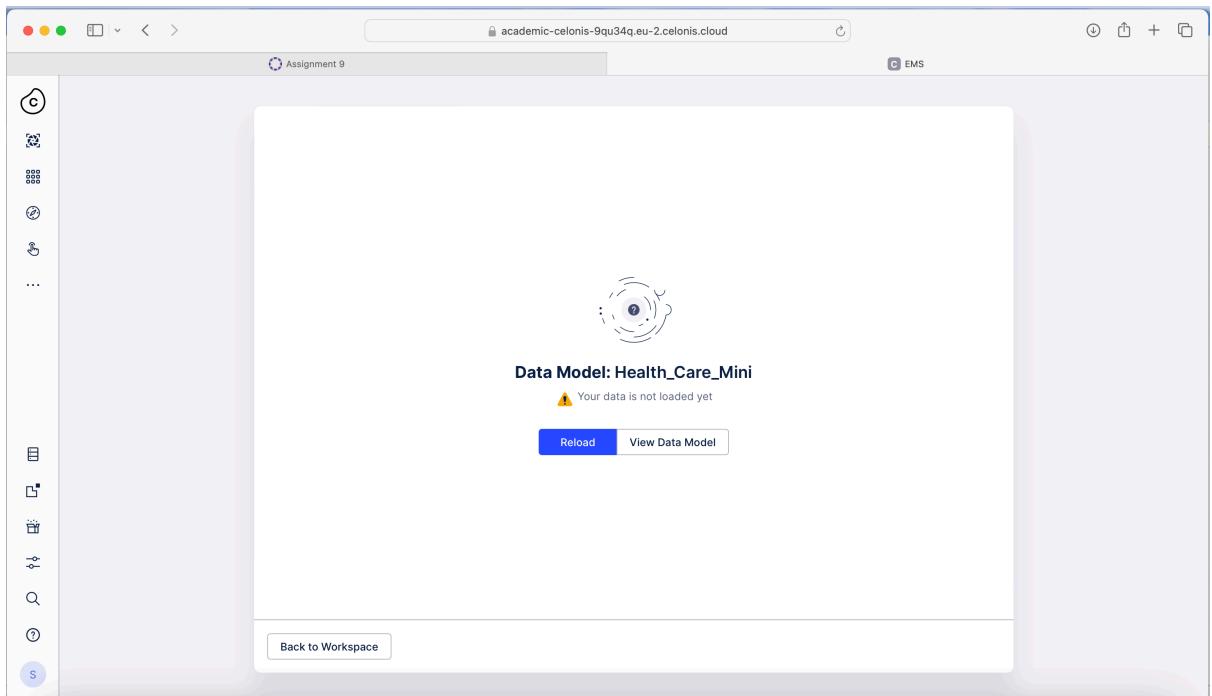


Fig 25: Data Model Warning window

21. After it gets completely loaded, you will reach the following screen where you should click on New App.

After Reloading, we could see the below window with Add new App option.

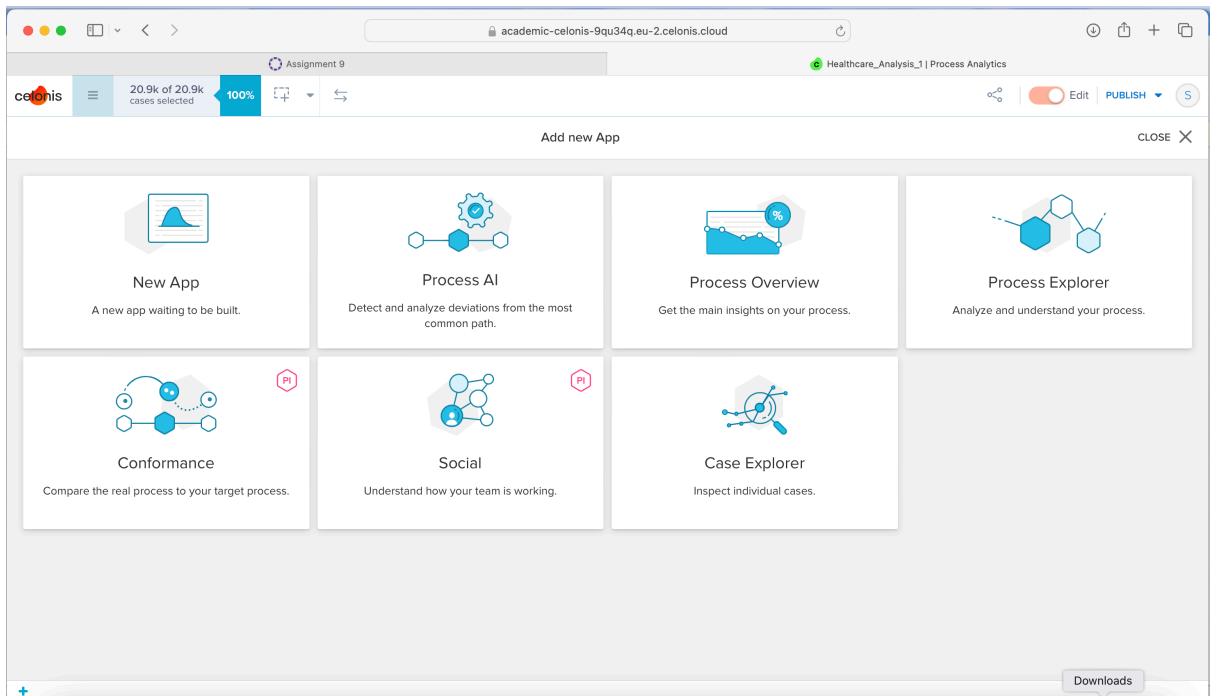


Fig 26: New App Window

22. Now you will get an empty analysis sheet. You can add components and start answering the Assignment questions.

We can see the below empty analysis sheet with add components.

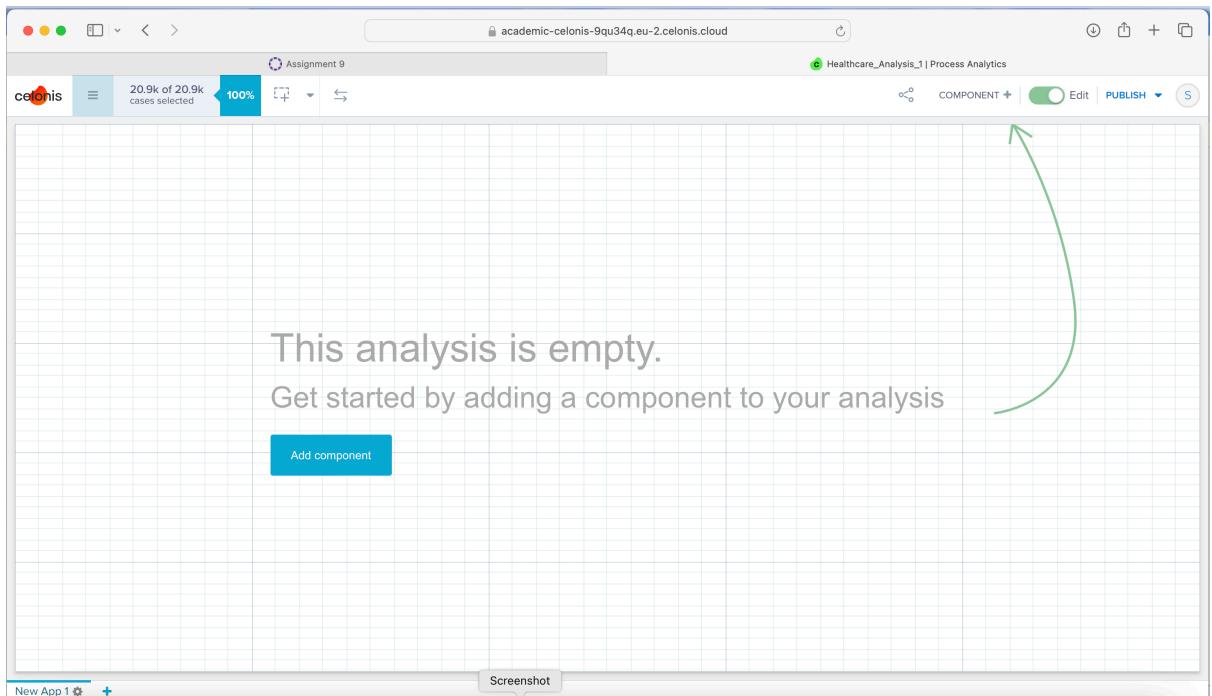


Fig 27: Empty Analysis Sheet

23. Answer the following questions by clicking on the appropriate component and doing the analysis:

- a. Add (Drag and Drop from the right-panel) the Process Variant Component from Process Analysis Components.
- b. Add the Throughput Time Search Component from Process Analysis Components.
- c. Add the Line Chart Component from Charts and Tables (Set Dimension to Eventtime in Month, Set the KPIs to case count).

We followed all the above 3 points and created the below Analysis sheet with all required components.

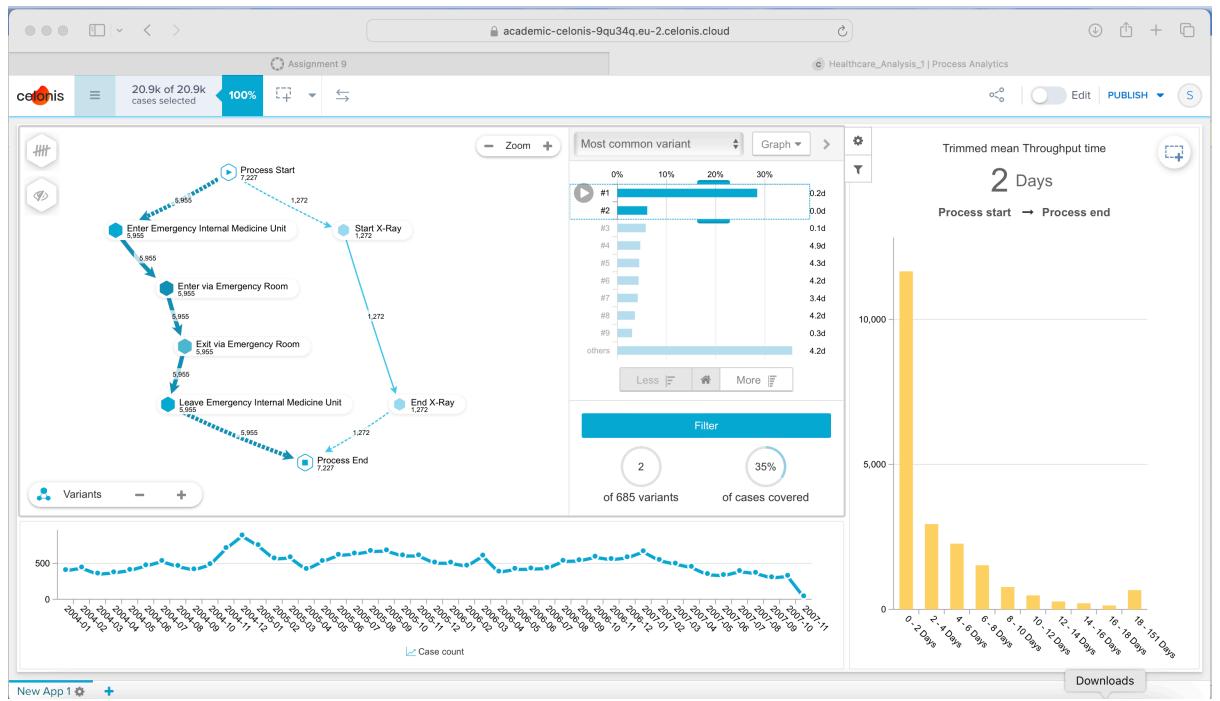


Fig 28: Components added on analysis sheet

- d. What are the top three most common variants for the hospital process?

The Top 3 most common variants for the hospital process.

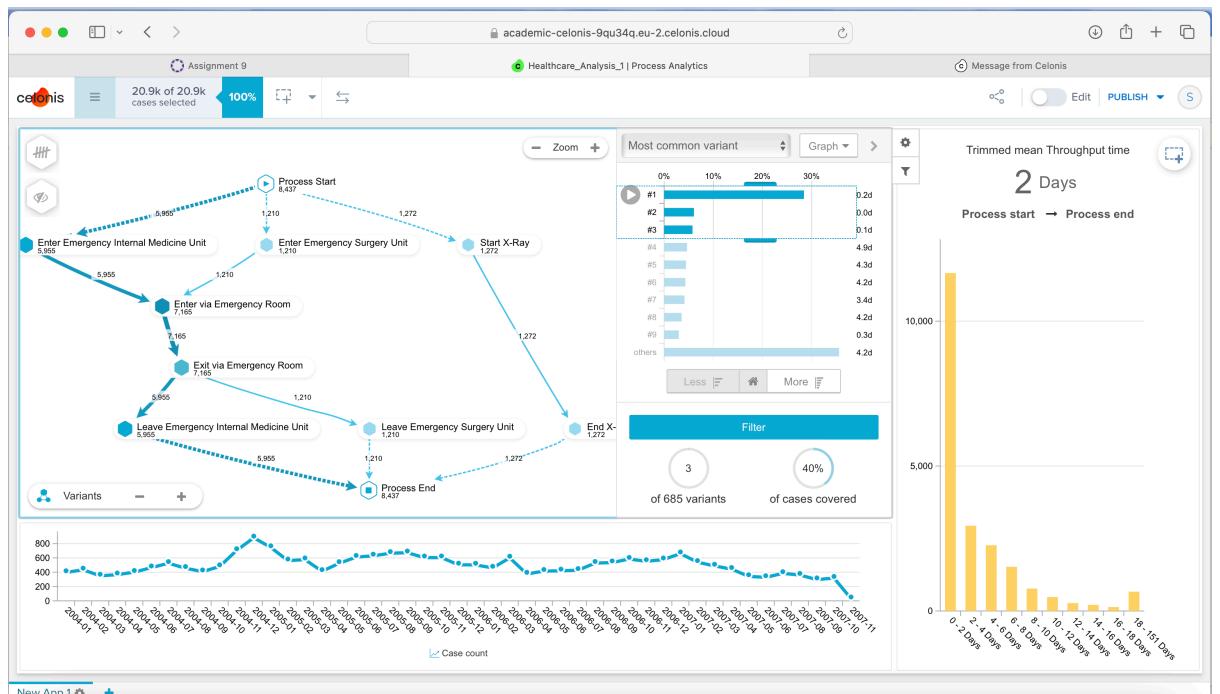


Fig 29: Top 3 Most common variant

- e. Which process variant has the longest throughput time?

Process Variant 1 under Longest throughput time filter is having the longest throughput time of around 121.1 Days (Median). We can also see the component activity which is taking time of around 54 Days is Leave Orthopedics B – Enter Internal Medicine B and other is Leave Department of Plastic Surgery – Exit via Hospital taking around 52 Days.

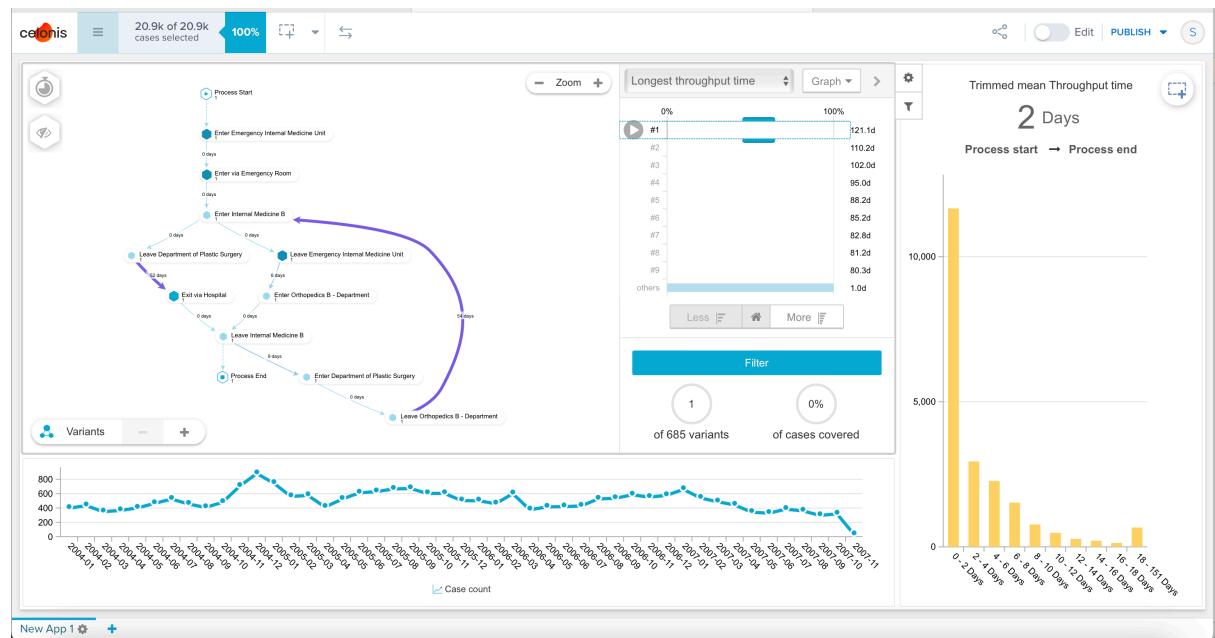


Fig 30: Process Variant with longest throughput time

- f. The quality assurance and quality control team received complaints about some abnormalities for entering/exiting the X-Ray. They asked you to identify all process variants and number of cases that included these two activities. They want you to investigate the problem further.

We have identified all the process variants and number of cases that included in these two activities.

1. Variant 5 in Shortest throughput time covers 1272 cases with activity Start

X-Ray – End X-Ray. Attaching below screenshot:

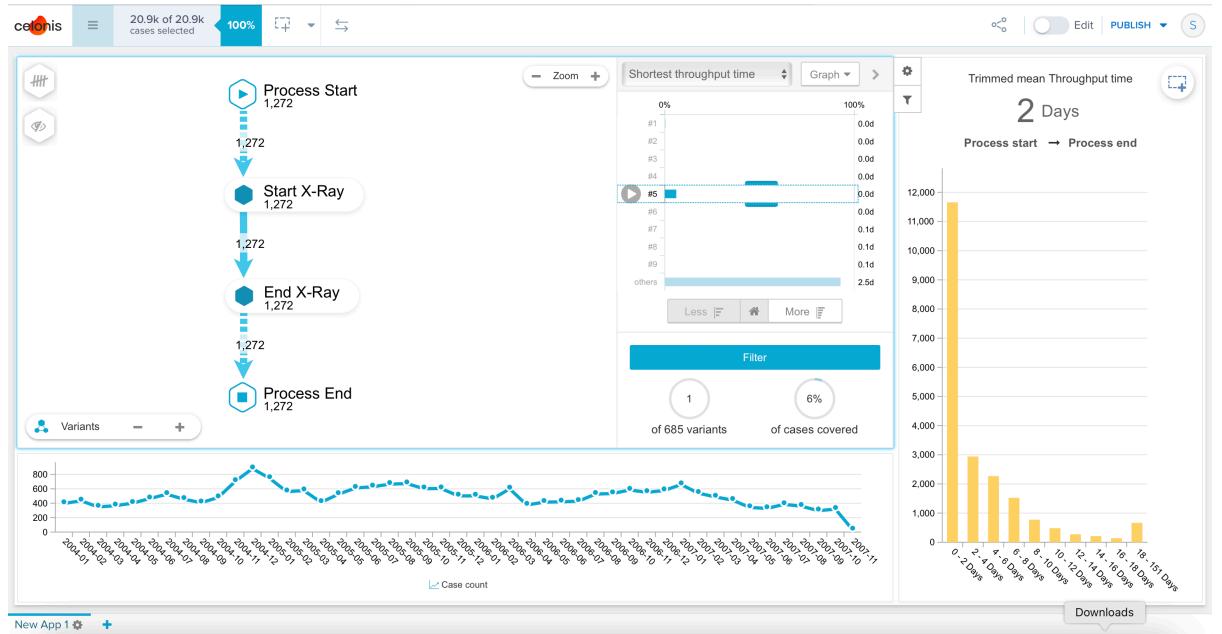


Fig 31: Variant 5

2. Variant 1 in Shortest throughput covers 94 cases with Activity Start from End X-Ray to Start X-Ray.

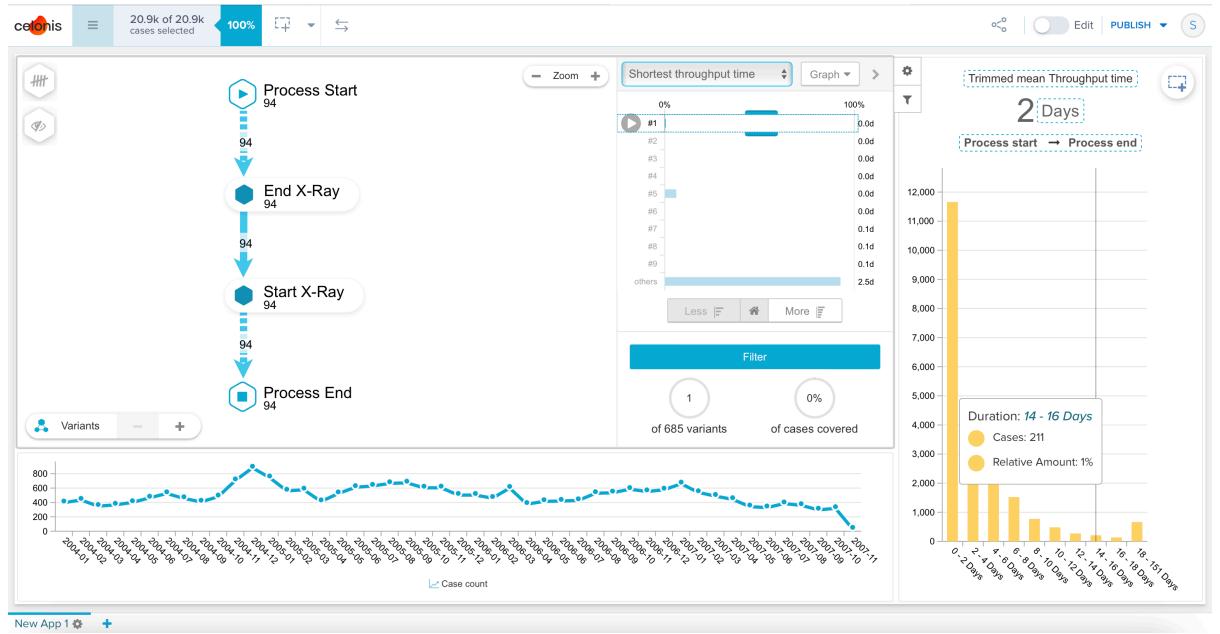


Fig 32: Variant 1

3. Variant where cases flows through Start X-Ray, End X-Ray where we can see total 1372 cases.

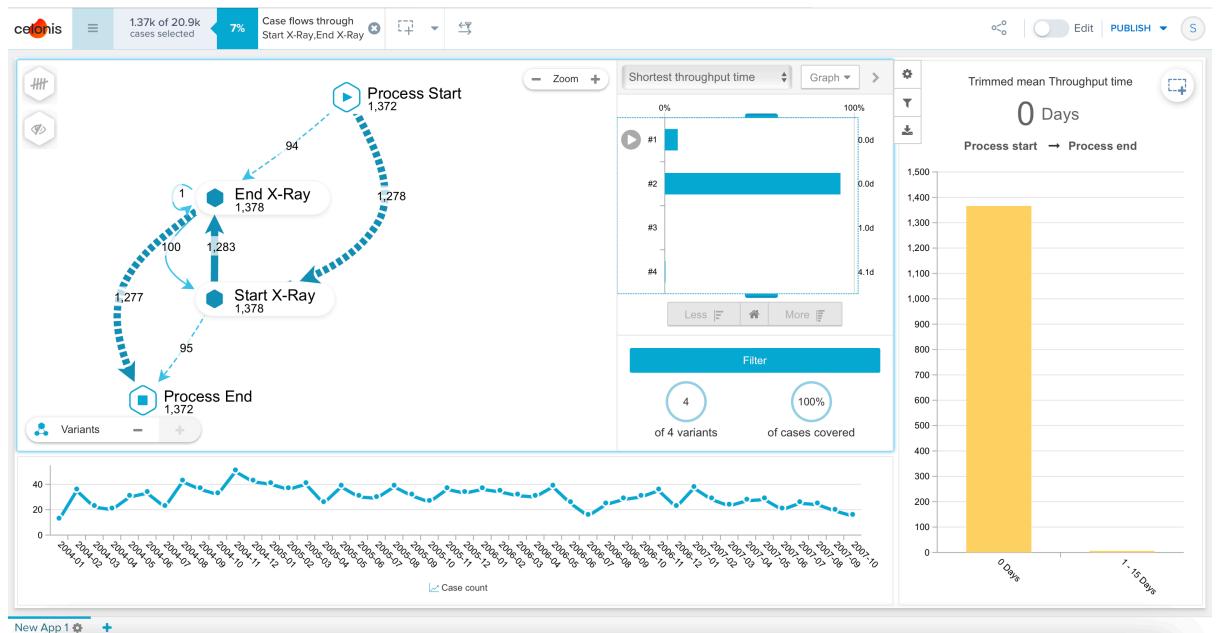


Fig 33: Cases flows through Start X-Ray, End X-Ray