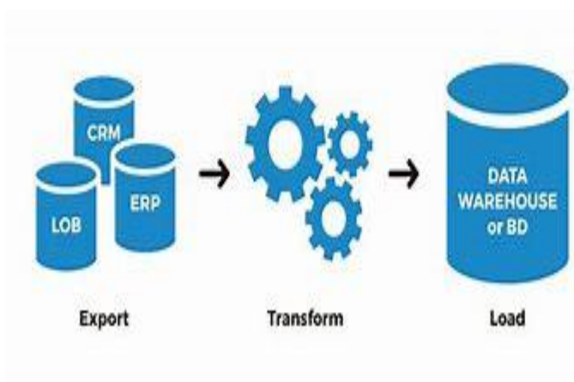
Business Specification Document



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0 INTRODUCTION

0.1 DOCUMENT HISTORY

Date	Version	Contributors	Remarks
14 Feb 2025	0.1	Monisha M	Draft

0.2 DISTRIBUTION LIST

Organization	Name	Signature / Date
Sedin Technologies		

0.3 CHANGE SUMMARY

Ver	Change Details	Authored By	Approved By	Insert Date
0.1	Initial issue			

0.4 ABBREVIATIONS, ACRONYMS, AND DEFINITIONS

0.4.1 Abbreviations

1 CUSTOMER REGISTRATION

A registration link is provided on the Sedin website to facilitate new user sign-ups.

When users click the registration link, the system loads a pop-up screen where they can fill out all the necessary information to register. The administrator will receive a registration request for approval, and the user will receive a confirmation email upon submitting the registration request.

1.1 Work Function:

- Provision to define the basic details of customers for registration.
- Provision to define the contact information of customers.
- Provision to submit the registration to the admin.
- Provision to accept/reject the registration by Sedin admin.

1.2 New Registration Popup

The Customer Registration page is the initial access point for new users to enter the necessary information to set up their accounts. This page is accessed via the registration link on the Sedin website, ensuring an organized and secure collection of customer information.

1.2.1 User Input field for registration

Attribute/ Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message
Company/ Customer Name	String	Text field	5–20	It shouldn't be left blank.	The company/customer's name cannot be empty. Please input a username.
Industry	String	Dropdown	5–20	A dropdown menu should have predefined options. If 'Other' is selected, it should allow user input. It shouldn't be left blank.	Field is required. or Error message: Invalid data.
Company Website	URL	Text field	5–20	A website address should follow the format: website: name@domain.com.	Field is required. or Error message: Invalid website.
Location		Dropdown		The location should contain country, state, and city.	Field is required. or Error message: Invalid data.
Designation/Role	String	Text Field	5–20		
Full Name	String	Text field	5-20	The name should contain a salutation, first name, and last name.	

Email	Alphanumeric	Text Field	5-20	An email address should follow the format: username@domain.com.	
Contact Number	Numerical	Text Field		The contact number should be contained with the country code. The contact number should be verified based on the selected country.	Error message: Invalid country code.
I Agree		Check box		On clicking, the Terms and Conditions pdf document should load.	
Submit		Action Button		Mandatory fields that are highlighted should not be left blank. The submit button will remain disabled by default until all required fields are completed. Once all mandatory fields are filled out, the submit button will be enabled.	*Highlighted are mandatory* *Please fill in all the required fields to submit.*
Submit		Action Button		Successfully validated fields should be indicated with a green checkmark. Upon clicking the submit button by the customer, the system should save the data and send the request to Sedin Admin's portal inbox. A successful message should be displayed. The user should receive a confirmation email upon submission.	Success message: *The request has been sent successfully to the admin. Please check your email for confirmation."* Error message: Invalid data.
Cancel		Action Button		Upon cancelling the registration without saving the data then the system should alert a message to the user. **YES:** If the user selected "YES" then system should close the popup without saving data. **NO:** Back to the old state.	*Data is not saved. Do you want to discard the changes? YES NO*

1.3 Registration Approval

Upon submission of a registration request by a customer, it will show up in the Sedin Admin Portal's inbox for the admin to review.

The Sedin administrator has the authority to approve or reject the registration. The registered user will be verified based on their provided details. The user will receive an email notification regarding the approval or rejection of their registration.

1.3.1 Sedin Admin Portal's Inbox

The Sedin Admin Portal's Inbox is accessible via a side icon on the Sedin Admin page. Clicking this icon will open the Inbox page.

The Sedin Admin Portal's Inbox serves as the main interface for the admin team to manage and process customer registration requests efficiently. It provides a streamlined system for handling pending requests, allowing admins to easily approve or reject them.

1.3.1.1 Viewing Requests:

- The inbox shows a list of pending registration requests, each displaying the respective company name.
- Selecting a company name opens the detailed registration form, which includes information such as basic info, Email, Contact info, Business Domain, and additional details.

1.3.1.1.1 Approving/Rejecting Requests:

- In the detailed view, the admin clicks Approve or Reject.
- If approved, the customer account is activated, and they receive an email with login details and a portal link.
- If rejected, the customer gets a rejection email, which may include the reason for rejection.

1.3.2 User Input

Attribute/ Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message
Company/ Customer Name		On Click		On clicking the company name in the admin's portal inbox, it should display the registration form.	The company/customer's name cannot be empty. Please input a username.
Approve		Action Button		Upon clicking the Approve button, the user account should be activated, and the user should receive an email containing their login details and a portal link.	The registration request is approved.

Reject		Action Button		On clicking the reject button, the user should receive a rejection email that may include the reason for the rejection.	The registration request is rejected.

2 CUSTOMER LOGIN

The user will receive an email from the Sedin admin containing login details and a portal link.

The Customer Login Page can be accessed by clicking this link, which is sent after their registration request is approved. Upon clicking the link, the login portal opens, allowing the customer to log in. The Customer Login Page enables customers to securely access their accounts using their login credentials and offers features for password recovery. A Forgot Password link is available below the password field.

2.1 Work Function:

- Provision to enter the username.
- Provision to enter the password.
- Provision to have a button to login into the application.
- Provision to have an option to change the password.
- Provision to view the typed password.

2.2 User Input for Login

Attribute/ Field Name	Data/ Value Type	Field Type/ Event	Field Length	Validation	Validation Message
Username	Alphanumeric	Text Field	5–20	The username should contain one uppercase, lowercase, and underscore. The username shouldn't be left blank. The system should authenticate the given username with the database. If not exist in the database, a validation message to be displayed. The system should authenticate the given username with the database. If the username is "Inactive" in the database, a validation message to be displayed.	Incorrect username *Please enter "Username* *"Username" does not exist* *User is inactive. please contact systems administrator*

Email	Alphanumeric	Text Field	5–20	An email address should follow the format: **username@domain.com** It must be unique to ensure it doesn't duplicate any existing email addresses.	Incorrect Email.
Password	Alphanumeric	Text Field		The system should not allow the password field to be blank, if "Yes", the validation message to be displayed. Password should be encrypted before authenticating, after encryption the system should authenticate with the given username. If authentication is not successful, then systems should display a message. On successful authentication, the system should check whether the user's password validity date is expired or not. If expired, then the validation message to be displayed. ℹ Applicable only if password policy is defined.	*Please enter "password"* *Please enter a valid "Password* *Your password expired. Please contact the system administrator.*
Password		On Click (Eye Icon)		On clicking the password edit field, The system should display the Eye icon (Unhide/hide) button to view the entered password values.	
Forgot Password		Hyperlink		On clicking the forgot password, the system should load the reset password popup with the username/Email field and confirm button. The system should authenticate the given username/Email with the database. If not exists in the database, a validation message is to be displayed. If exists in the database, a password reset link is sent to the registered email.	*The username does not exist, please contact the system administrator.*
Confirm – Forgot Password				On clicking the confirm button, a password registration link should be sent to the registered user email.	
Reset Link		Hyperlink		On clicking the reset link in the mail, it should open the change password	

				page in the portal to reset the password.	
Login		Action Button		On successful authentication, the system should check whether the user account is active or inactive. If inactive, then the validation message to be displayed On successful authentication, the system should check whether the user account is locked or not. If "Yes", then the validation message is to be displayed. ℹ Applicable only if password policy is defined. The login button will remain disabled by default until all required fields are completed. If the login credentials are correct, the user will be redirected to the Home Page. If the credentials are incorrect, an error message will appear.	*Your account is inactive. Please contact the system administrator* *Your account is locked. Please contact the system administrator* Please enter the username and password. . Invalid Username or Password

3 USER CREATION

The User Creation screen enables administrators to efficiently create, edit, and manage user accounts within the application through an intuitive interface, offering features for both new user creation and editing existing user details.

On the Home Page, there's a Module Setup for user creation. Clicking it takes you to a page where you can create, edit, and view users.

3.1 Work Function:

- Provision to create the username.
- Provision to edit the user.
- Provision to view the existing user.
- Provision to activate and inactive the user.

3.2 User Input for user creation

Attribute/ Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message
User Type		Dropdown			

First Name	Alpha numeric	Text field	5-20		
Last Name	Alpha numeric	Text Field	5-20		
Email	Alpha numeric	Text Field	5-20	An email address should follow the format: username@domain.com.	
Username	Alpha numeric	Text Field	5–20	The username should contain one uppercase, lowercase, and underscore. If the username already exists, it should display a validation message.	Exists username.
Password Generate		Action Button		On clicking the button, the system should auto-generate the unique password.	
In Active		Toggle Button		Activate and Inactivate the user.	
System Admin		Toggle Button		Enable and disable the user as system admin.	
Role		Dropdown		Defines the user role.	
Submit		Action Button		Mandatory fields that are highlighted should not be left blank. The submit button will remain disabled by default until all required fields are completed. Once all mandatory fields are filled out, the submit button will be enabled. The user should receive a validation message upon creating the user. The created user should load in the grid to edit and view.	*Highlighted are mandatory* *Please fill in all the required fields to submit.* *User created successfully.*

4 CONFIGURATION MANAGER

The Configuration is used to connect the source data and destination data. On the Home Page, there's a Module Setup for the configuration manager. Clicking it takes you to a page where you connect the source and destination data.

4.1 Work Function:

- Provision to connect the source and destination data.

4.2 User Input

Attribute/ Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message
Source/Destination		Radio button		On clicking, the Server type should load automatically to select. Mandatory selection between Source or Destination. Toggles the visibility of On-Premises/Cloud	
Server Type (On-Premise/ Cloud)				On clicking the Server type, the Connection name and type should load automatically to select. Mandatory selection between On-Premises/Cloud Toggles the visibility of Connection Name, Connection Type.	
Connection Name	Alphanumeric	Text Field		It should be Unique and mandatory. (eg: MySql_OrderDB_source) Stores the connection name in the database and displays a success message.	The connection name is saved successfully.
Connection Type		Dropdown		On selecting connection type, respective field should load. • **MS SQL Connection Type:** The form will display the following mandatory fields: Hostname/IP Address, Username, Password. • **API Connection Type**: The form will display the following mandatory fields: Relative URL (Text field), Authentication Type (Dropdown: options like Basic, OAuth) • **Flat File Connection Type**: The form will display the following mandatory fields: File Path (Text field), File Type (Dropdown: options like CSV, Excel)	

				(MS SQL, PostgreSql, API, Flat File).	

4.2.1 Configure Connections

4.2.1.1 SQL Connection

Attribute/ Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message
Hostname/ IP Address	Alpha numer ic			Mandatory, Valid IP format or hostname.	
Username	Alpha numer ic			Mandatory	
Password	Alpha numer ic			Mandatory	
Save				Mandatory fields that are highlighted should not be left blank. The submit button will remain disabled by default until all required fields are completed. Once all mandatory fields are filled out, the submit button will be enabled. The user should receive a validation message upon creating the user. The created user should load in the grid to edit and view.	Please fill in all the required fields to submit. User is created successfully.

4.2.1.2 API Connection

Attribute/ Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message
Relative URL	Alpha numer ic			Mandatory, Valid URL Format. Captures the stores the endpoint API.	.
Authentica tion Type	Alpha numer ic			Dropdown with predefined values (Basic, OAuth) Captures and stores the data.	

Save				Mandatory fields that are highlighted should not be left blank. The submit button will remain disabled by default until all required fields are completed. Once all mandatory fields are filled out, the submit button will be enabled. The user should receive a validation message upon creating the user. The created user should load in the grid to edit and view.	Highlighted are mandatory Please fill in all the required fields to submit. User created successfully.

4.2.1.3 Flat File Connection

Attribute/ Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message
File Path	String			Mandatory, Valid path format. (eg: home/desktop/report) Captures and stores the location of the file.	
File Type				Dropdown with predefined values. (eg: CSV, Excel)	

5 MODULE CONTROL MANGER(MCD)

The Module Control Manager provides users with the ability to create and manage modules.

It offers administrators an efficient way to handle modules within the application through an intuitive interface, supporting both the creation of new modules and the editing of existing ones. On the Home Page, the Module Control Manager is available for module creation. By clicking it, users are directed to a page where they can create, edit, and view modules.

5.1 Work Function:

- Provision to create the modules.
- Provision to edit the modules.
- Provision to view the existing modules.
- Provision to activate and inactive the modules
- Provision to define task control for modules.

5.2 User Input

Attribute/ Field Name	Data/Value Type	Field Type	Field Length	Validation	Validation Message

Module Name	String			Captures the module name (eg: Sales, Finance)	
Activate	Toggle Button			Activate and inactivate the module.	
Save	Action Button			Same saving logic as before	

6 ENTITY DATA MAPPING

The Entity Mapping process identifies and connects relevant data entities (tables) according to business requirements, ensuring structured and meaningful data for analysis. From the Home Page, go to the side navigation bar and find the Data Operations icon. Clicking this icon displays a card layout with multiple options. Select the Entity Data Mapping option from this layout. Once selected, the Entity Data Mapping Page opens, providing access to its features and functionalities.

6.1 Work Function:

- Provision to search the specific tables. Eg: sales.
- Capability for AI to offer table suggestions based on the search query from the connected source.
- Provision for AI to recommend essential and non-essential columns once a table is selected.
- Provision to edit and view the modules.
- Users have the provision to select columns for mapping and defining data transformations. On the Workflow page, they can configure data movement from Source to Bronze to Silver layers using drag-and-drop mapping.
- Provision to activate and inactive the modules
- Provision to define task control for modules

6.2 User Input

Attribute/ Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message
Search				On clicking the search button, the flyout screen will be available for the user to search and load the data	
Save				Saves the selected columns and tables Same logic	

6.3 Response Handling

6.3.1 Success:

- Mapping successfully saved.
- Data flow applied successfully.
- Mapping exported as JSON/YAML.

6.3.2 Failure:

- Please select at least one table before proceeding.

- Column selection is required to apply mapping.
- Data validation failed. Please review the mappings before saving.

7 DATA GOVERNANCE

The Data Governance Page facilitates seamless data governance by allowing users to interact with data layers, view detailed table information, and manage rules efficiently to check and improve Data Quality.

Go to the side navigation bar from the Home Page and find the Data Operations icon. Clicking this icon displays a card layout with various options. Within this layout, select the Data Governance option. Once selected, the Data Governance Page opens, providing access to its features and functionalities.

7.1 Work Function:

- Provision to choose a data layer.
- Provision to view the table information.
- Capability to establish and manage rules for monitoring and enhancing data quality.

7.2 User Input

Attribute/Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message
Choose Layer		Dropdown		Dropdown with Gold Layer, Silver Layer.	
Total No of Tables		Toggle Button		Toggles the display of Total Number of Tables.	
Rule		Dropdown		Set rule to the table E.g : No Null Values in Column, Column Sum in range, Data Length, Duplicate Rows, String Format Match	
View Column		Checkbox		Should show all columns and, can select multiple columns	
Play (under Run Test column)		Action Button		Runs data background against all the applied rules.	
Create Rule (present in the tabular list)		Action Button		Opens New rule creation's side drawer.	
Edit (present in the tabular list)		Action Button		Opens side drawer.	
New Rule (present in the side panel)				Opens a new session inside drawer for creating a new rule/ edit rule.	
Run Test (inside side drawer)				Initially disabled, becomes enabled after selecting rule and columns. Performs validation on selected rule.	
Save		Action Button		On clicking the save button the rule will be saved and added to the existing rule list. Rules to check data quality are applied to each column.	

7.3 User Interaction

7.3.1 Selecting a Layer

- The page contains a Choose Layer dropdown with two options: Silver Later, Gold Layer
- When a layer is selected, the system dynamically loads a table listing below.

7.3.2 Viewing Tables and Columns

- The loaded table contains the following headings:
- Table Name – Displays the name of each table in the selected layer.
- Total Columns – Shows the total number of columns in each table.
- Rule – Displays either a Create or Edit button depending on whether rules have been defined for the table.
- Run Test – Displays a play button for executing data quality checks.

7.3.3 Creating or Editing Rules

- Each row in the table has a Rule column:
- If no rule is defined, the button displays Create.
- If a rule is already created, the button displays Edit.
- Clicking either button opens a side drawer.

7.3.4 Defining a New Rule

- Inside the side drawer, the following elements are displayed:
- A New Rule button at the top.
- A list of existing rules with an Edit button next to each.
- Clicking New Rule opens a new section inside the side drawer, where the user defines a rule.

7.3.5 Configuring the Rule

The New Rule section contains:

- "Select Rule" Dropdown – Offers predefined rules (e.g., No Null Values in Column).
- "View Columns" Checklist Dropdown – Allows users to select multiple columns.
- Textbox – Selected column names are displayed here automatically.
- Run Test Button – Initially disabled, becomes active once all fields are selected.
- Save Button – Saves the rule configuration.

7.3.6 Saving the Rule and Running Tests

- Clicking Save triggers a toaster notification: "Rule has been created."
- The side drawer closes, and the Run Test button is now available for this table.

7.3.7 Executing Data Quality Checks

- Each table row has a Run Test column with a play button.
- Clicking the play button executes the validation process for the table.
- Once the test is completed, a donut chart appears in the Run Test column, displaying the validation results.

7.4 Response Handling

7.4.1 Success:

- When Rule is Created: A toaster notification with the message "Rule has been created" confirms the rule creation process.

- When Rule is Edited: The user can modify an existing rule via the Edit button next to the rule in the side panel. The updated rule will be saved and reflected in the list of rules for the table. Along with a toaster notification with the message “Rule Name” has been edited Successfully”.

7.4.2 Failure:

- If any required fields are not filled or if the selected rule is not valid, appropriate error messages or validation prompts will be shown in the UI, preventing the user from saving the rule until all conditions are met.

7.5 Visual Indicators

- **Disabled Run Test Button:**
  - The Run Test button remains dimmed and unavailable until all required fields (rule and columns) are selected in the New Rule popup.
- **Dynamic Table Update:**
  - When a layer (Silver/Gold) is selected, the table updates dynamically to display the Total Number of Tables along with Table Names and Total Columns.
  - Selecting a specific table name updates the side drawer with corresponding rules.
- **Side Drawer Visibility:**
  - The Side Drawer appears when a table name is clicked, displaying associated rules and the New Rule button.
  - The Drawer closes when the user clicks the cancel icon on the top right.
- **Toaster Notification:**
  - A Toaster Notification appears after successfully saving a rule, confirming with the message: "Rule has been created."
  - Enabled Run Test Button:
  - Once all required fields in the New Rule popup are filled, the Run Test button becomes active, indicating readiness for validation.

8 DATA SECURITY

The Data Security page offers features for managing access control across various levels, ensuring the secure handling of data. Users can implement security restrictions at the Row, Column, and Object levels to control data visibility and accessibility.

Go to the side navigation bar from the Home Page and find the Data Operations icon. Clicking on this icon will display a card layout with various options. In this layout, choose the Data Security option. Clicking on it will open the Data Security Page, granting access to its features and functionalities.

8.1 Work Function:

- Provision to manage access control across various levels.
- Capability to enforce security restrictions at the Row, Column, and Object levels to manage data visibility and accessibility.

8.2 User Input

Attribute/ Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message

Side Navigation				The side navigation bar on this page contains three options: • Object Level Select • Row Level Select • Column Level Select	
Object Level Select		On click		On clicking, it should display the list of table names in the destination connection in a tabular format. Each table entry includes the following options: Assign Modules button and Enable All button.	
Enable All		Action Button		On clicking, it should automatically assign access to all available modules	
Add Module		Action Button		On clicking, it should open a popup window displaying all the created module names in a checklist format.	
Select		Checkbox		• Users can select one or more modules by ticking the checkbox next to each module. • If a module already has access, its checkbox will be pre-selected. • Users can also remove access by unchecking the box for any previously selected module.	
Apply		Action Button		On clicking, it should enforce Object Level Security on the selected table i.e. access to that table will be given for the selected modules.	
Save		Action Button		Clicking the save button will grant access to the selected modules for the chosen table. If a module is unchecked, its access will be revoked. .	
Dynamic Table List:				• Shows all tables in the destination connection. • The popup appears when assigning access to modules and disappears once the selection is applied or canceled.	

9 TIME ZONE CONFIGURATION

The Time Zone Configuration feature enables users to choose and update their preferred time zone settings, ensuring that all system timestamps match the user's selected region for better accuracy in scheduling and logging activities.

On the home page, the side navigation bar includes an icon labeled Data Insights and Control. Clicking this icon opens a new page with a two-card layout. Within this layout, selecting the Data Catalog option takes the user to the Data Catalog page, where they can explore data relationships and dependencies.

9.1 Work Function:

- Provision to allow users to select and update their preferred time zone settings.

- Provision to view the data insights and explore data relationships and dependencies.

9.2 User Input

Attribute/ Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message
Time Zone Configuration		Dropdown		• On clicking, it should display a list of available time zones. • Once selected, the system should automatically apply the chosen time zone for timestamps across the platform.	
save		Action Button		On Selecting a time zone, it should be saved and updated.	The Time Zone is saved/Updated. Error Message: Failed to update time zone.

10 TRANSFORMATION AGENT

The Transformation Agent is a key ETL component that processes and refines raw data. It uses exact matching, Nearest Neighbor algorithms, other algorithms, and fuzzy logic for deduplication. Business rules and transformations are applied using SQL, Python, or PySpark to ensure data standardization, enrichment, and quality.

Users navigate to the Home Page, open the Data Transformation and Scheduling icon, and click the Transformation Agent icon. This opens a new page with three card layouts.

- Selecting the SQL card launches the SQL Compiler Screen
- Selecting the Python or PySpark card launches the Python/PySpark environment.
- Selecting the Cleaning/Fuzzy logic card launches the screen

10.1 SQL

10.1.1 Work Function:

- Provision to enter SQL queries in the SQL Compiler.
- Provision to compile the SQL Query.
- Provision to add a new data source.

10.1.2 User Input

Attribute/ Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message
Side Navigation bar				It should display details about the connected data source in the side navigation bar.	

Execute (Top-right corner of the compiler)		Action Button		On clicking the Execute button, the system should compile the SQL Query. It should display the success result. in a tabular format below the compiler and display the error message with debugging details.	The SQL query runs successfully. Error Message: The system detects an invalid SQL syntax.
(+) Plus – Navigation Bar				On clicking, it should open a dialog for adding a new data source and should dynamically appear in the side navbar	

10.2 Python/PySpark

10.2.1 Work Function

- Provision to write code in the Python or PySpark code Compiler.
- Provision to run the code.
- Provision to add a new data source.

10.2.2 User Input

Attribute/Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message
Side Navigation bar				It should display details about the connected data source and select the execution environment.	
Run (Top-right corner of the compiler)		Action Button		On clicking the run button, the system should execute the code. It should display the successful result. in a tabular format below the compiler and display the error message with debugging details.	The code runs successfully. Error Message: The system detects an invalid syntax.
(+) Plus – Navigation Bar				On clicking, it should open a dialog for adding a new data source and should dynamically appear in the side navbar	
Environment Type		Dropdown		• On selecting Python, the system should load the Python compiler. • On selecting PySpark, the system should load the PySpark compiler. • Python Compiler should be loaded by default.	

10.3 Deduplication/Cleaning/Fuzzy Logic

The Transformation Agent - Deduplication/Cleaning/Fuzzy Logic module enables users to clean and standardize data by applying transformation rules, clustering similar data points, and merging duplicate values.

10.3.1 Work Function

- Provision to apply the transformation rules to clean and standardize data.
- Provision to merge the duplicate values.

10.3.2 User Input

Attribute/Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message
Side Navigation bar				It should display two options for the user to select: • Open Project and • Create Project.	
Merge Selected & Recluster (Create Project)		Action Button		Merges selected clusters and reclusters.	
Merge Selected & Close (Create Project)		Action Button		Merges clusters and closes popup.	
Apply (Create Project)		Action Button		Apply the fuzzy logic to the data that is selected.	
Save		Action Button		Applies the clustering and removes duplication	Error Message: Transformation failed. Please check the input data.

10.3.3 Open Project:

- Click Open Project from the side navigation bar.
- The screen displays a list of destination connections in a tabular format.
- Clicking on a specific destination connection shows all tables in that data source.
- Selecting a table displays its columns in a tabular format, along with the top 200 rows.
- Each column has a dropdown box near the column name for transformation options.

10.3.3.1 Column Transformation:

- Clicking on a column dropdown reveals Transform and Cluster & Edit options.

- Transform Option: Selecting Transform opens another dropdown with options like Trim leading & trailing white spaces, title case, uppercase, and lowercase.
- Multiple transformations can be applied repeatedly to the same column.

10.3.3.2 Clustering & Editing:

- Clicking Cluster & Edit, the system should open a popup with a Method dropdown containing Nearest Neighbor, Key Collision, and Fuzzy Logic.
- After selecting any one of the Nearest Neighbor, Key Collision, should display a tabular view with:
  - **Cluster Size**: Number of clusters created for duplicate values.
  - **Row Count**: Number of rows in each cluster.
  - **Values in Cluster**: Values present in the cluster (e.g., Ima S P A, Ima spa).
  - **Merge**: Checkbox to select clusters for merging.
  - **New Cell Value**: Editable field showing the first value in the cluster by default.
- Users can merge clusters by ticking the Merge checkbox.
- Users can choose from three actions:
  - **Merge Selected & Recluster**: Merges selected clusters and recalculates new clusters.
  - **Merge Selected & Close**: Merges selected clusters and closes the popup.
  - **Close**: Closes the popup without applying changes.
- After using the Nearest Neighbor and Key Collision, the Fuzzy Logic method is selected.
- The Fuzzy Logic algorithm is applied and clicking the Apply button finalizes changes and closes the popup.
- Once the cleaning and merging process is complete, the transformed data can be truncated and loaded into the silver layer.

10.3.4 Create Project:

- Clicking Create Project from the side navigation bar, the system should load a pop-up with the field “Get Data From”
- On clicking **Get Data From**, it should load two options:
  - **This PC** (for local files)
  - **Database** (for external database connections).
- Selecting an option opens the respective page, allowing users to connect to a table.
- Once a table is selected, the same transformation and clustering options as in the "Open Project" section are available.
- Data processed through Create Project cannot be loaded into the silver layer.
- Instead, users can save the cleaned data by clicking the Save button and exporting it as a CSV or PDF file on the local device.

10.3.4.1 Visual Indicators

- **Dynamic Table Display:** Selecting a specific table dynamically updates the displayed columns and sample data.
- **Popup Windows:**
  - The Cluster & Edit popup dynamically updates based on the selected clustering method.
  - The Merge Selected & Recluster button refreshes clusters dynamically.
- **Dropdown Behavior:**
  - The Method dropdown updates the clustering options available.
  - The Transform dropdown updates based on the column selection.

11 SCHEDULER

- The Scheduler page enables users to create, manage, and edit job schedules. It shows existing jobs in a table with details such as Schedule Name, Status, Start Time, End Time, and an Edit option.
- Users navigate to the Home Page, where they can find the Data Transformation and Scheduling icon. Clicking this icon and then the Scheduler icon opens the Scheduler page.

11.1 Work Function

- Provision to create, manage, and edit job schedules.
- Provision to view the existing job schedules with details.

11.2 User Input

11.2.1 Job Scheduler Form

Attribute/Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message
Schedule Name	String	Text Field		The name should be unique and mandatory. (eg: LoadSalesData)	
Schedule Type		Dropdown		**Values:** • Generic (Runs automatically based on the date given in the table) • Specific	
Specific				On selecting the specific, it should load the following field. • Load Type (Specific, Generic) • Repeat (Weekly, Monthly) • Interval (selected repeat type) • Start Date • End Date.	
Watermark				• The watermark should display only when the Specific Load type is chosen. • Applied to all incremental loads.	
Plus (+)		Action Button		• On clicking, it should create the new job schedule form and should display a success/failure message. • Button remains inactive until all mandatory fields are completed. • Newly created schedules are added dynamically to the table in the Scheduler Page.	Job schedule created successfully. Error Message: Invalid input. Please check your details
Cancel		Action Button		On clicking, it should cancel changes and close the form.	
Edit				On clicking, it should open the Job Schedule form to modify an existing schedule.	

11.2.2 Specific Schedule Type

Attribute/Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message
Load Type		Dropdown		Values: Full load, Incremental Load	Load type in which data is uploaded.
Watermark (Applied to incremental load)		Date		It should be in date format. (Appears only when Load type is Incremental)	
Repeat		Dropdown		Values: Weekly, Monthly. It should be in time interval format.	
Interval		Integer		• Gets input based on the Repeat type. (Note: 30 mins) • Captures the time interval	
Start Date		Date		• Mandatory • Specifies when the schedule begins.	
End Date		Date		• Mandatory • Specifies when the schedule begins.	

12 DATA LINEAGE

- On the Home Page, the side navigation bar includes an icon labeled Data Insights and Control.
- Clicking this icon opens a new page with a two-card layout.
- Selecting the Data Catalog option within this layout navigates the user to the Data Catalog page, where they can explore data relationships and dependencies.

12.1 Work Function

- Provision to explore data relationships and dependencies.

12.2 User Input

Attribute/Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message

13 DATA CATALOG

- On the Home Page, the side navigation bar includes an icon labeled Data Insights and Control.
- Clicking this icon opens a new page with a two-card layout.
- Selecting the Data Catalog option within this layout navigates the user to the Data Catalog page, where they can explore data relationships and dependencies.

13.1 Work Function

- Provision to explore data relationships and dependencies.

13.2 User Input

Attribute/Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message

14 TRAIL RUN - SAMPLE DATA

The Trial Run feature allows users to test data transfers between a source and destination using a sample CSV file. Users can upload a CSV file, validate its format, and start a trial data transfer.

From the home page, the user navigates to the Testing & Monitoring icon in the side navigation bar. Clicking this icon opens a page displaying three card layouts. Selecting the Trial Run - Sample Run card within this layout launches the Trial Run page.

14.1 Work Function

- Provision to test data transfers between a source and destination using a sample CSV file.
- Provision to validate its format and start a trial data transfer.
- Provision to display Source Connection Details and Destination Connection Details side by side.

14.2 User Input

Attribute/Field Name	Data/ Value Type	Field Type	Field Length	Validation	Validation Message
Upload		Action Button		• On clicking the upload button, the system should allow the user to upload the file. • It supports only CSV file formats.	The CSV file is processed successfully and is ready for execution. *Error Message:* *"Upload a CSV file."*
Run		Action Button		• On clicking the button, the system should trigger the trial execution process. • A table should be created in the source that mirrors the CSV data and transferred to the destination table for validation.	