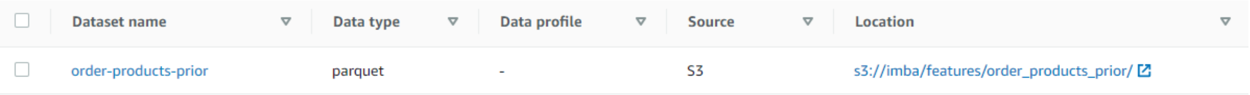
AWS Glue DataBrew

Create dataset

1. Open AWS Glue DataBrew service from aws console
2. Click on DATASETS on the navigation bar on the left, and click "Connect new dataset".
3. Name the dataset name as "order-products-prior", select "Amazon S3" as data source and put the s3 location for your order_products_prior table (s3://imba/features/order_products_prior/), select PARQUET as file type and then click "Create dataset".
4. You should see a new Dataset is created:



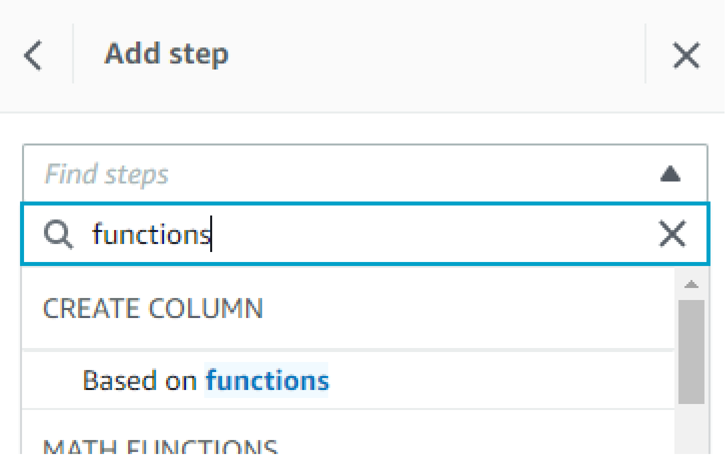
□	Dataset name	Data type	Data profile	Source	Location
□	order-products-prior	parquet	-	S3	s3://imba/features/order_products_prior/

Create Projects

1. Select PROJECTS from the navigation bar from the left, click Create project.
2. Put the project as "prd_features", enter a Recipe name as "prd-features-recipe".
3. Select the dataset you just created: order-products-prior.
4. Under Permissions, select Create new IAM role, put the role suffix as "imba" and click Create project.
5. Wait until the project creation is complete.

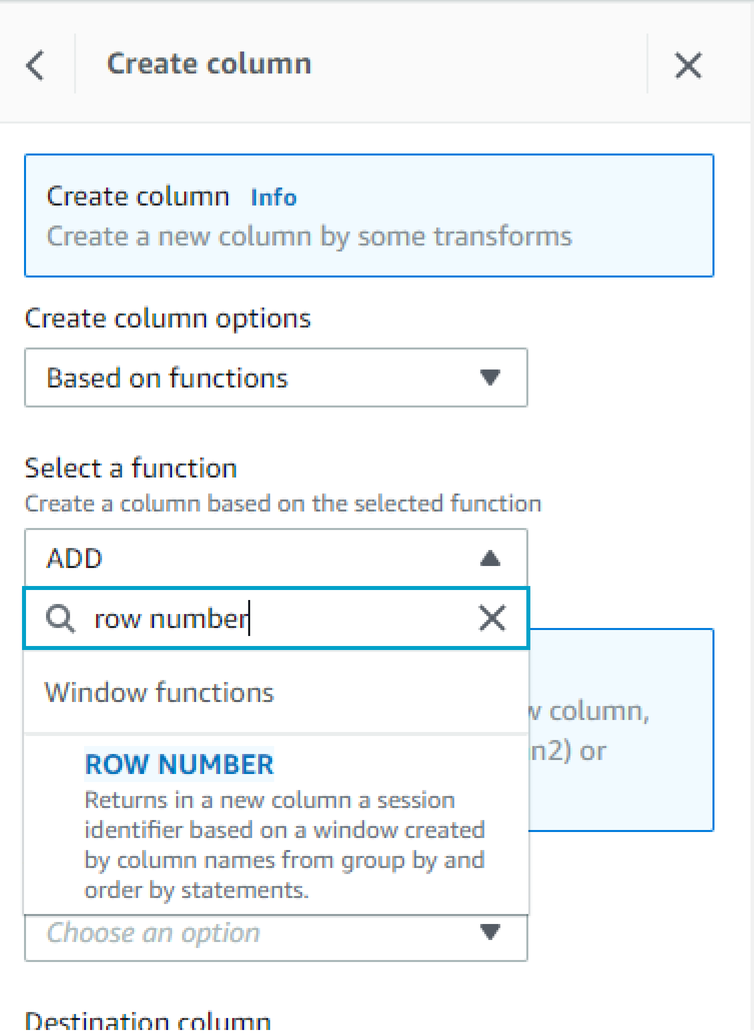
Create recipe

1. Click Add step from the right, search functions in the search bar and select Based on functions, see below:



functions

2. From Select a function, search row number in the search bar and select the “ROW NUMBER” function, see below:



Create column Info
Create a new column by some transforms

Create column options: Based on functions

Select a function
Create a column based on the selected function

ADD

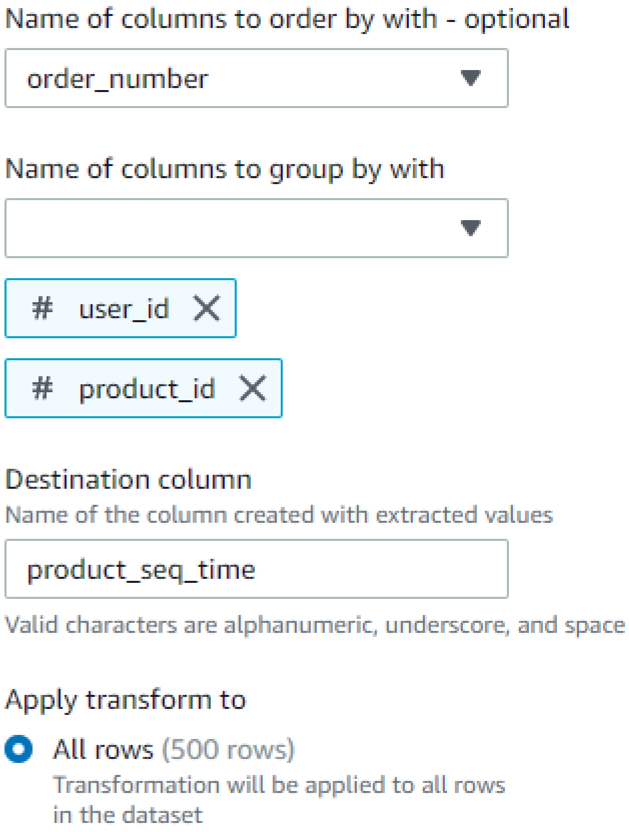
row number

ROW NUMBER
Returns in a new column a session identifier based on a window created by column names from group by and order by statements.

Choose an option

Destination column

3. Select order_number as order by column and user_id, product_id as group by columns, name the Destination column as product_seq_time, see below:



Name of columns to order by with - optional

order_number ▼

Name of columns to group by with

▼

user_id ✕

product_id ✕

Destination column

Name of the column created with extracted values

product_seq_time

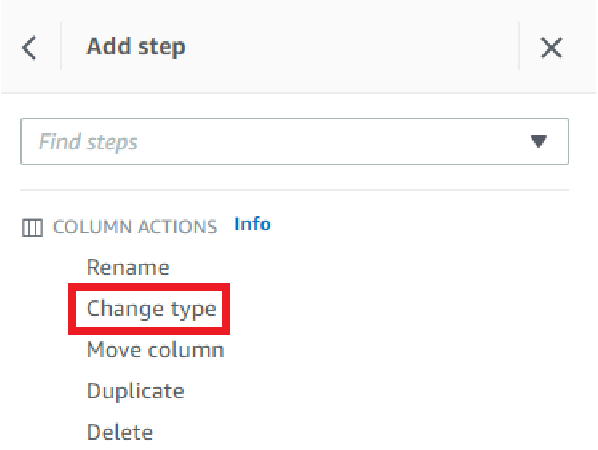
Valid characters are alphanumeric, underscore, and space

Apply transform to

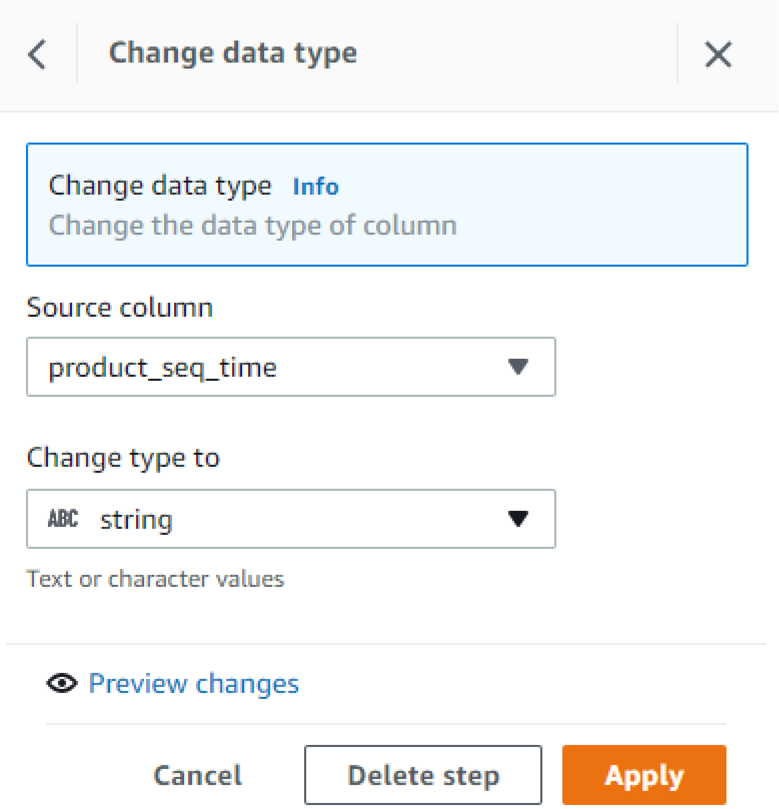
● All rows (500 rows)

Transformation will be applied to all rows in the dataset

4. Click Apply to apply the step.
5. Add another step, select Change type:



Change the column product_seq_time to string and click Apply:



Change data type Info

Change the data type of column

Source column

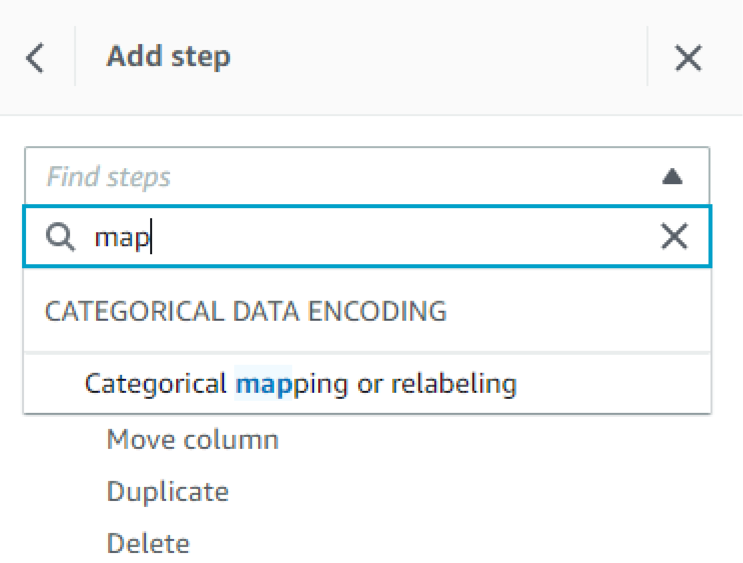
product_seq_time

Change type to

ABC string

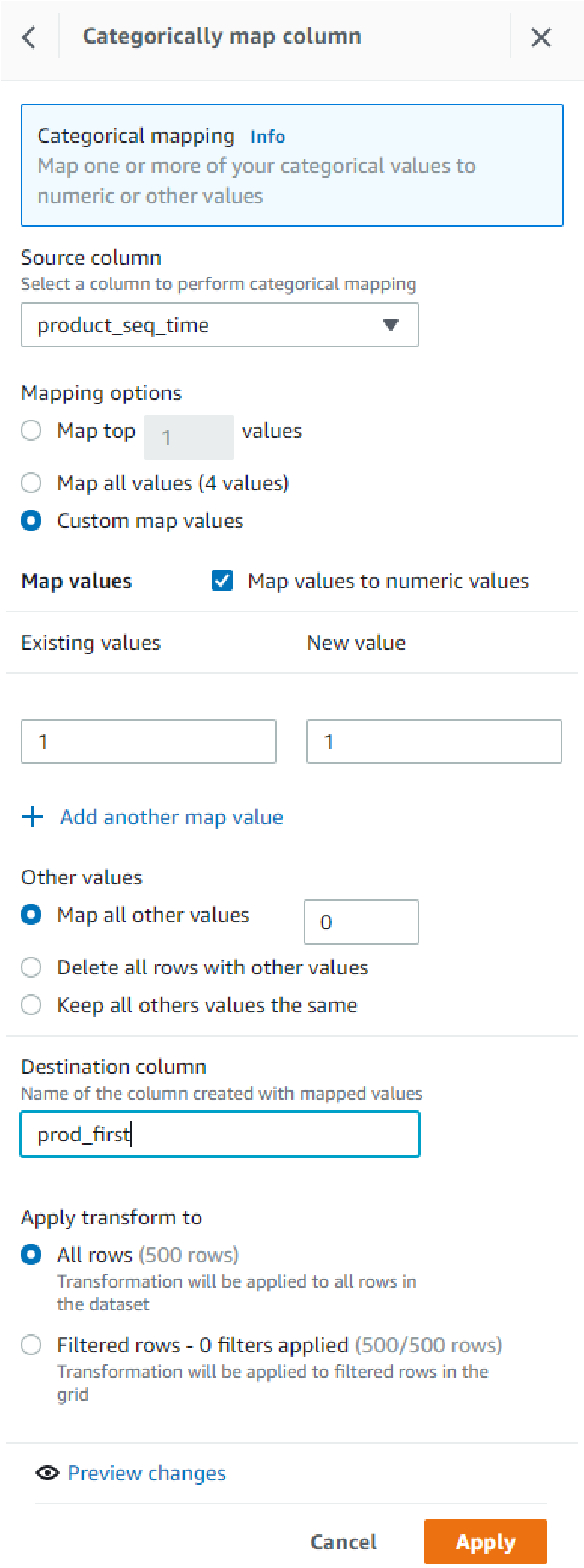
Text or character values

6. Add another step, search and select Categorical mapping or relabeling function from the "Find steps" dropdown list:



map

Make the configuration similar to below and click Apply:



Categorically map column

Categorical mapping Info
Map one or more of your categorical values to numeric or other values

Source column
Select a column to perform categorical mapping
product_seq_time ▼

Mapping options

○ Map top 1 values

○ Map all values (4 values)

● Custom map values

Map values ☑ Map values to numeric values

Existing values	New value
1	1

＋ Add another map value

Other values

● Map all other values 0

○ Delete all rows with other values

○ Keep all others values the same

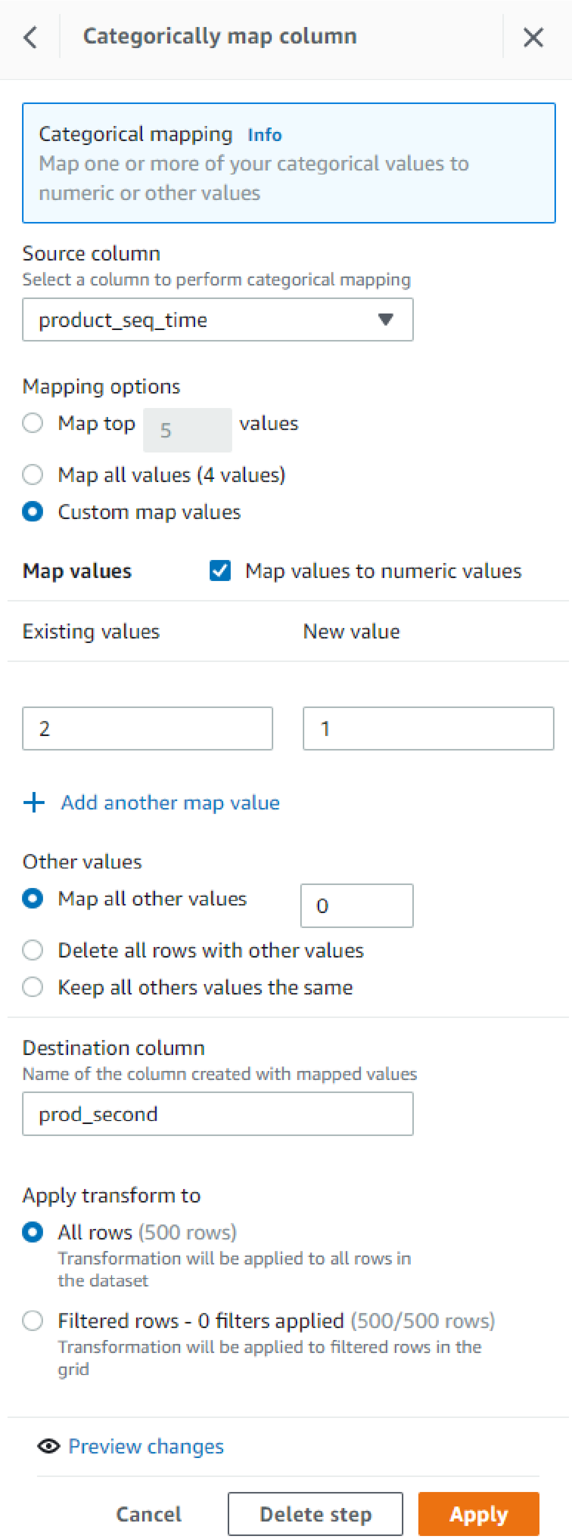
Destination column
Name of the column created with mapped values
prod_first

Apply transform to

● All rows (500 rows)
Transformation will be applied to all rows in the dataset

○ Filtered rows - 0 filters applied (500/500 rows)
Transformation will be applied to filtered rows in the grid

7. Use Categorical mapping again to create another column called prod_second and click Apply:



Categorically map column

Categorical mapping Info
Map one or more of your categorical values to numeric or other values

Source column
Select a column to perform categorical mapping
product_seq_time

Mapping options
○ Map top 5 values
○ Map all values (4 values)
● Custom map values

Map values ☑ Map values to numeric values

Existing values	New value
2	1

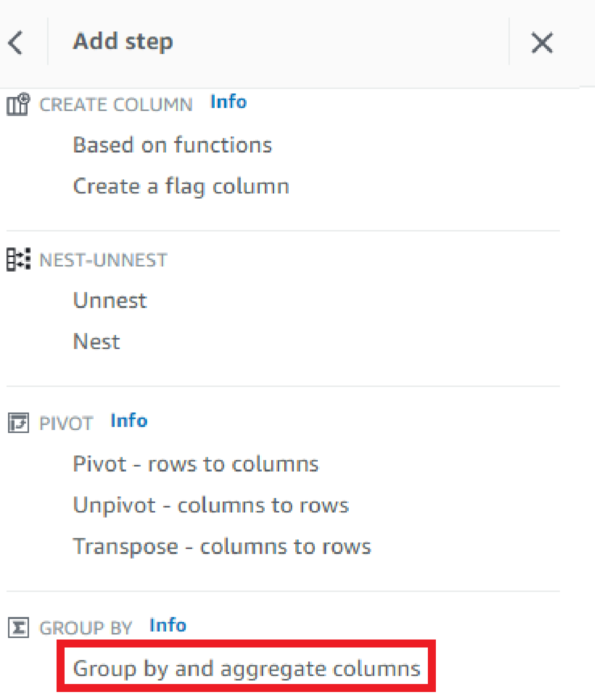
+ Add another map value

Other values
● Map all other values 0
○ Delete all rows with other values
○ Keep all others values the same

Destination column
Name of the column created with mapped values
prod_second

Apply transform to
● All rows (500 rows)
Transformation will be applied to all rows in the dataset
○ Filtered rows - 0 filters applied (500/500 rows)
Transformation will be applied to filtered rows in the grid

8. Add another step, scroll down and select “Group by and aggregate columns” (note: sometimes you need to search SUM aggregate functions to make the “GROUP BY” step available):



Add step

CREATE COLUMN Info

- Based on functions
- Create a flag column

NEST-UNNEST

- Unnest
- Nest

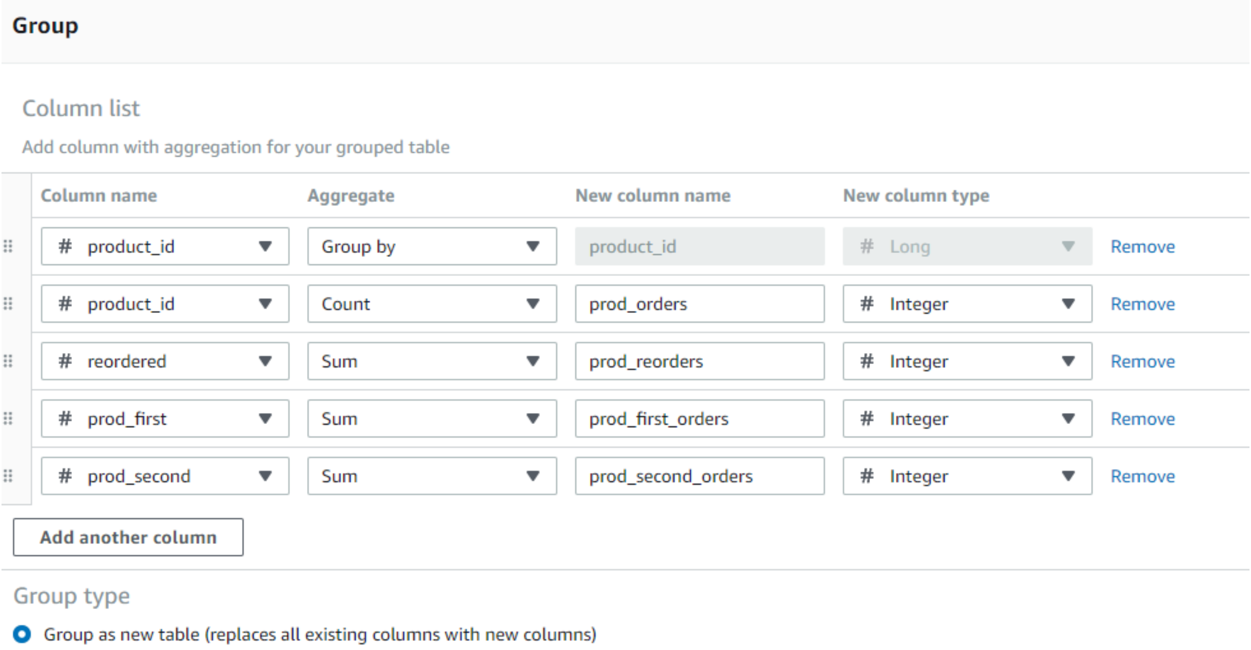
PIVOT Info

- Pivot - rows to columns
- Unpivot - columns to rows
- Transpose - columns to rows

GROUP BY Info

- Group by and aggregate columns

9. Have below configuration ready in this step and click finish:



Group

Column list

Add column with aggregation for your grouped table

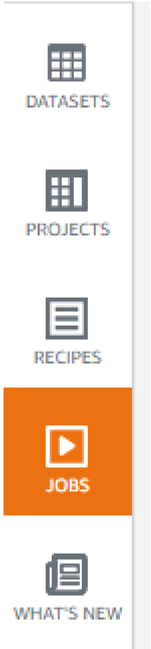
Column name	Aggregate	New column name	New column type	
# product_id	Group by	product_id	# Long	Remove
# product_id	Count	prod_orders	# Integer	Remove
# reordered	Sum	prod_reorders	# Integer	Remove
# prod_first	Sum	prod_first_orders	# Integer	Remove
# prod_second	Sum	prod_second_orders	# Integer	Remove

Add another column

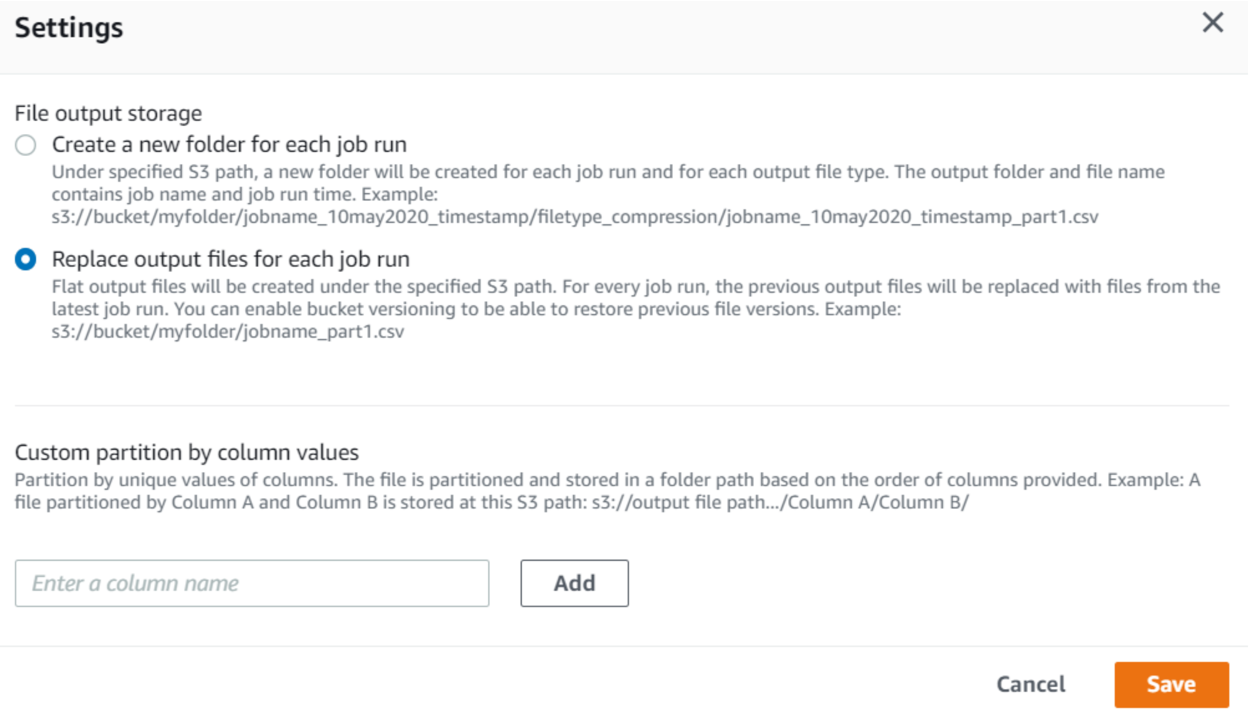
Group type

● Group as new table (replaces all existing columns with new columns)

10. Upon completion of all steps, navigate to JOBS on the left and click Create job:



11. Name the job as “prd-features-job”, for Job input please select Project and choose the “prd-features” project you just created.
12. For Job output settings, choose PARQUET as File type and enter the S3 location as: s3://imba/features/prd_feature_db/.
13. Leave everything else as default and go to Permissions at the bottom, re-use the role AWSGlueDataBrewServiceRole-imba.
14. Click Settings and select Replace output files for each job run:



Settings

File output storage

○ Create a new folder for each job run

Under specified S3 path, a new folder will be created for each job run and for each output file type. The output folder and file name contains job name and job run time. Example: s3://bucket/myfolder/jobname_10may2020_timestamp/filetype_compression/jobname_10may2020_timestamp_part1.csv

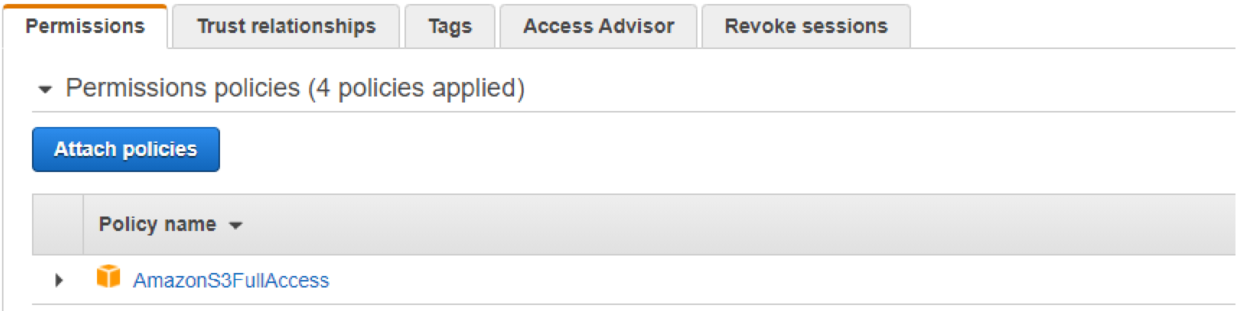
● Replace output files for each job run

Flat output files will be created under the specified S3 path. For every job run, the previous output files will be replaced with files from the latest job run. You can enable bucket versioning to be able to restore previous file versions. Example: s3://bucket/myfolder/jobname_part1.csv

Custom partition by column values

Partition by unique values of columns. The file is partitioned and stored in a folder path based on the order of columns provided. Example: A file partitioned by Column A and Column B is stored at this S3 path: s3://output file path.../Column A/Column B/

15. Open a new AWS console tab in browser and go to IAM, select the role AWSGlueDataBrewServiceRole-imba and add AmazonS3FullAccess permission to it:



▾ Permissions policies (4 policies applied)

	Policy name ▾
▸	AmazonS3FullAccess

16. Click Create and run job, you should see a few files are created in: s3://imba/features/prd_feature_db/

17. Repeat the process for user_features_1, user_features_2 and up_features based on the SQL queries from project part 2.

AWS glue development endpoint

Develop a notebook using glue development endpoint, which achieves below:

1. Join up_features, prd_features, user_features_1 and user_features_2 into one dataframe
2. Write the output as a single csv file to s3 bucket.