# **BUS 5100-93 Term Project Tutorial**

**Los Angeles Earthquake Prediction**

**Using SAC**

**Team 5**

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**Helpful Links:**

<https://github.com/cfier001/Earthquake-data.git>

<https://www.kaggle.com/datasets/batuhankalem/los-angeles-earthquake-dataset/data>

**Objective**: Data Engineering exercise to acquire, transform, and model data for data analysis in SAP Analytics Cloud for predicting Los Angeles earthquakes.

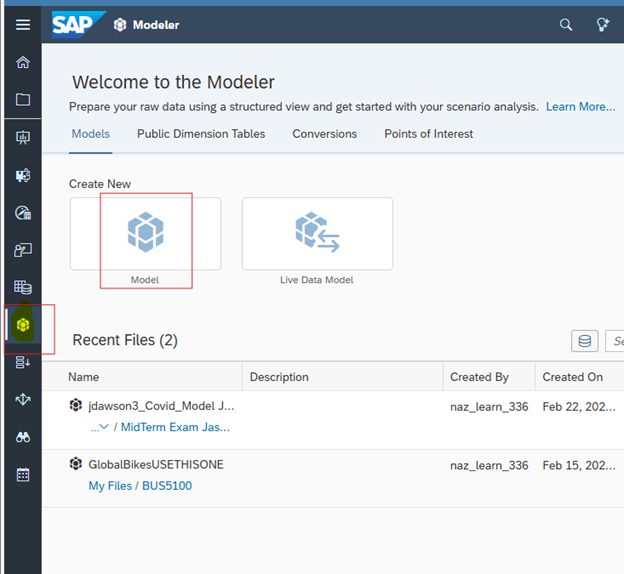
**Logging on to SAP Analytics Cloud:**

1. Open a web browser and go to SAP Analytics Cloud (SAC): https://auth.ucc.ovgu.de/realms/SAC\_USA/login-actions/authenticate?client\_id=higher-education.aws-live&tab\_id=rVXXgivXAkU

2. Log in SAP Analytics Cloud (SAC)

**Steps to follow to recreate visuals:**

On the left hand side of the screen select the Modeler Icon. Next, click on Create New Model.



A pop-up screen to Create Model will appear, select the blue text on the bottom, “Want to create a classic model (accounts only) instead?”A screenshot of a computer

AI-generated content may be incorrect.

Select the default “Start with data” and hit Next.

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AI-generated content may be incorrect.

Select “Dataset” as the data source

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AI-generated content may be incorrect.

When “My Files” pops up, select the shared file, “Team 5 Final Project”.

A screenshot of a computer

AI-generated content may be incorrect.

Select the dataset “InstructionsLosAngeles\_Earthquake\_Dataset to open it

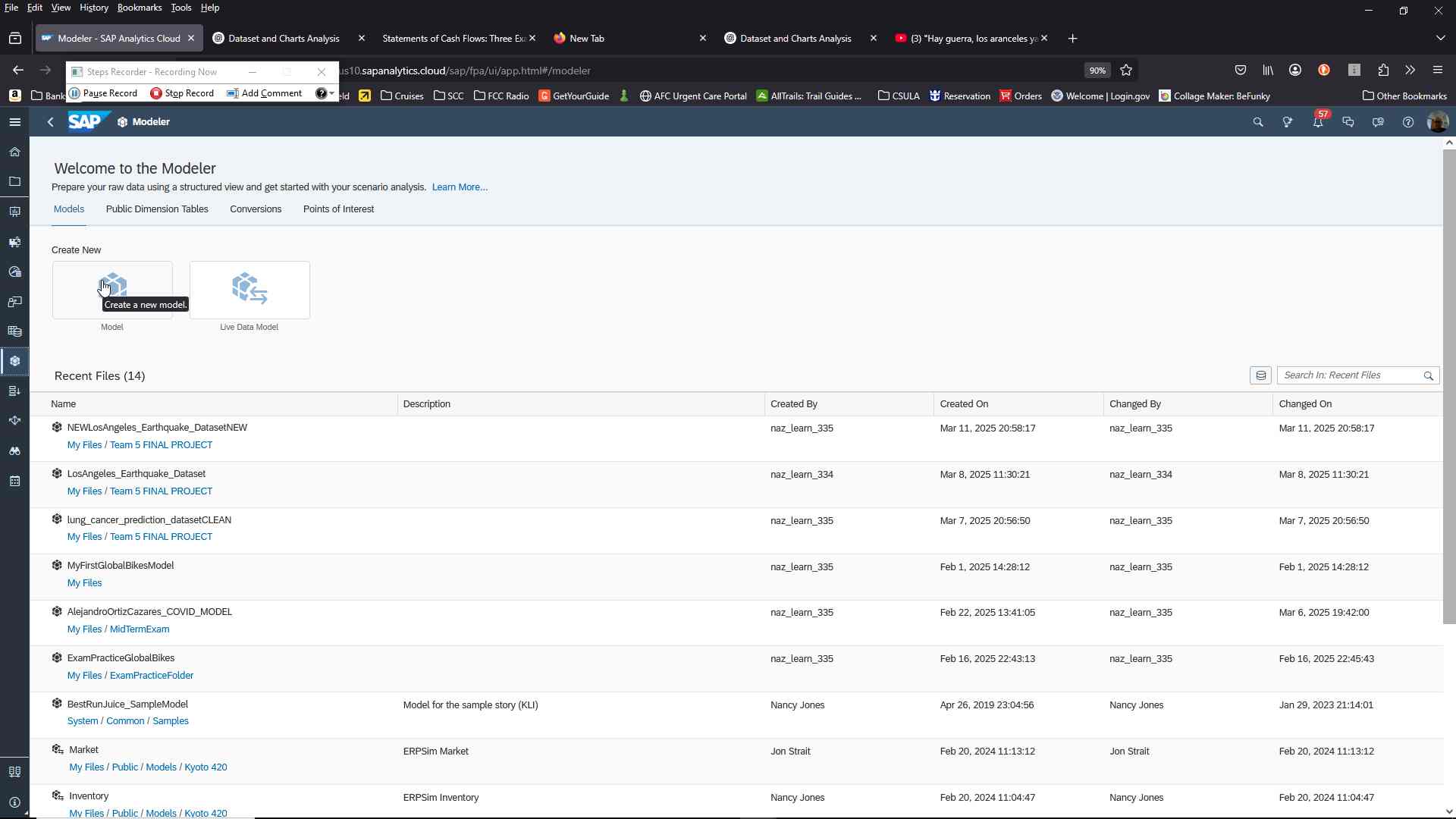


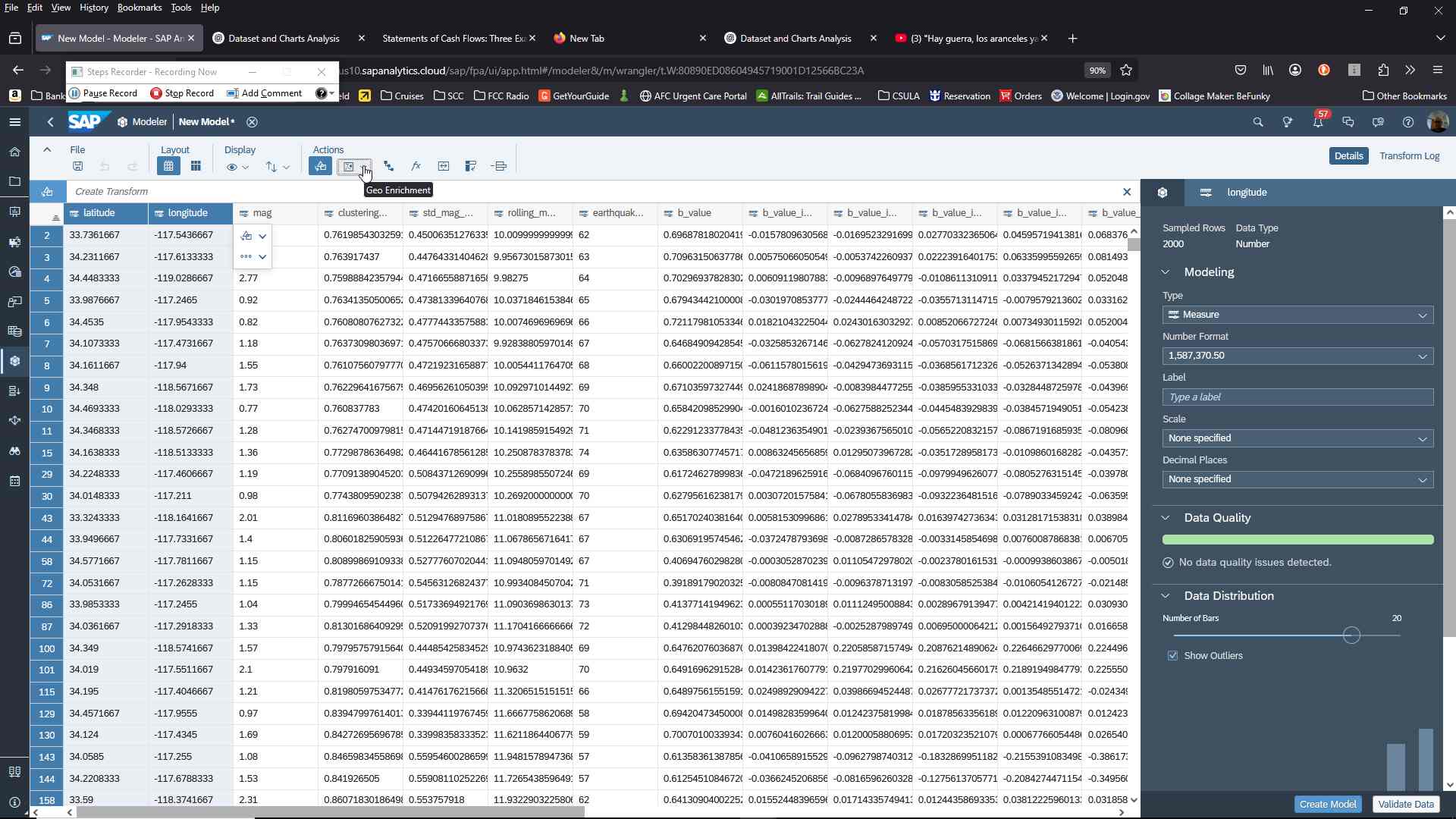
Once the dataset is open, go to SAP’s left menu and click on “Modeler” to create a new Model.

**On the left side menu, click on “Modeler”**

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AI-generated content may be incorrect.



**In the modeler window,** **using Ctrl + Click select latitude and longitude and then under the actions button select Geo Enrichment” to select “coordinates”.**

A screenshot of a computer

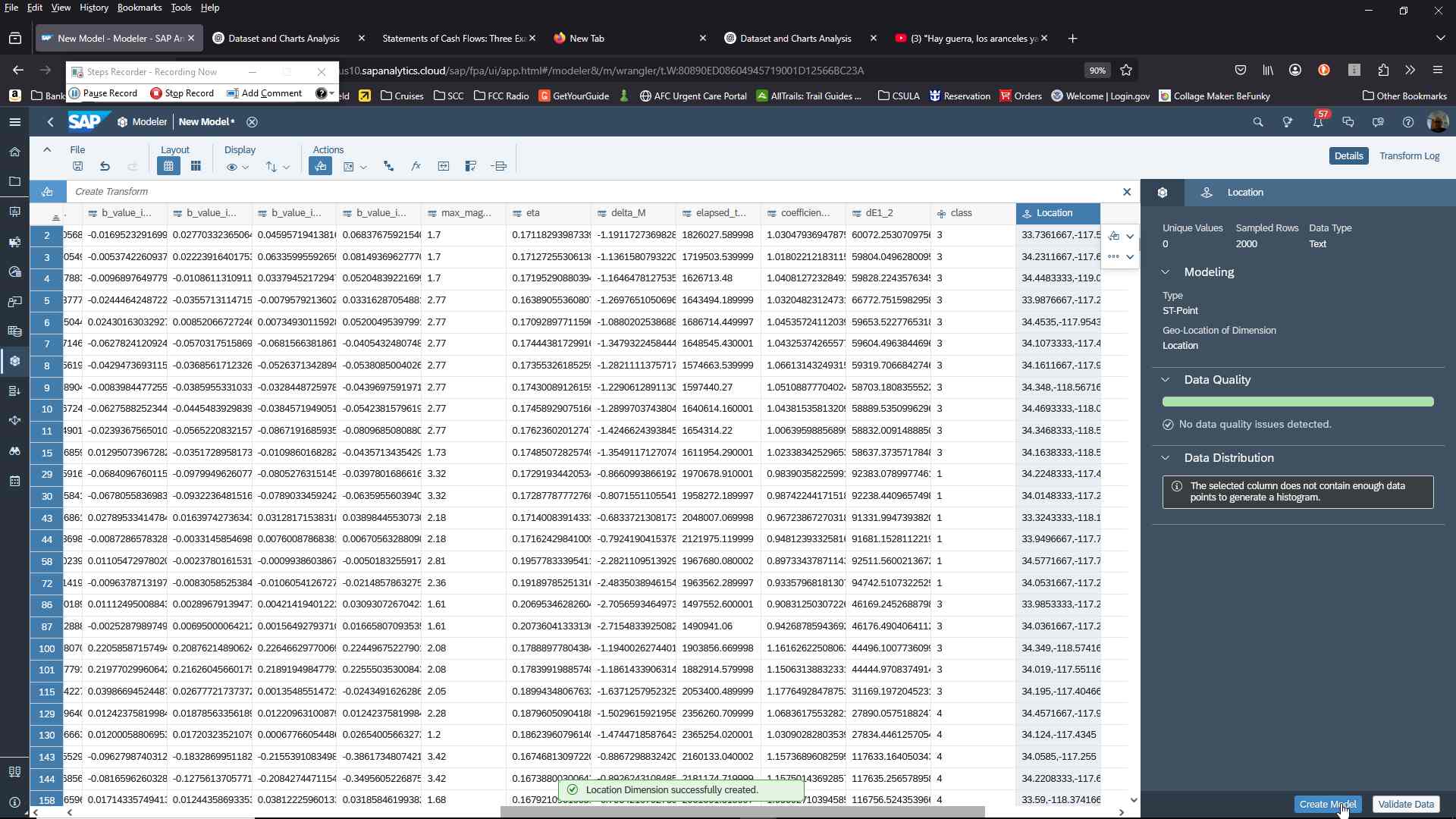
AI-generated content may be incorrect.

**Type your dimension the name “Location” and click “Create” Ensure longitude and latitude are selected in the “coordinates” section.**

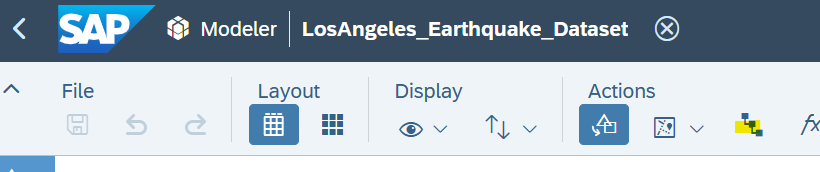
A screenshot of a computer

AI-generated content may be incorrect.

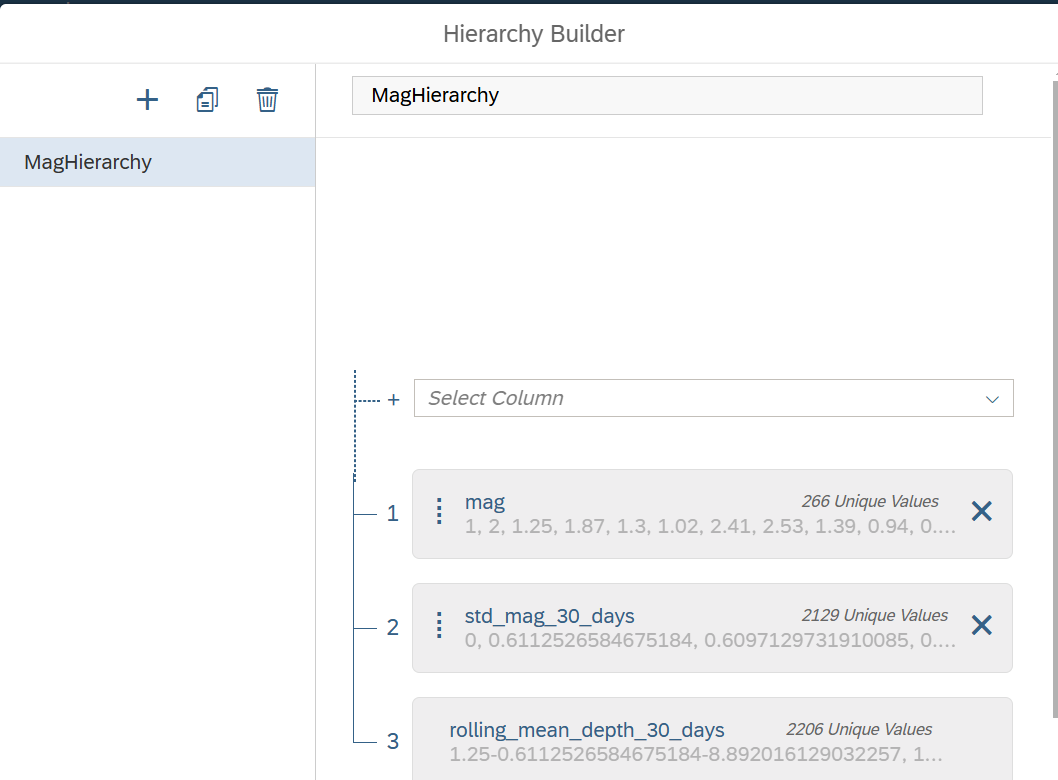
**A new column with the location dimension will be created in the Model created**



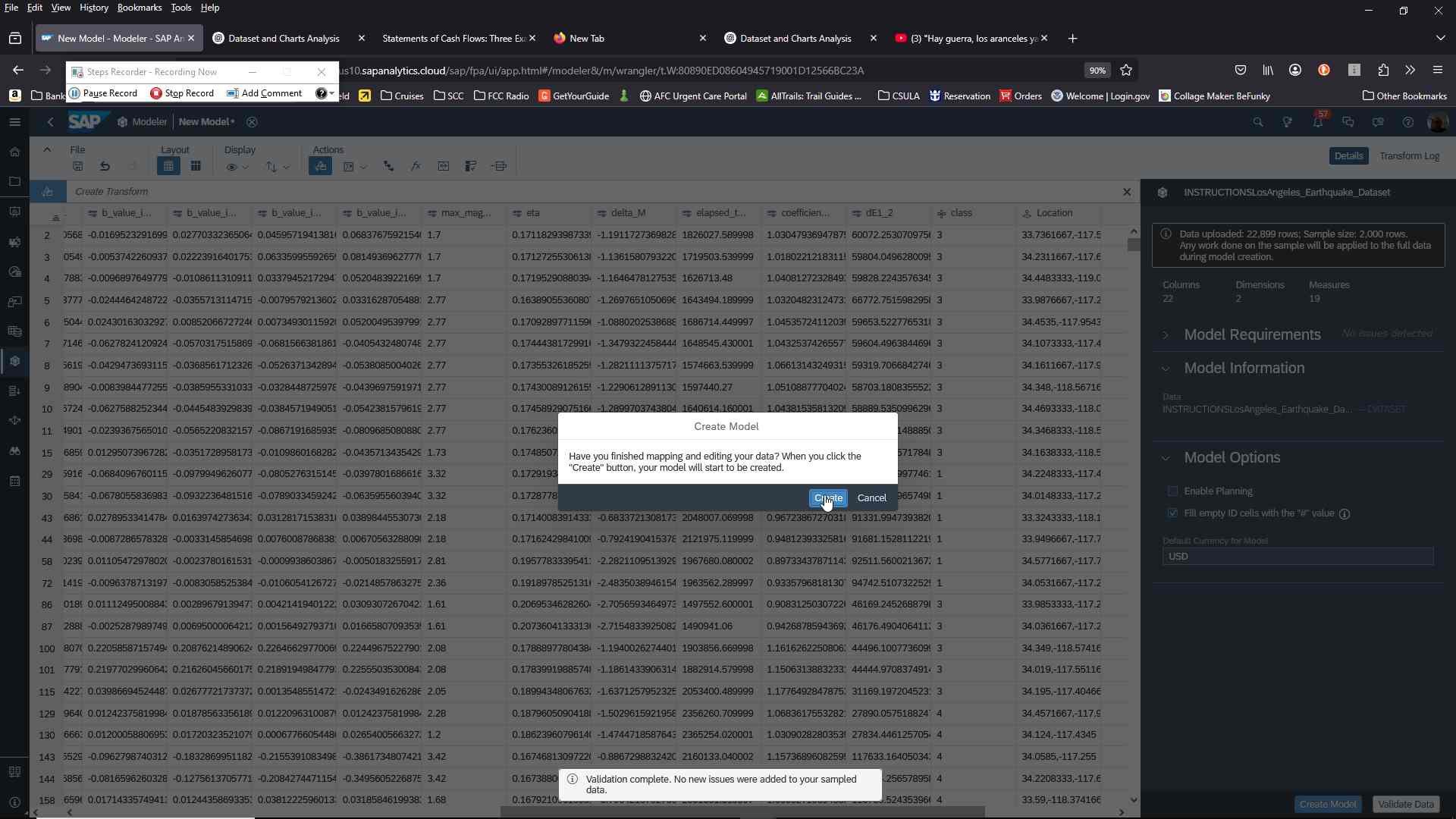
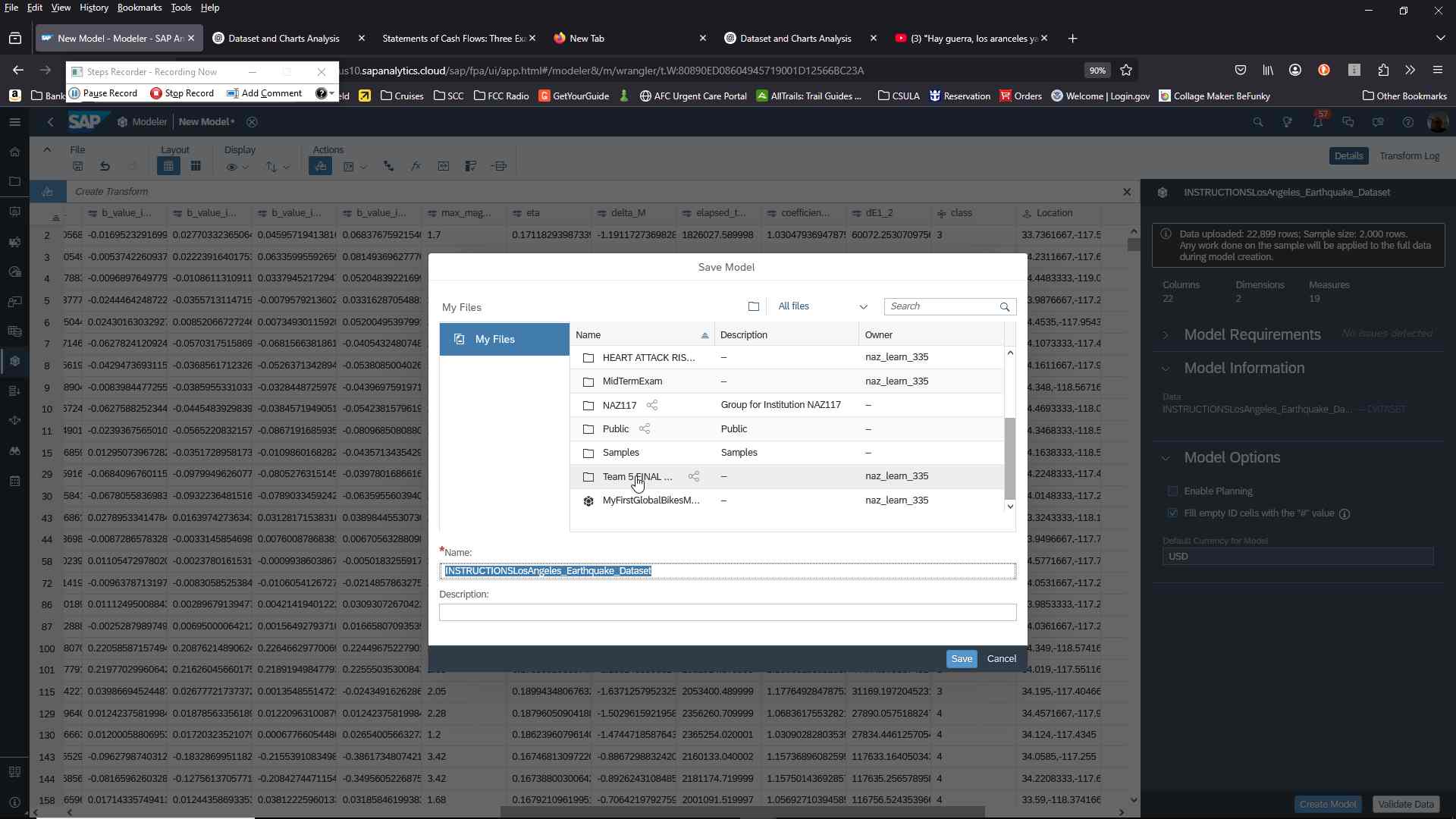
**Select Hierarchy icon under actions:**



**Insert Mag Hierarchy by + to select column as below:**

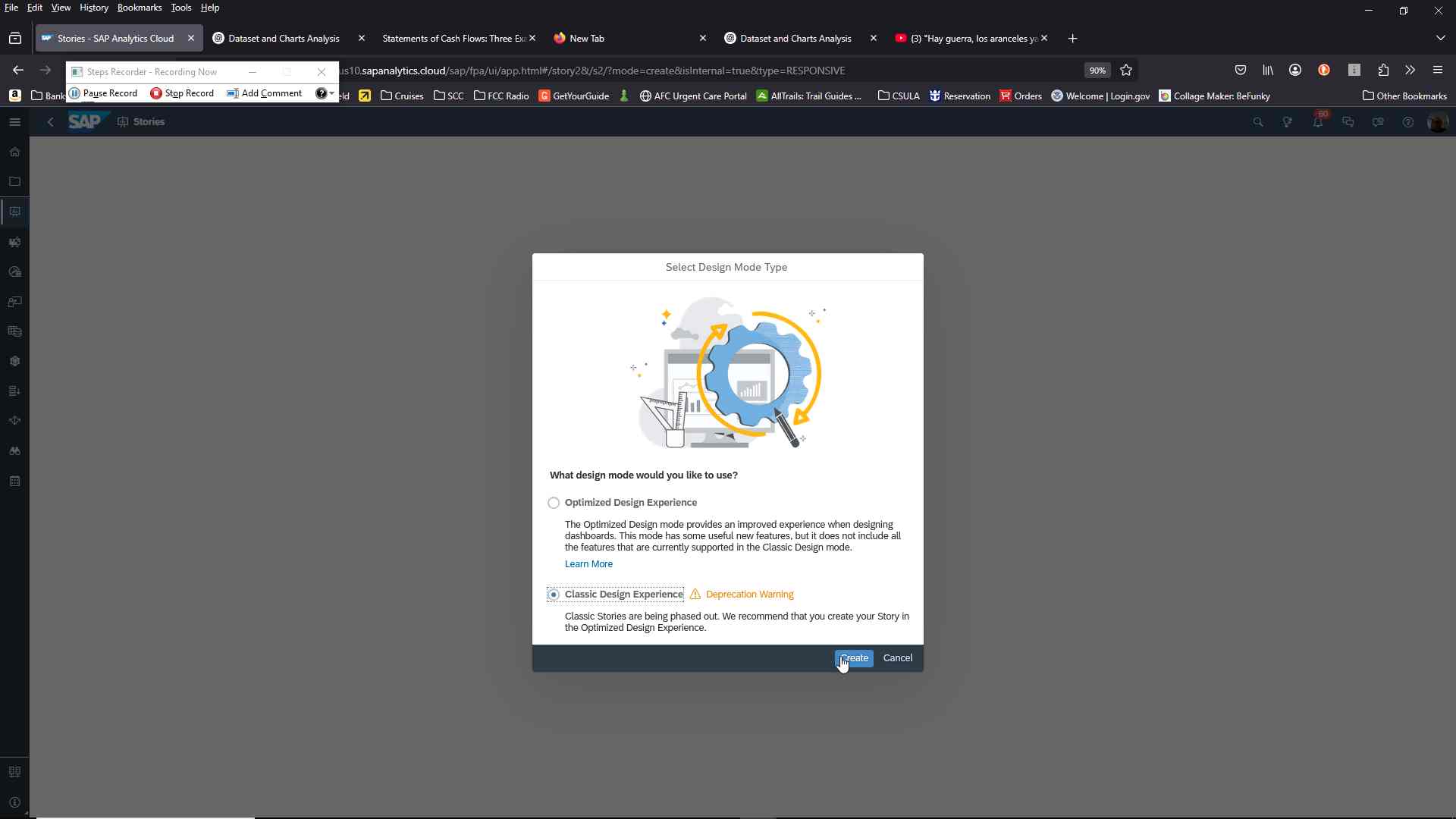


**Create and save your Model in the Team5Final folder.**

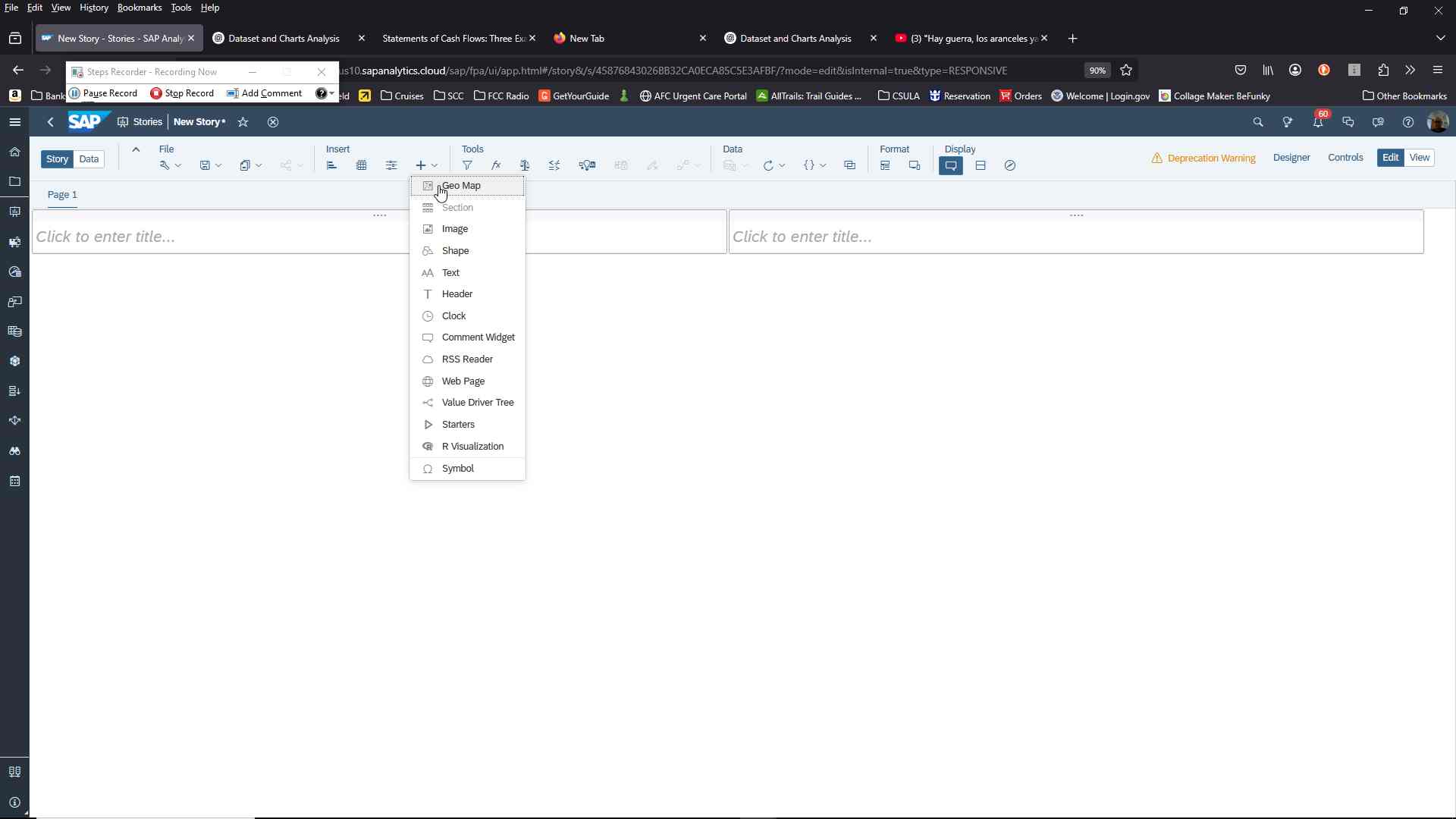


**On the left hand menu, go to “STORIES” to create a Responsive Story. Select Classic Design**

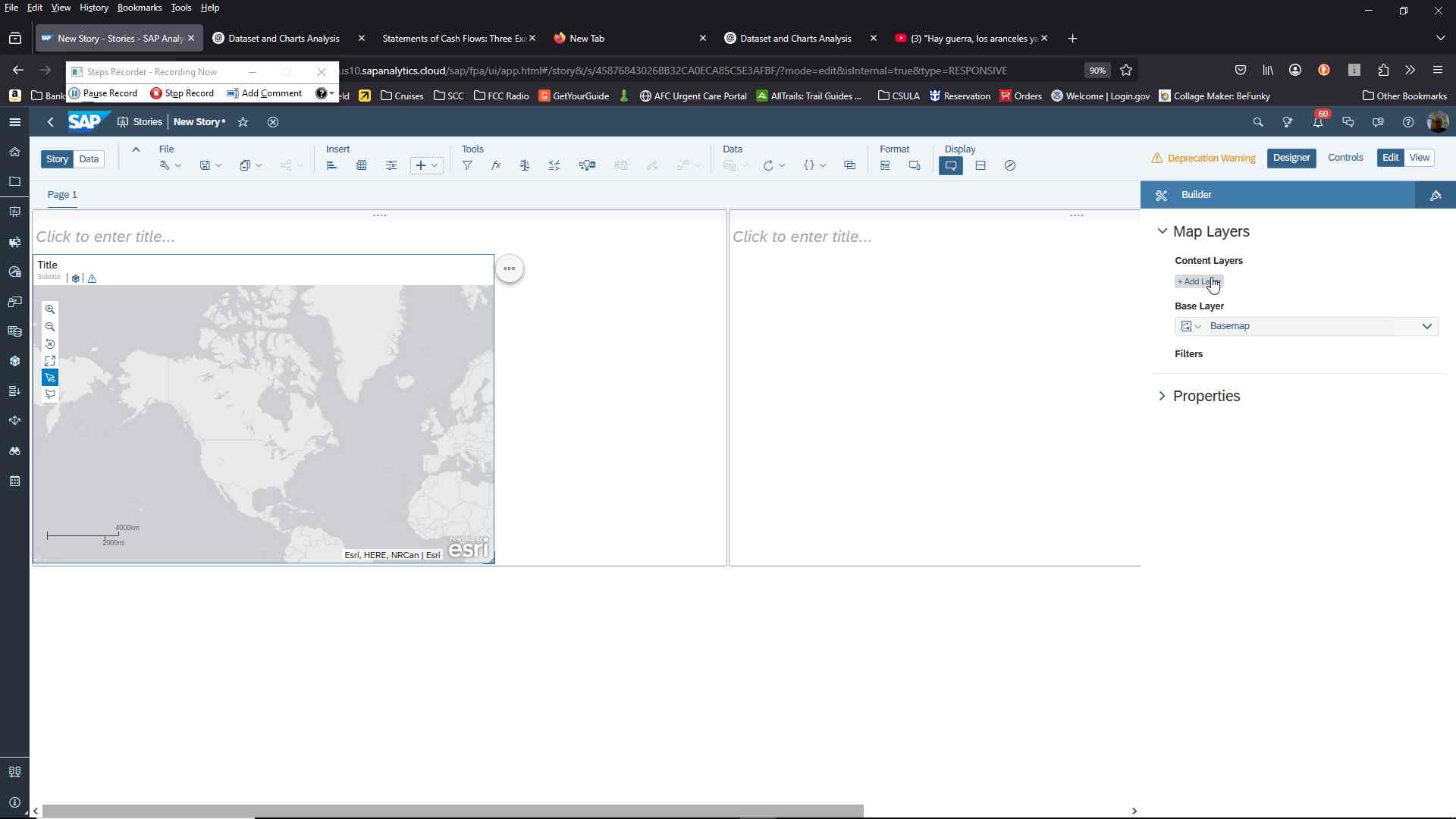




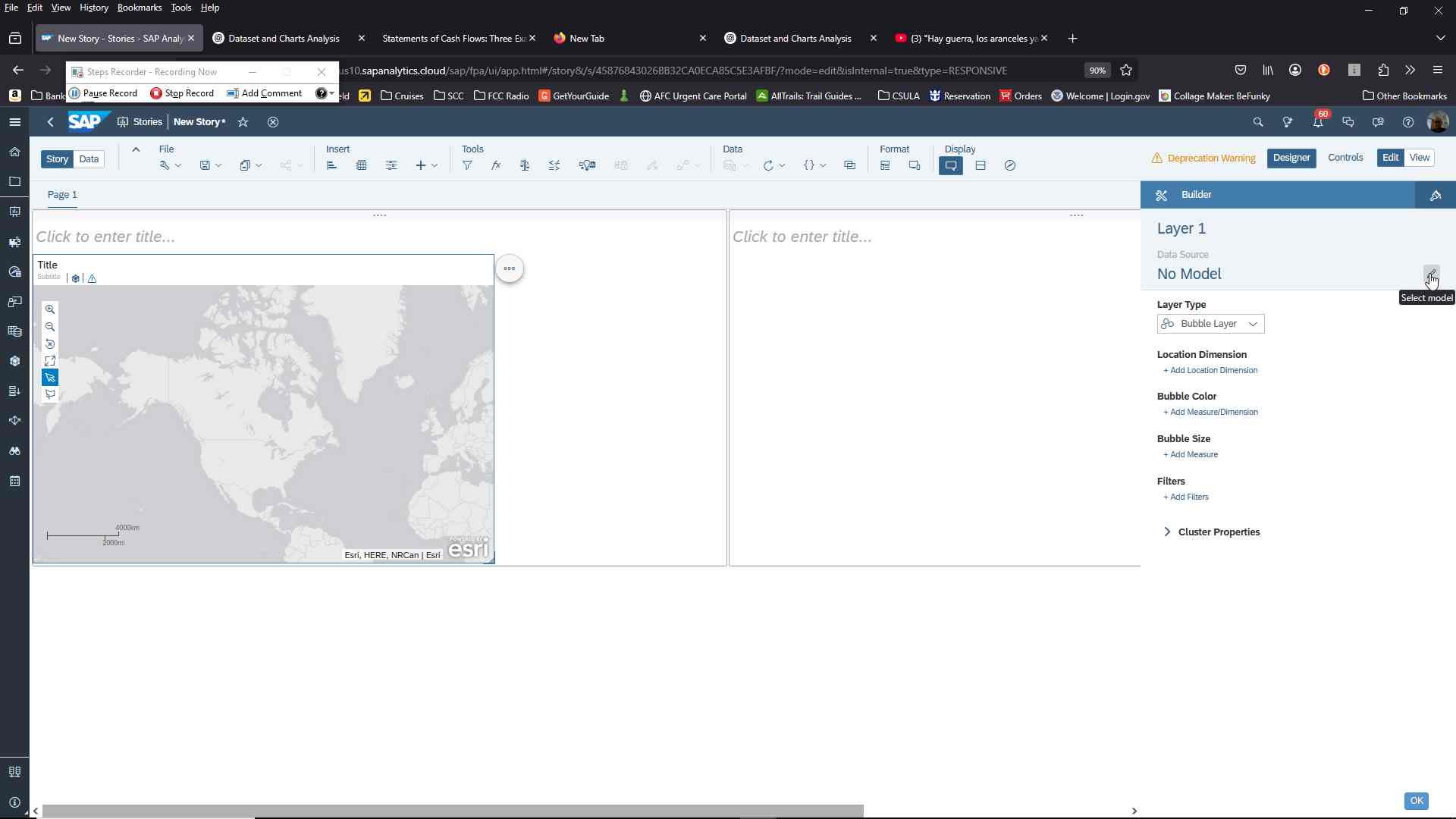
**On the top menu click on “Insert” to create a GeoMap**

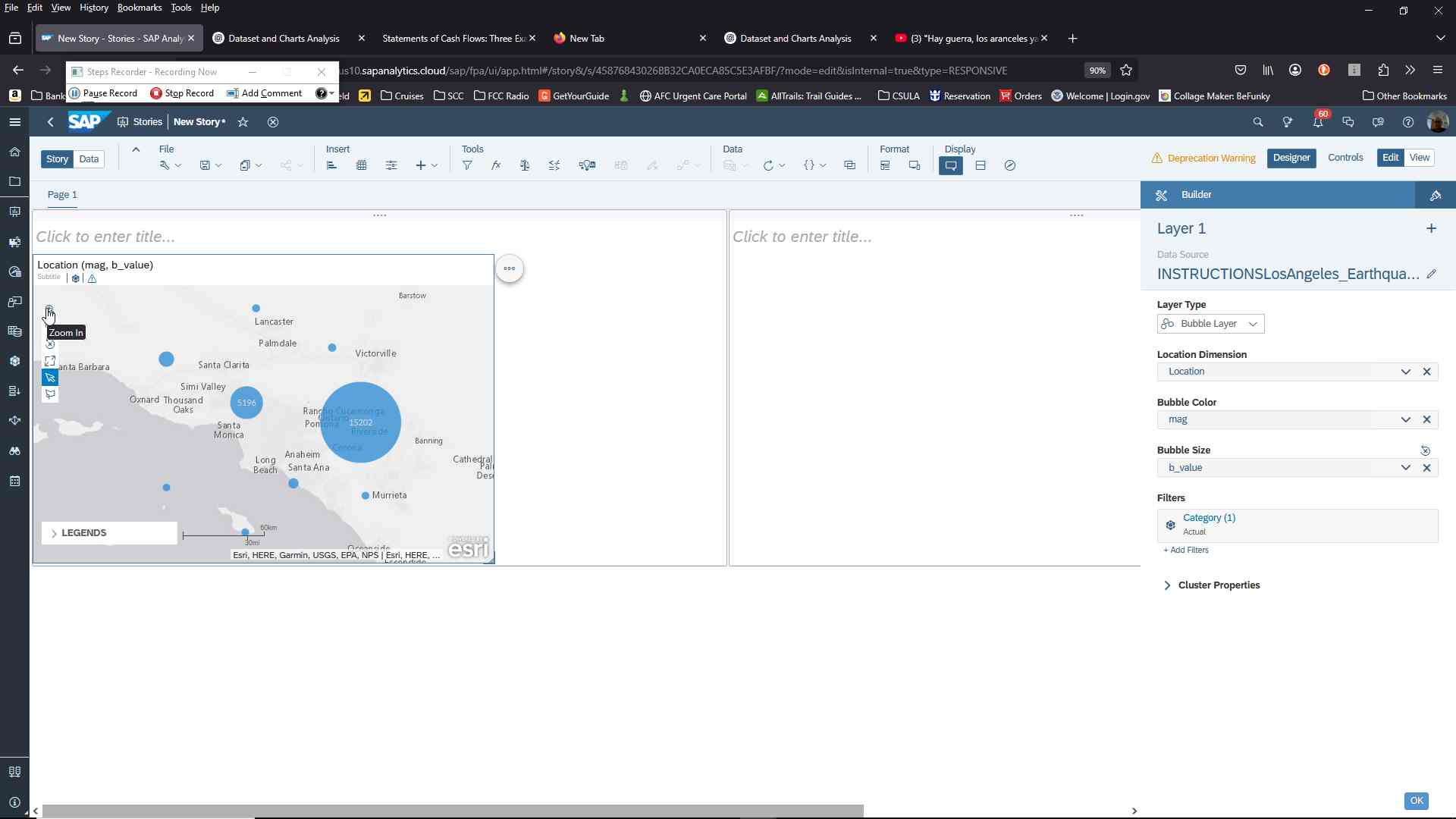


**Select Content layers, “Bubble Layer” and add dimensions.**



**Conditional:** Ensure your Model has been selected under Data Source.



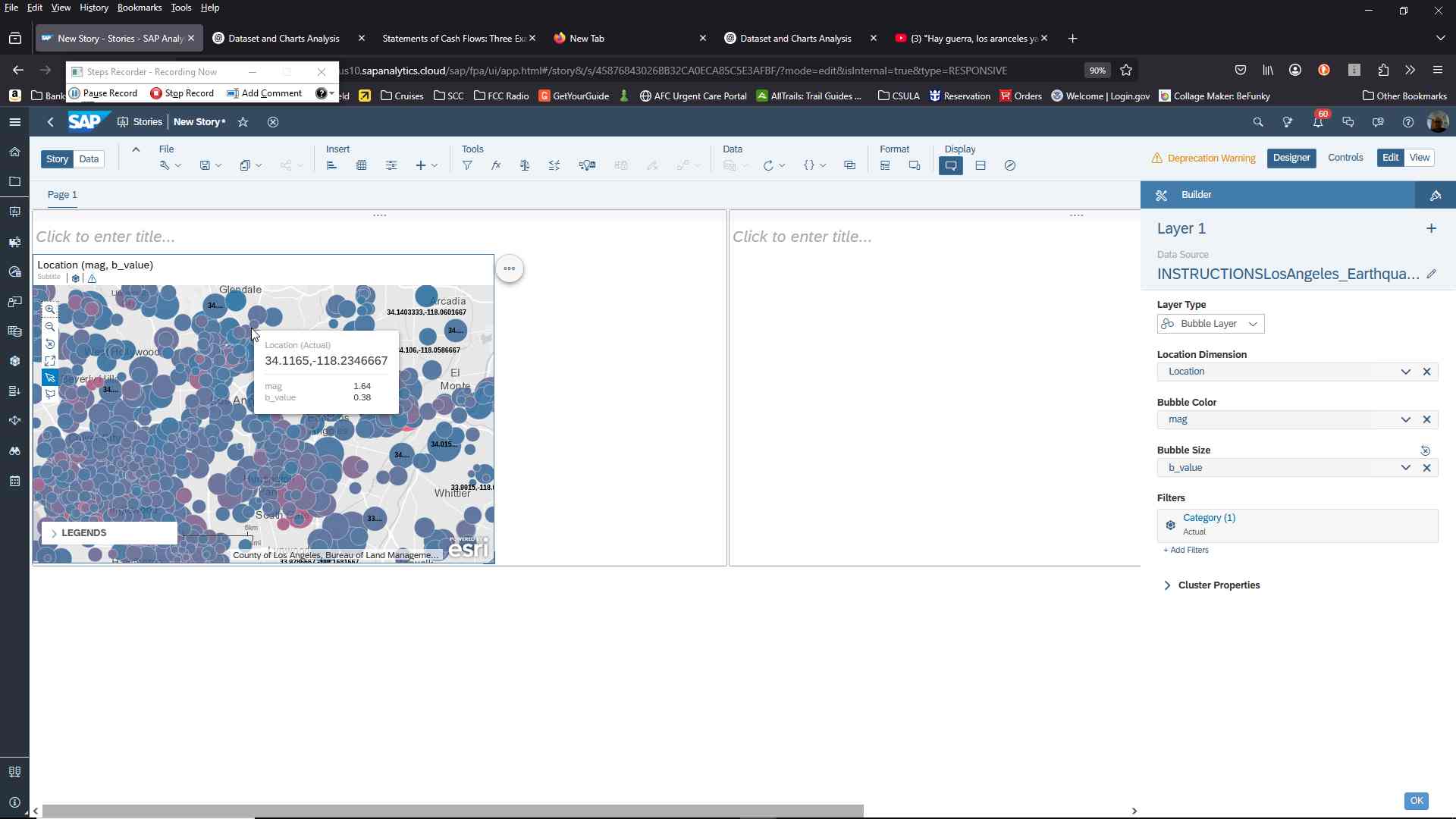
**Select**

Location Dimension: Location

Bubble: mag

Bubble Size: b\_value

As needed use the map’s zoom controls for better accuracy.



**On the left side menu, click on “Modeler”**

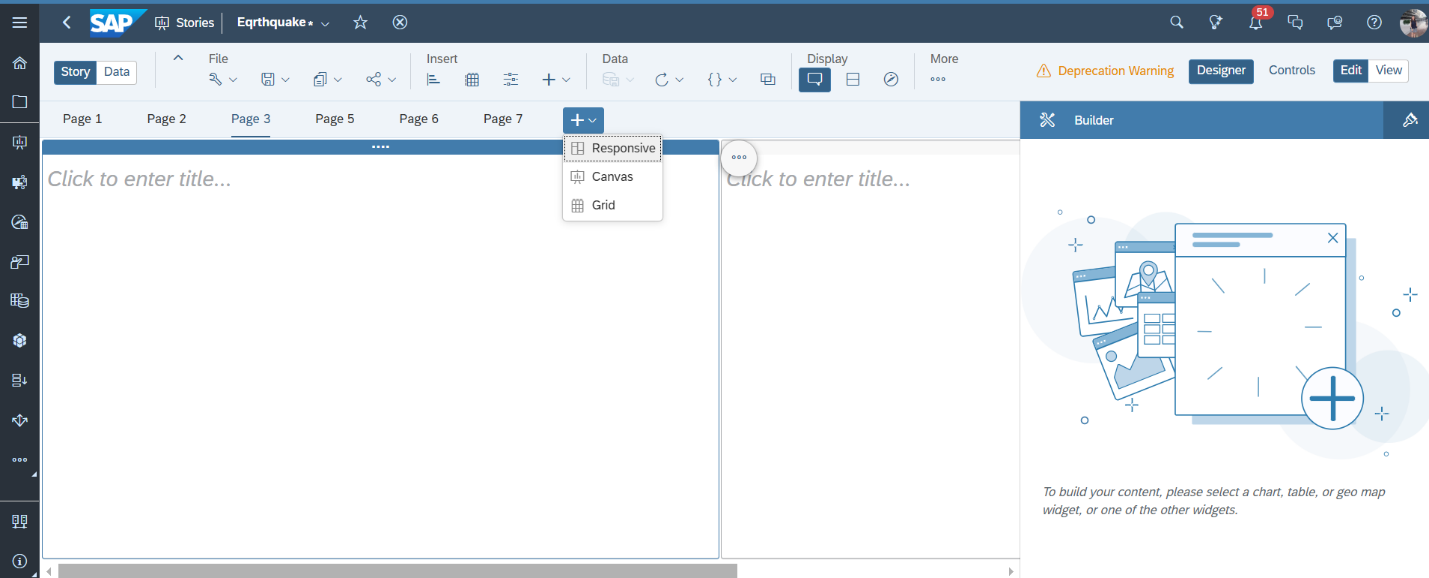
A screenshot of a computer

AI-generated content may be incorrect.

**Chart 2**

**Step 1:**

Add Responsive page



**Step 2:**

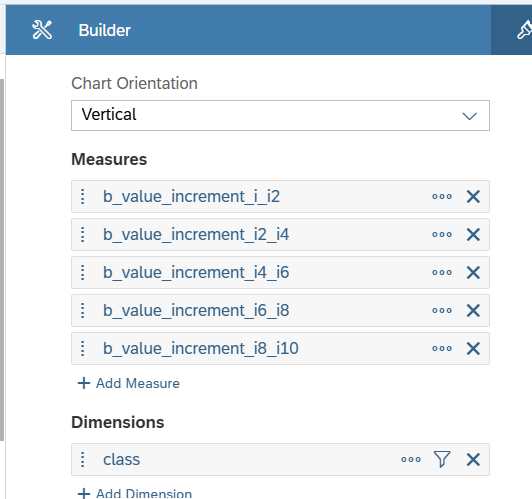
Insert Chart and select comparison as chart structure



**Step 3:**

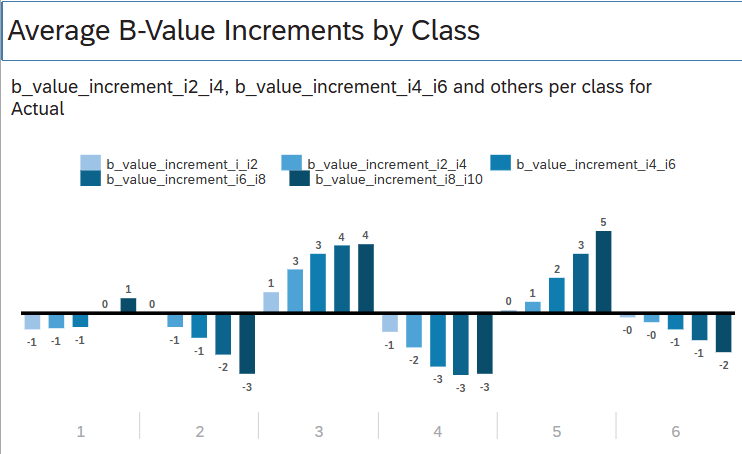
**Select Measures** b\_value\_increment\_i\_i2, b\_value\_increment\_i2\_i4, b\_value\_increment\_i6\_i8, b\_value\_increment\_i8\_i10

Select class as **Dimensions**



**Step 4:**

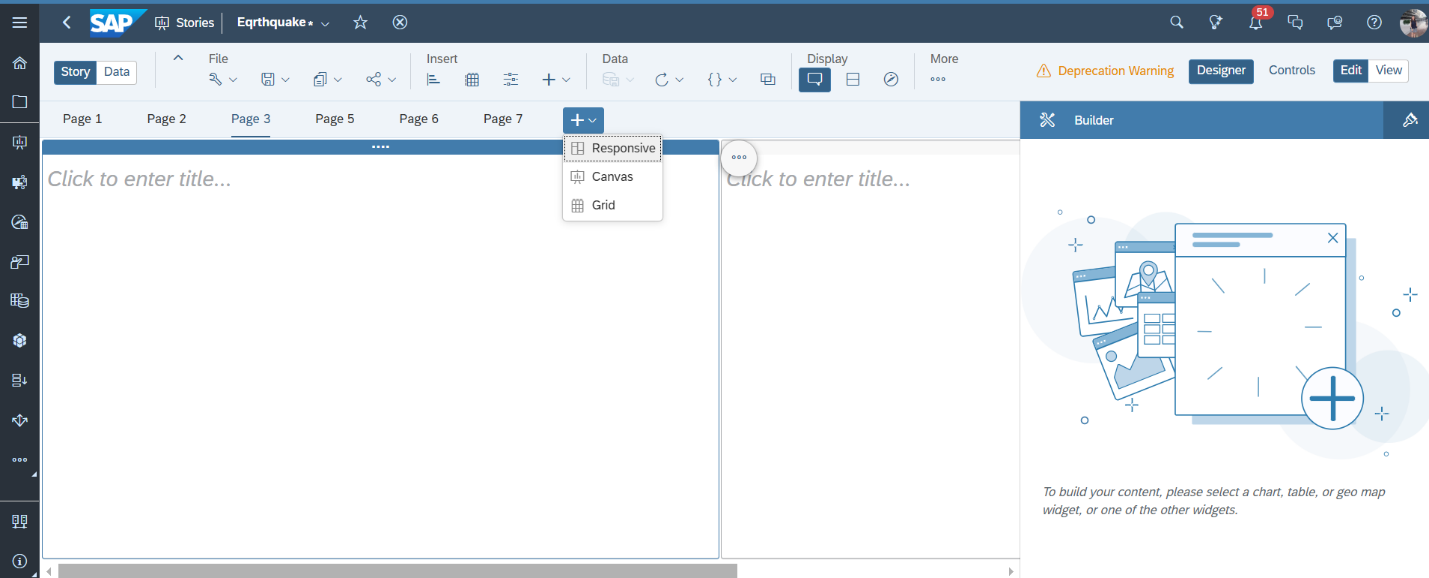
Double click on header and rename the chart to “Average B Value Increments by Class”



**Chart 3**

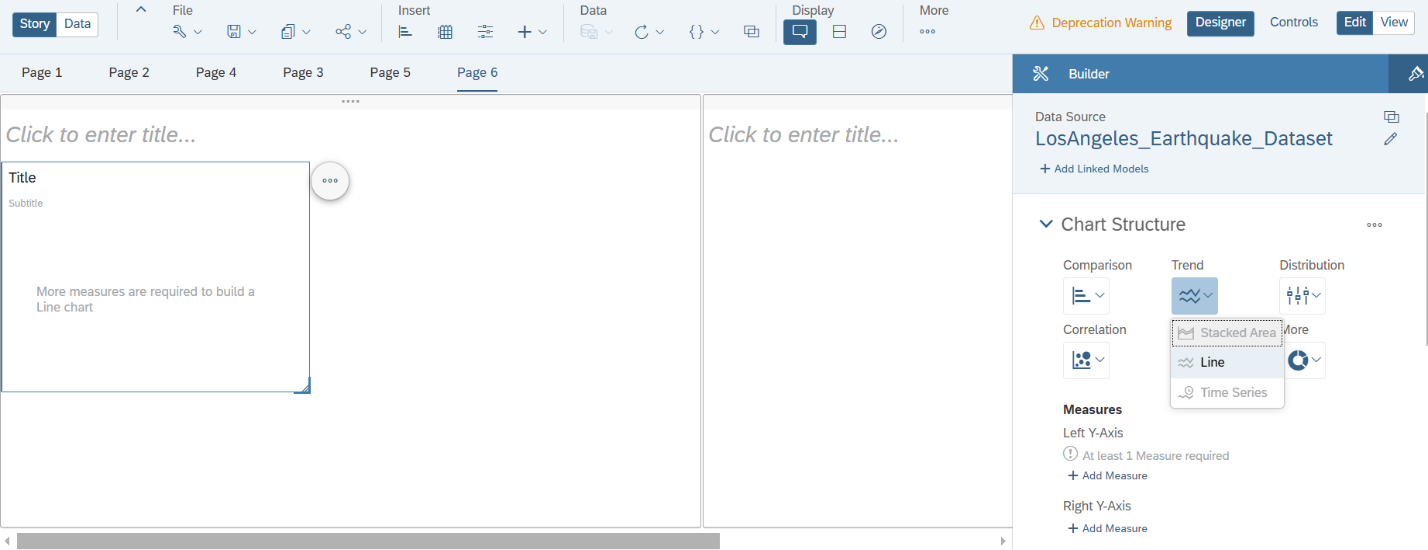
**Step 1:**

Add Responsive page



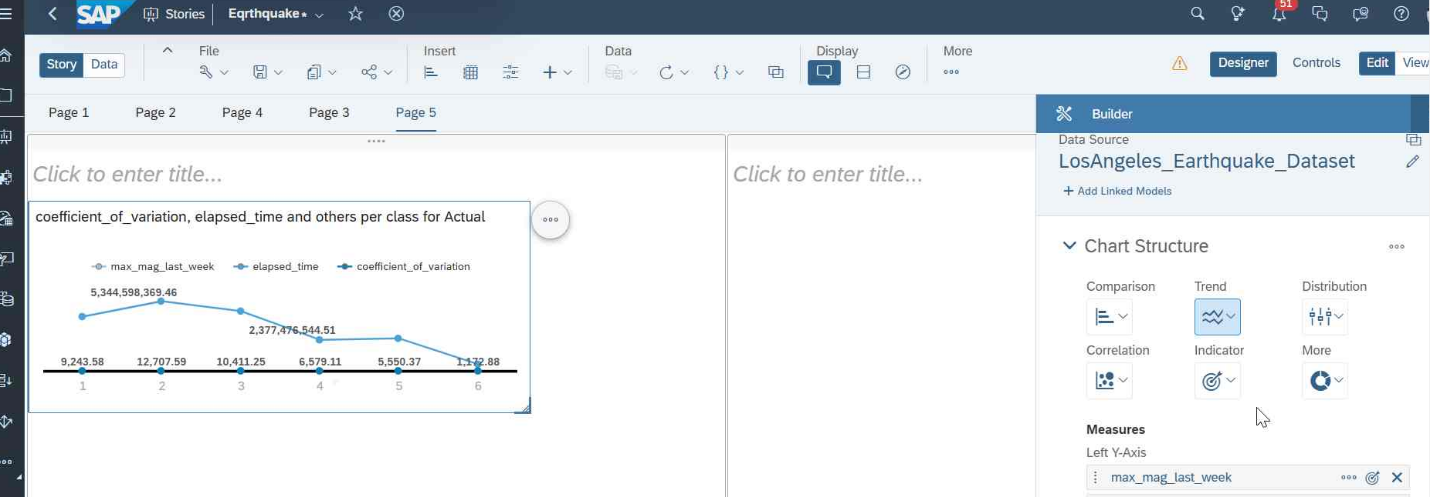
**Step 2:**

Insert Chart and select Line Trend



**Step 3:**

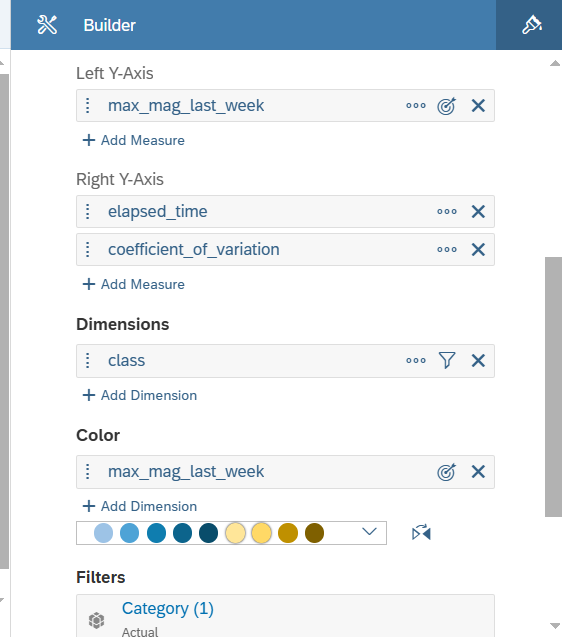
Select max\_mag\_last\_week as the Left Y-Axis



**Step 4:**

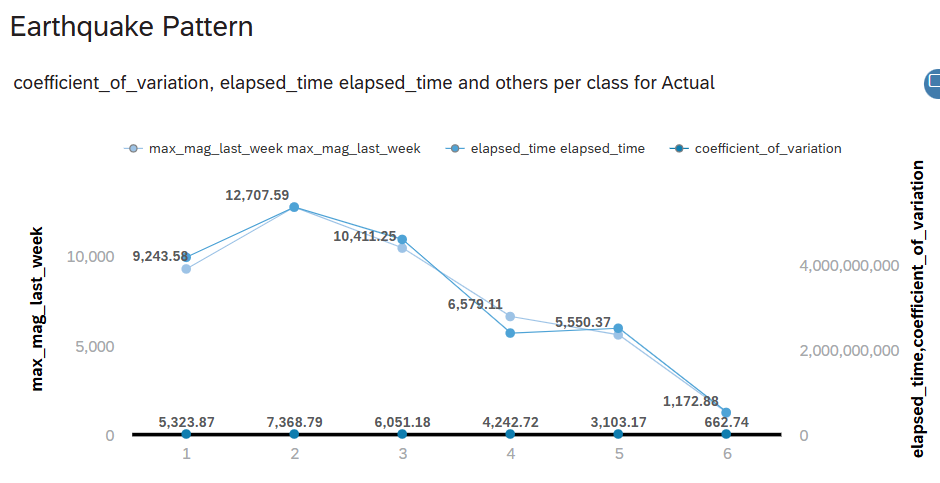
Select elapsed\_time and coefficient\_of\_variation as the Right Y-Axis, select class as Dimensions, and max\_mag\_last\_week as color

Configure the Chart Structure as below:



**Step 5:**

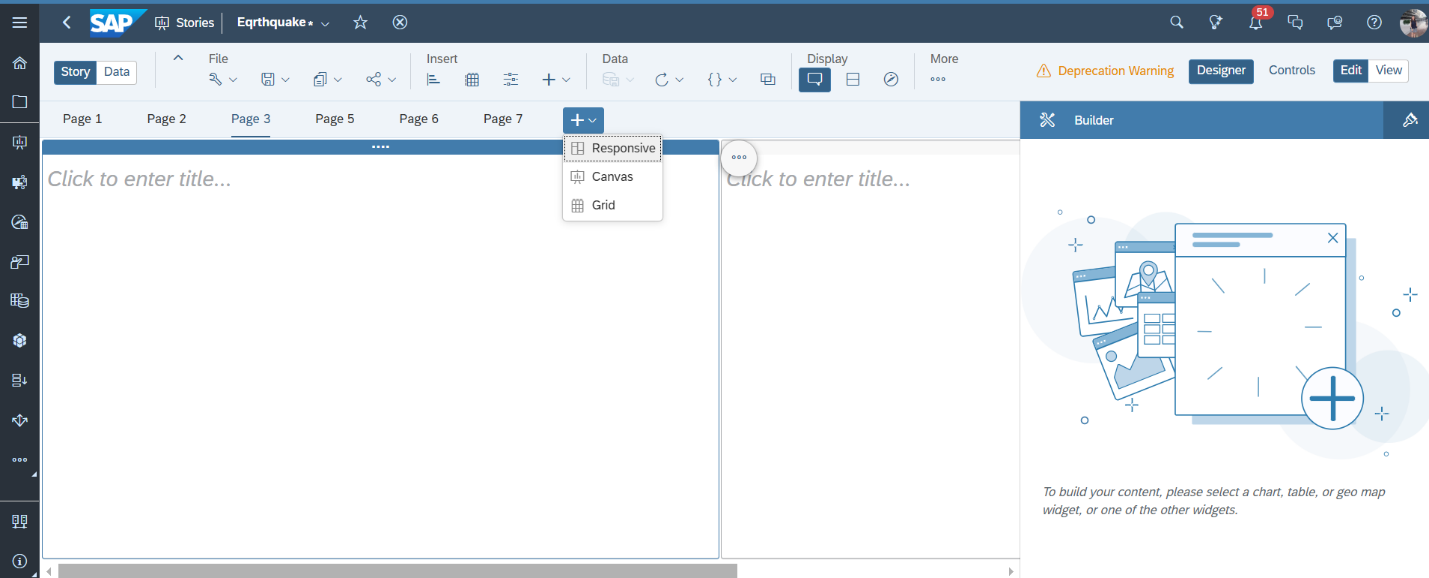
Double click on header and rename title as “Earthquake Pattern”



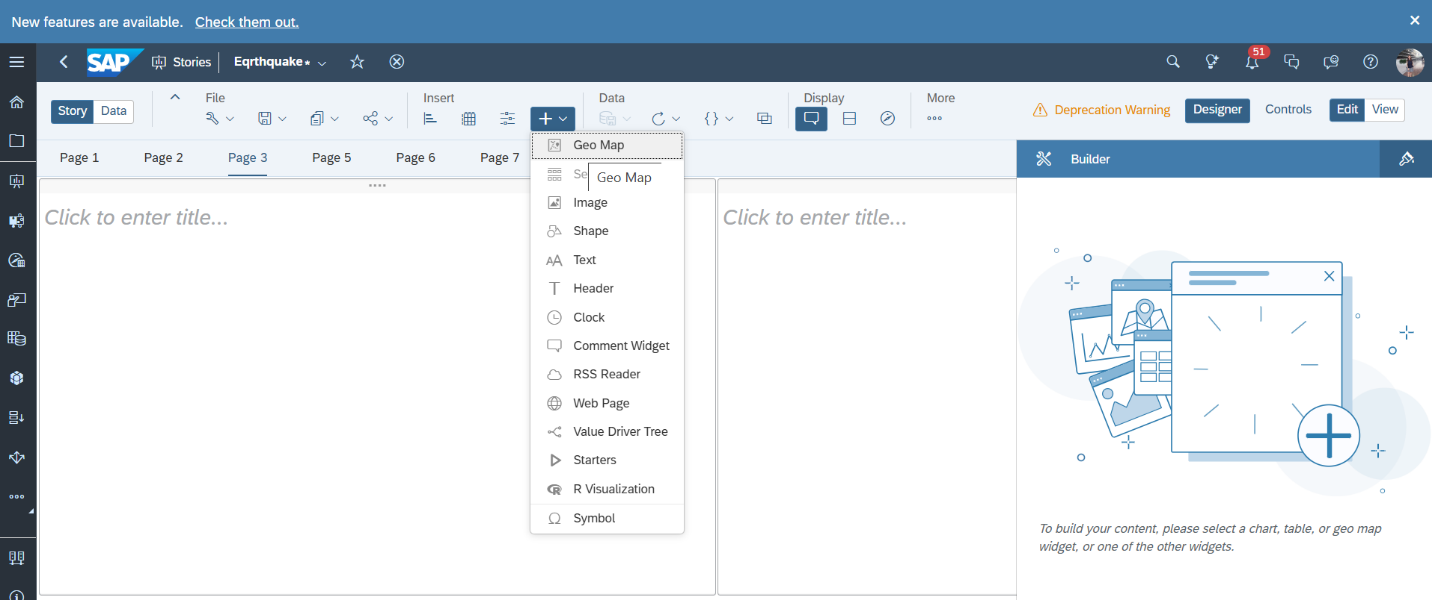
**Chart 4**

**Step 1:**

Add Responsive page

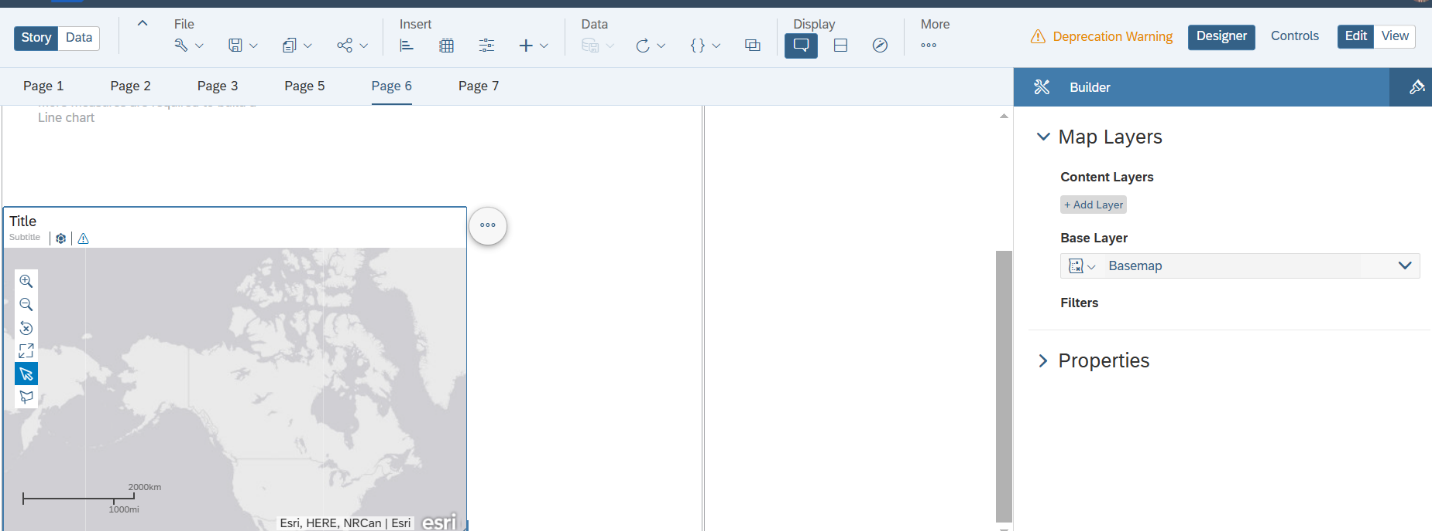


**Step 2:**

Insert Geo Map 

**Step 3:**

Select Add Layer under **Content Layers**



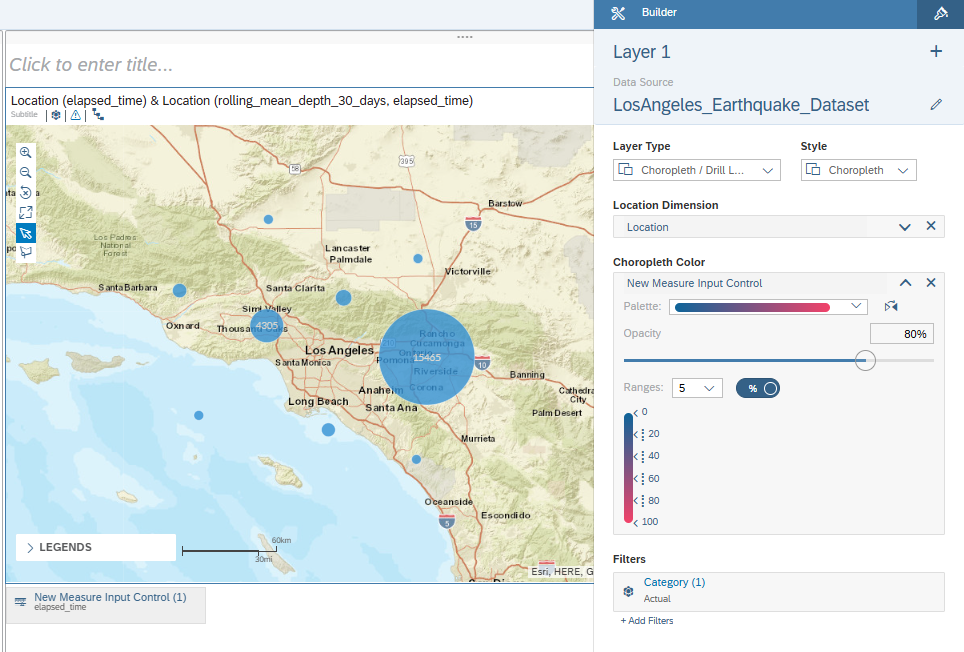
**Step 4:**

Select Choropleth/ Drill Layer as **Layer Type**; and select Choropleth as the **Style**

Select Location as the **Location Dimension**

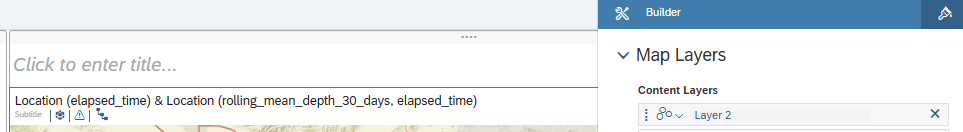
Choose elapsed\_time as the **Choropleth Color**

**Layer 1 as below illustrated:**



**Step 5:**

Click on Add Layer to create Layer 2



**Step 6:**

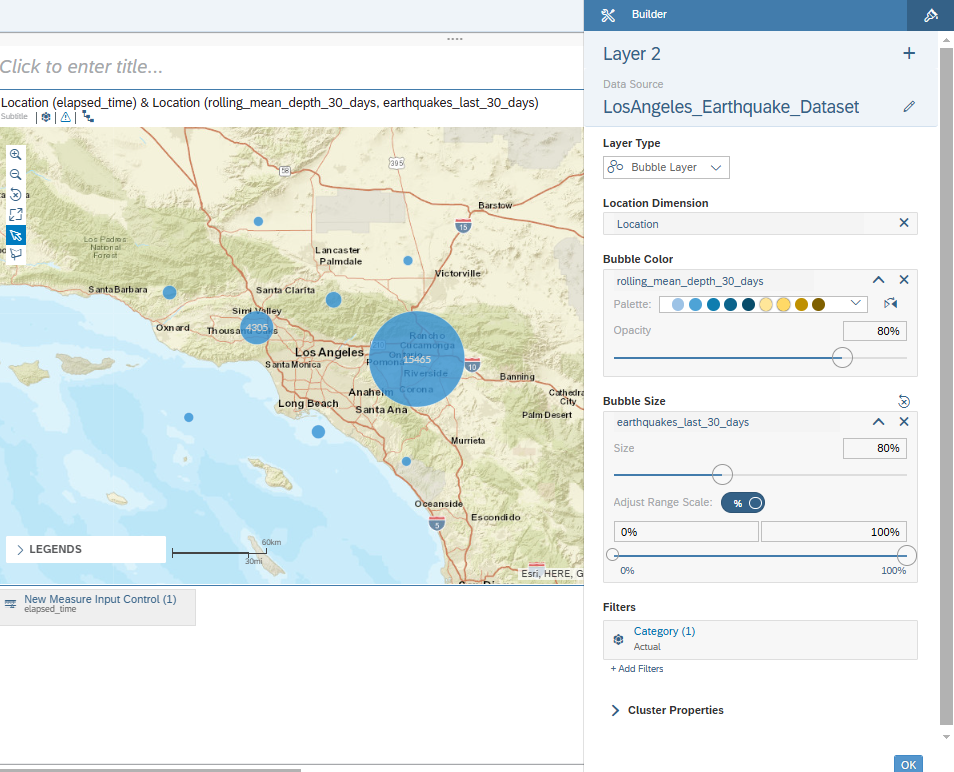
A) Select Bubble Layer as the **Layer Type**

B) Select Location as the **Location Dimension**

C) Choose rolling\_mean\_depth\_30\_days as the **Bubble Color**

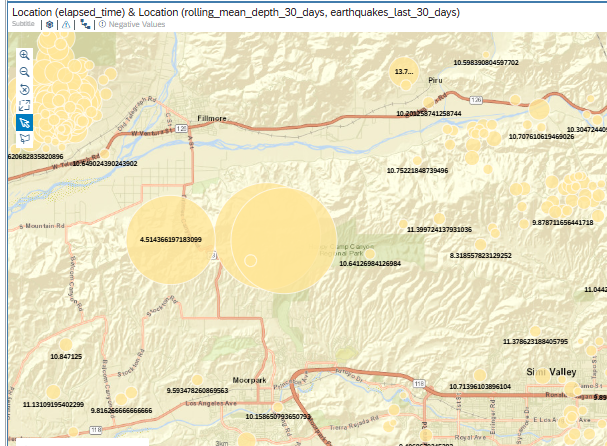
D) Opt for earthquake\_last\_30\_days as the **Bubble Size**

**Layer 2 as below illustrated:**

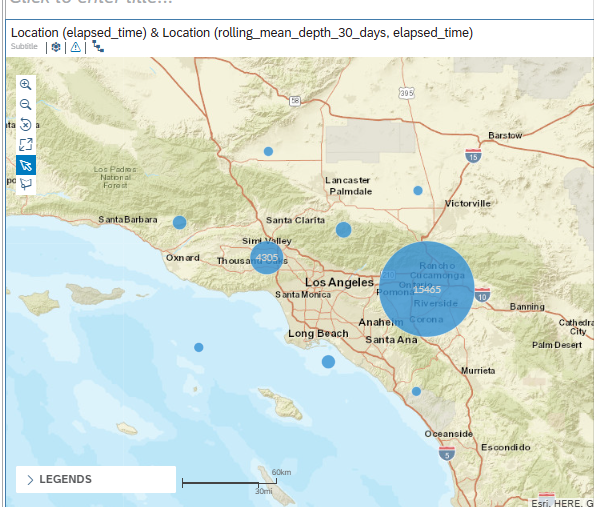


**Step 7:**

Zoom in or out to navigator the location of earthquakes

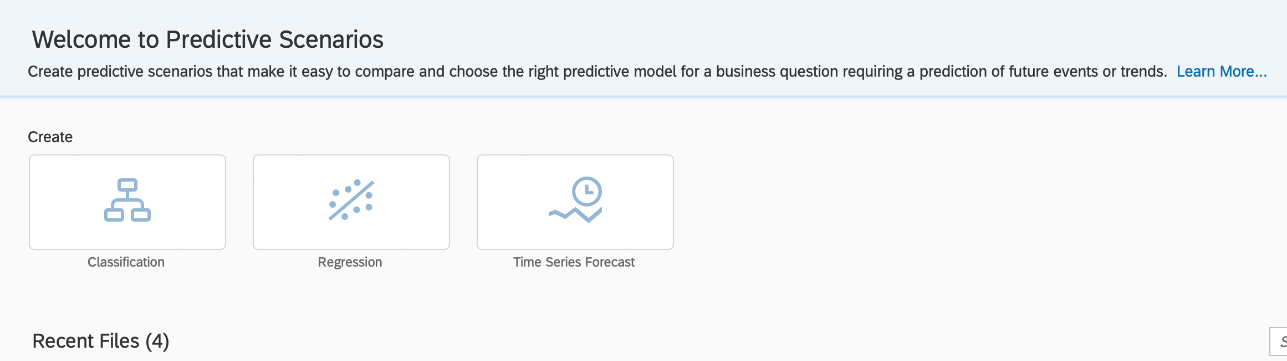


Graph as below:

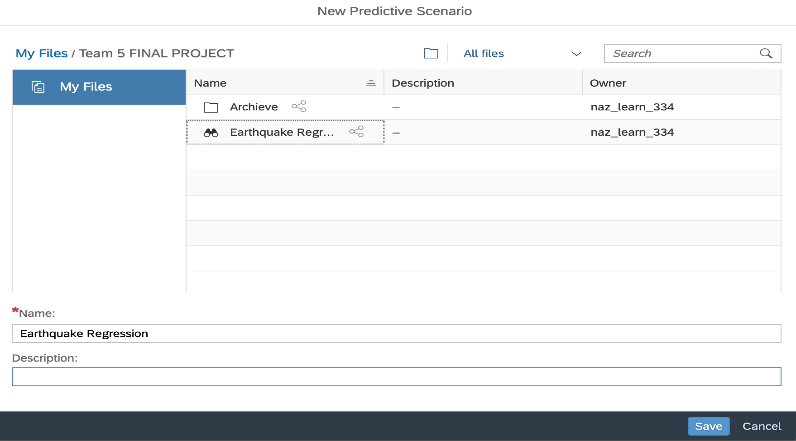


**Regression Forecast Scenario**

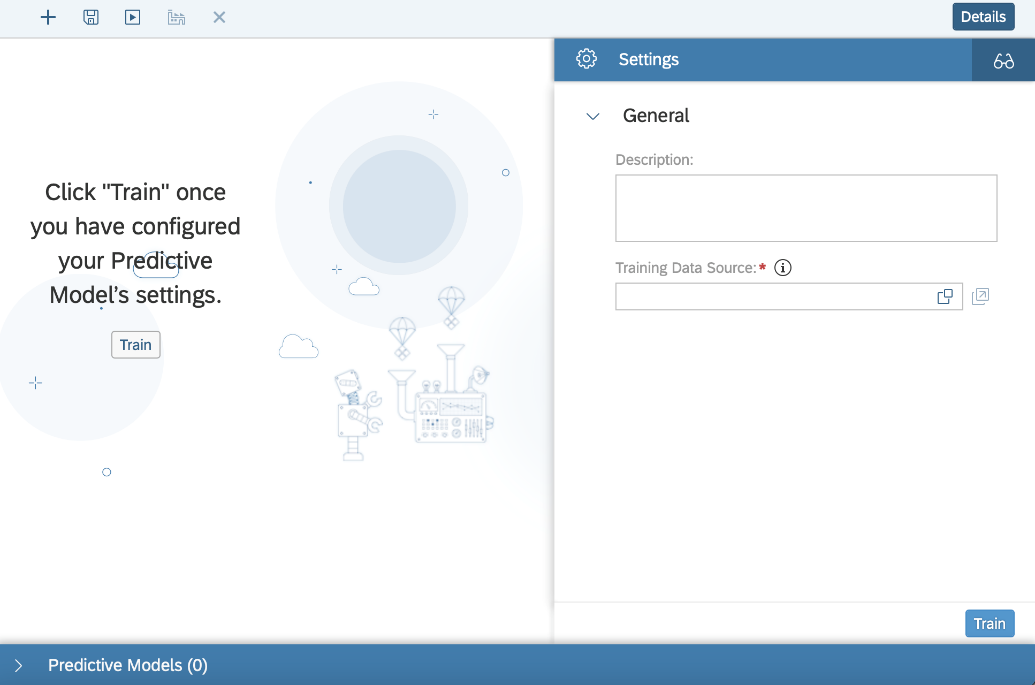
**Step 1:** Select Regression



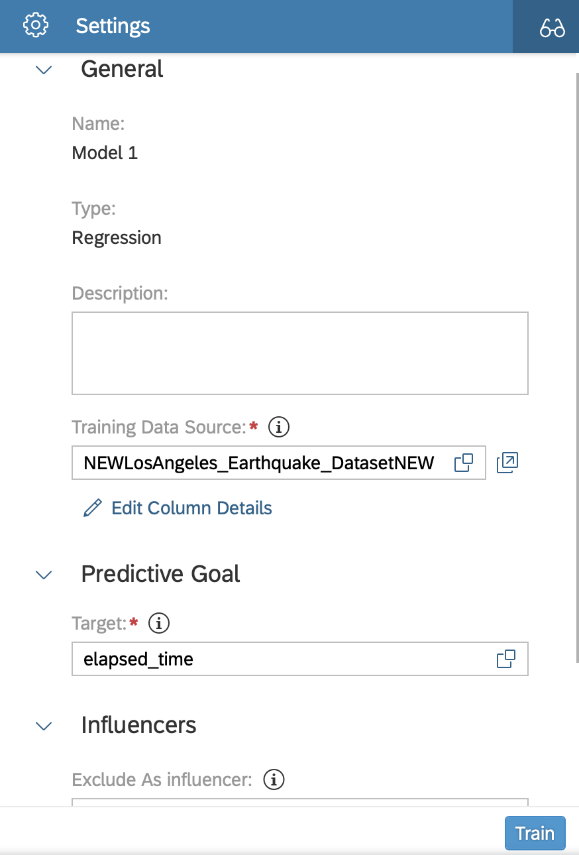
**Step 2:** Select Data File



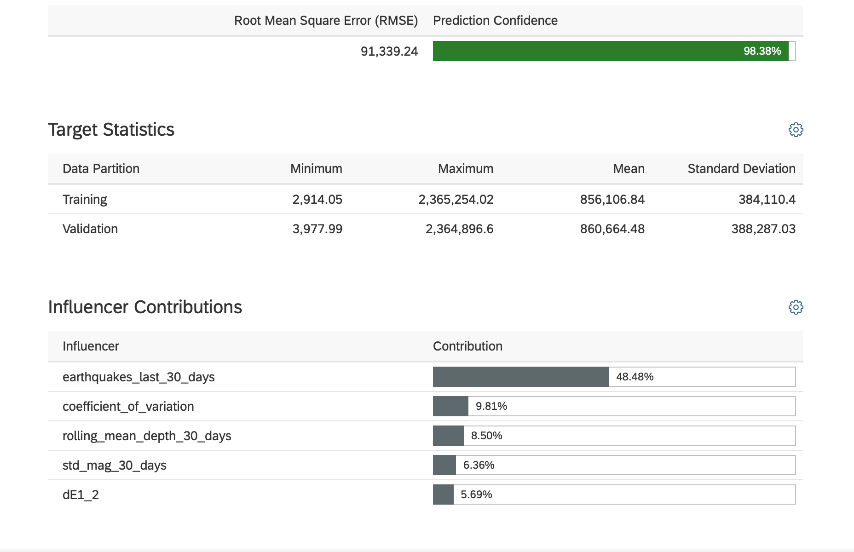
**Step 3:** Choose Training Data Source



**Step 4:** Add Elapse Time to **Target**



**Step 5:**  Select Train and data populates



**Step 6:** Scroll down for additional information

