DOKUMENTASI TEKNIS
DATA AND ARTIFICIAL INTELLEGENCE
CAPSTONE PROJECT BIDANG KESEHATAN

Disusun oleh:

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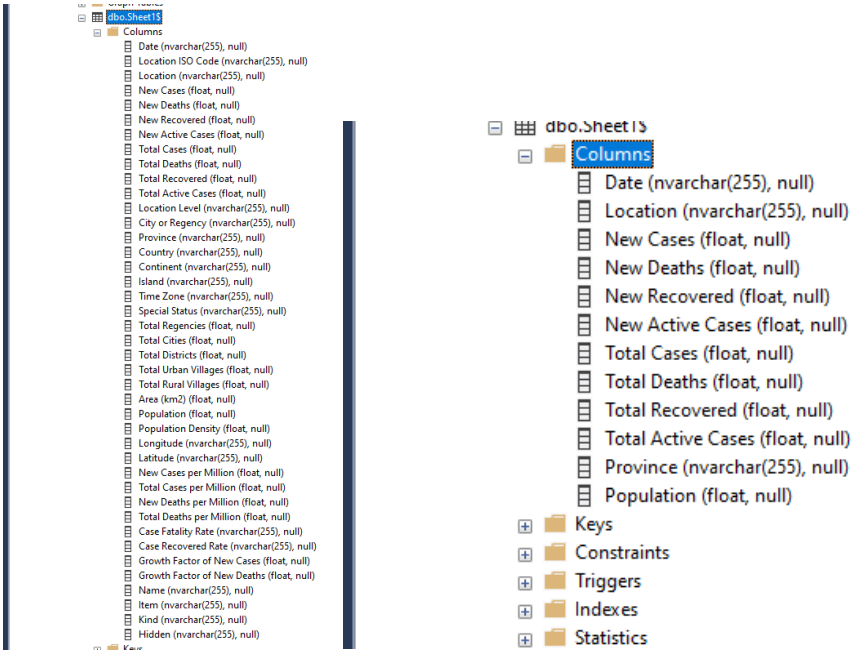
UNIVERSITAS MAJALENGKA

Capstone Project Bidang Kesehatan Dashboard Data Visulalization COVID-19 Klinik MariSehat

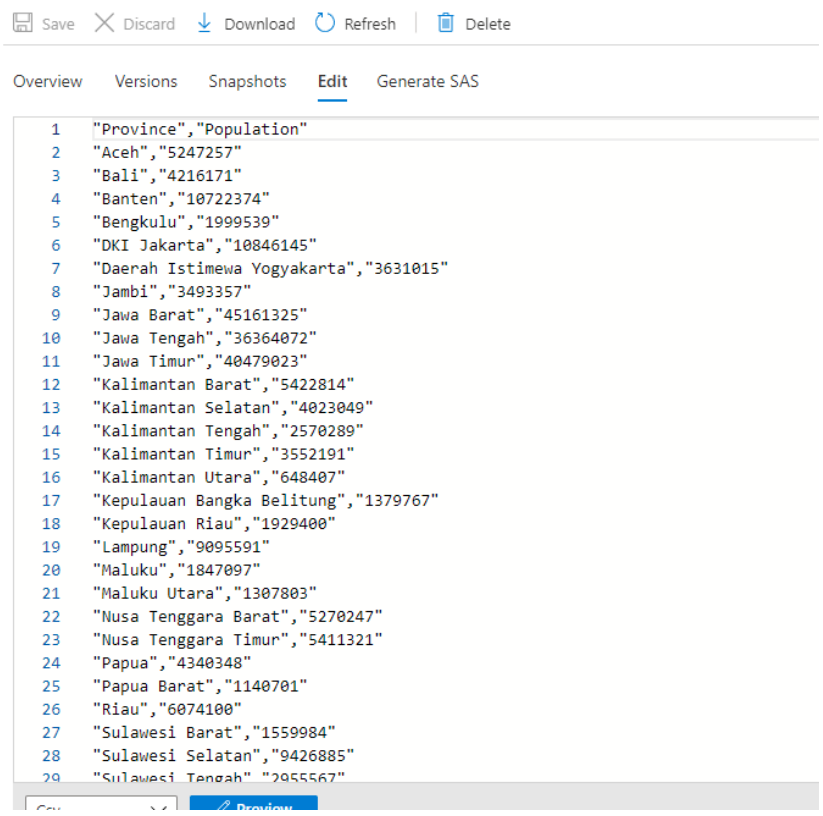
Menyiapkan data untuk visualisasi

saya disini menggunakan SSMS untuk membersihkan data tersebut dengan menghapus beberapa row dan column yang tidak digunakan



Setelah membersihkan data saya melakukan transformasi data menggunakan Azure Data Factory

```
"Date","Month","Month Name","Year","Province","Island","New Cases","New Death","New Recovered","New Active Cases"
"2020-01-08","1","January","2020","Jawa Timur","Jawa","0","3","1","5"
"2020-01-09","1","January","2020","Jawa Timur","Jawa","0","1","23","-24"
"2020-01-10","1","January","2020","Jawa Timur","Jawa","0","1","14","-15"
"2020-01-11","1","January","2020","Jawa Timur","Jawa","0","3","8","-11"
"2020-01-12","1","January","2020","Jawa Timur","Jawa","0","3","1","-4"
"2020-01-13","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-01-14","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-01-15","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-01-16","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-01-17","1","January","2020","Jawa Timur","Jawa","0","0","4","-4"
"2020-01-18","1","January","2020","Jawa Timur","Jawa","0","0","8","-8"
"2020-01-19","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-01-20","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-01-21","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-01-22","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-01-23","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-01-24","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-01-25","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-01-26","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-01-27","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-01-28","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-01-29","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-01-30","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-01-31","1","January","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-02-01","2","February","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-02-02","2","February","2020","Jawa Timur","Jawa","0","0","0","0"
"2020-02-03","2","February","2020","Jawa Timur","Jawa","0","0","2","-2"
"2020-02-04","2","February","2020","Jawa Timur","Jawa","0","0","0","0"
```




```
"Province","Population"
"Aceh","5247257"
"Bali","4216171"
"Banten","10722374"
"Bengkulu","1999539"
"DKI Jakarta","10846145"
"Daerah Istimewa Yogyakarta","3631015"
"Jambi","3493357"
"Jawa Barat","45161325"
"Jawa Tengah","36364072"
"Jawa Timur","40479023"
"Kalimantan Barat","5422814"
"Kalimantan Selatan","4023049"
"Kalimantan Tengah","2570289"
"Kalimantan Timur","3552191"
"Kalimantan Utara","648407"
"Kepulauan Bangka Belitung","1379767"
"Kepulauan Riau","1929400"
"Lampung","9095591"
"Maluku","1847097"
"Maluku Utara","1307803"
"Nusa Tenggara Barat","5270247"
"Nusa Tenggara Timur","5411321"
"Papua","4340348"
"Papua Barat","1140701"
"Riau","6074100"
"Sulawesi Barat","1559984"
"Sulawesi Selatan","9426885"
"Sulawesi Tengah","2955567"
```

```
"Province","Total Case","Total Death","Total Recovered"
"Aceh","20140","862","15541"
"Bali","54079","1618","46181"
"Banten","61689","1457","50554"
"Bengkulu","11671","194","9530"
"DKI Jakarta","636383","9270","527060"
"Daerah Istimewa Yogyakarta","72560","1892","54352"
"Jambi","13935","284","11892"
"Jawa Barat","440379","6008","348694"
"Jawa Tengah","285348","12562","223706"
"Jawa Timur","189705","13635","160296"
"Kalimantan Barat","16811","413","14371"
"Kalimantan Selatan","37176","1091","34774"
"Kalimantan Tengah","27808","556","21082"
"Kalimantan Timur","83762","2003","73864"
"Kalimantan Utara","14274","210","12318"
"Kepulauan Bangka Belitung","23188","365","20761"
"Kepulauan Riau","30637","639","23933"
"Lampung","24378","1149","19184"
"Maluku","10465","164","7708"
"Maluku Utara","6526","142","4650"
"Nusa Tenggara Barat","13466","498","11458"
"Nusa Tenggara Timur","22933","493","17388"
"Papua","21503","213","11696"
"Papua Barat","13087","199","9829"
"Riau","74899","2019","67986"
"Sulawesi Barat","6251","127","5595"
"Sulawesi Selatan","67280","1021","62671"
"Sulawesi Tengah","14669","423","12988"
```

Setelah melakukan transformasi, saya merapikan data menggunakan Microsoft excel kemudian menginput data ke dalam Power BI

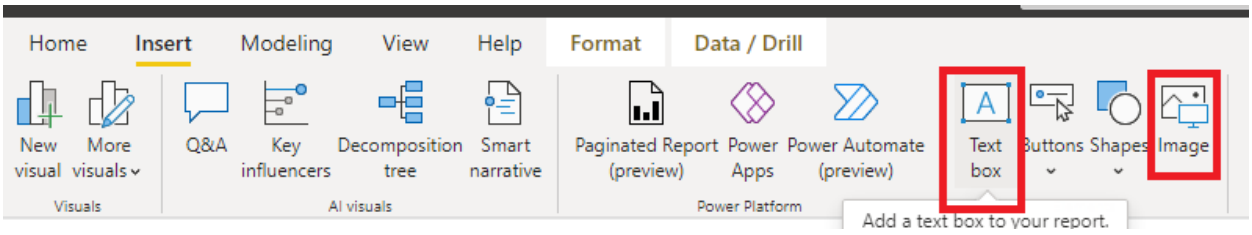
Daily Case

Preview downloaded on 18 November 2021

Date	Month	Month Name	Year	Province	Island	New Cases
08/01/2020	1	January	2020	Jawa Timur	Jawa	
09/01/2020	1	January	2020	Jawa Timur	Jawa	
10/01/2020	1	January	2020	Jawa Timur	Jawa	
11/01/2020	1	January	2020	Jawa Timur	Jawa	
12/01/2020	1	January	2020	Jawa Timur	Jawa	
13/01/2020	1	January	2020	Jawa Timur	Jawa	
14/01/2020	1	January	2020	Jawa Timur	Jawa	
15/01/2020	1	January	2020	Jawa Timur	Jawa	
16/01/2020	1	January	2020	Jawa Timur	Jawa	
17/01/2020	1	January	2020	Jawa Timur	Jawa	
18/01/2020	1	January	2020	Jawa Timur	Jawa	
19/01/2020	1	January	2020	Jawa Timur	Jawa	
20/01/2020	1	January	2020	Jawa Timur	Jawa	
21/01/2020	1	January	2020	Jawa Timur	Jawa	
22/01/2020	1	January	2020	Jawa Timur	Jawa	
23/01/2020	1	January	2020	Jawa Timur	Jawa	
24/01/2020	1	January	2020	Jawa Timur	Jawa	
25/01/2020	1	January	2020	Jawa Timur	Jawa	
26/01/2020	1	January	2020	Jawa Timur	Jawa	
27/01/2020	1	January	2020	Jawa Timur	Jawa	
28/01/2020	1	January	2020	Jawa Timur	Jawa	
29/01/2020	1	January	2020	Jawa Timur	Jawa	

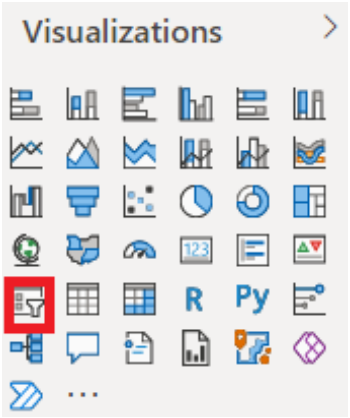
Membuat Report dan Dashboard Menggunakan Power BI

Setelah memasukan data saya membuat text box untuk menampilkan judul dari dashboard, dan memasukan gambar

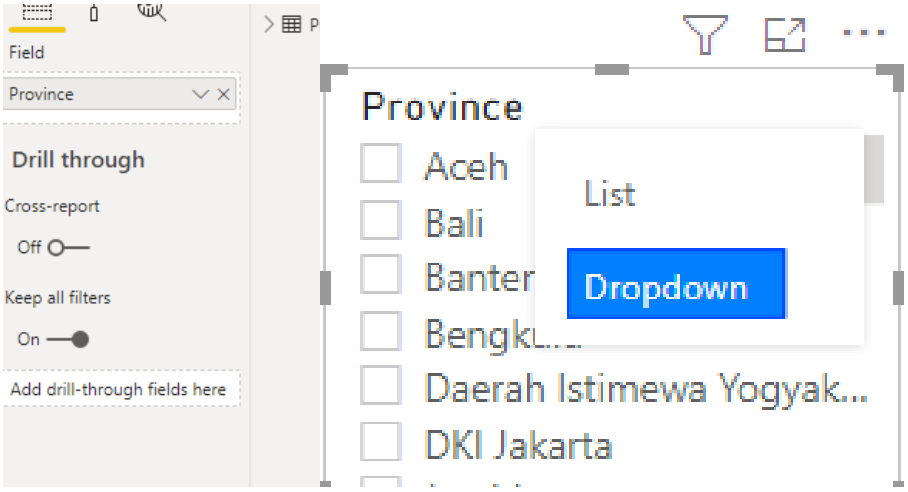


Ini adalah tampilan awal dari dashboard yang dibuat

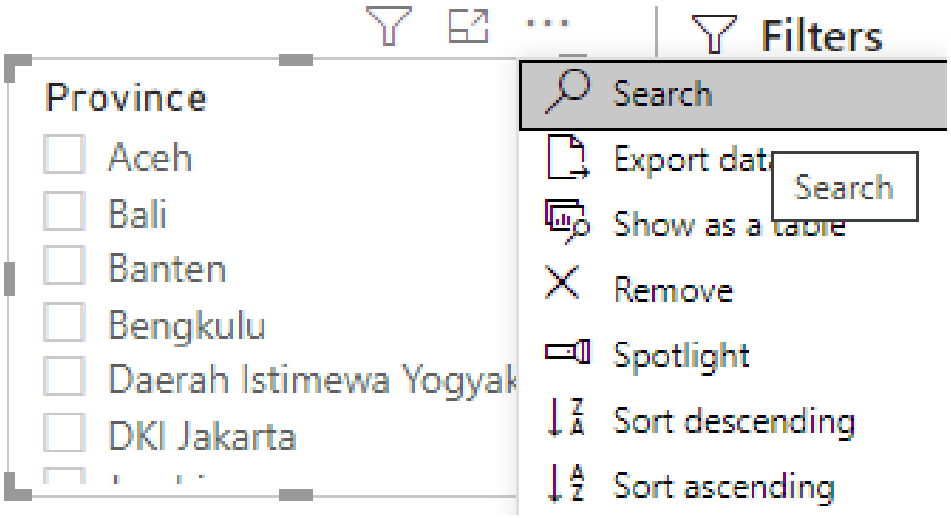
Kemudian masukan Slicer dari panel visualisasi



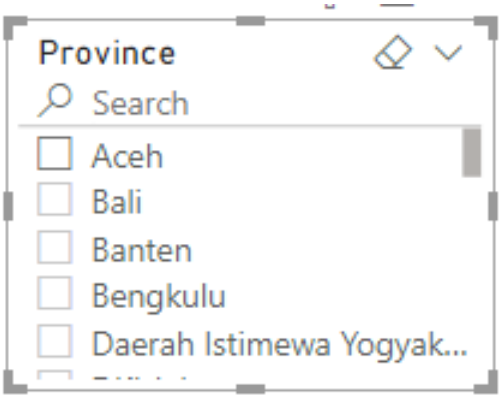
Kemudian masukan Data Kasus Total | Province pada slicer, kemudian ubah tampilan list menjadi dropdown



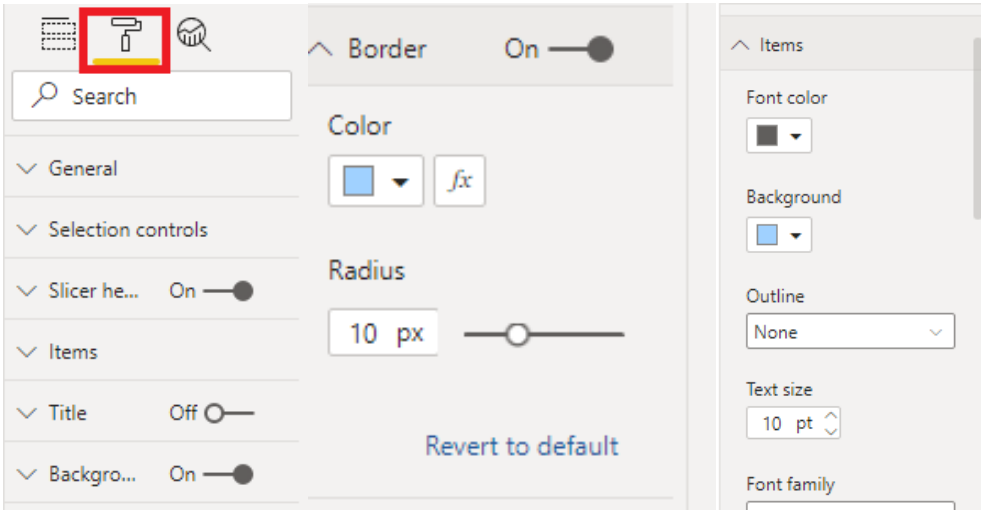
Kemudian klik more option dan klik search untuk menambahkan pencarian kedalam slicer



Slicer akan terlihat seperti berikut

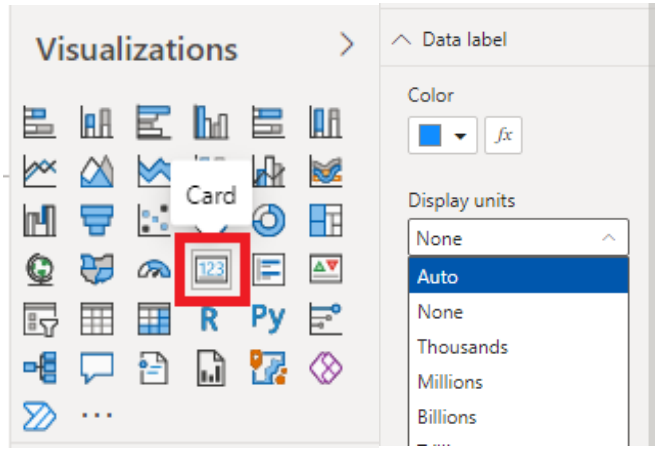


Kemudian masuklah ke menu format dan expand menu border kemudian ubah warna dan radius pada border agar lebih enak di lihat dan lakukan hal yang sama pada menu item



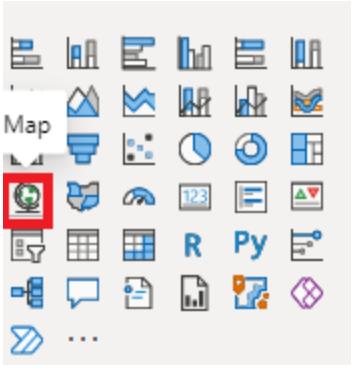
Tampilan sementara akan terlihat seperti ini

Kemudian tambahkan card untuk menampilkan data dari total case, total recovered dan total death, pada panel format expand data label dan ganti display units menjadi auto agar format angka menjadi full dengan angka dan ganti warna pada masing masing card



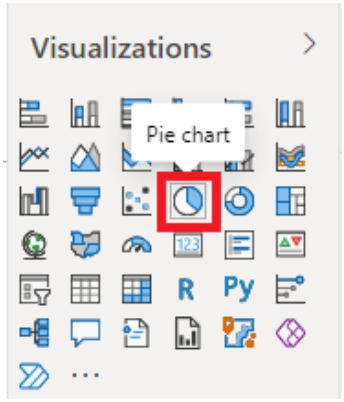
Tampilan untuk report sementara akan terlihat seperti ini

Kemudian kita drag Map Visualization



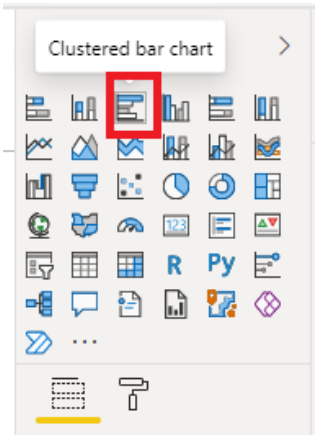
Kemudian masukan province ke Location dan masukan total case ke Size agar heat map aktif, lingkaran tersebut menginterprentasikan kasus COVID 19 yang terjadi di berbagai daerah semakin besar lingkaran mengindikasikan banyak kasus terjadi

Kemudian masukan Pie Chart visualization dengan values total recovered, total death dan total case

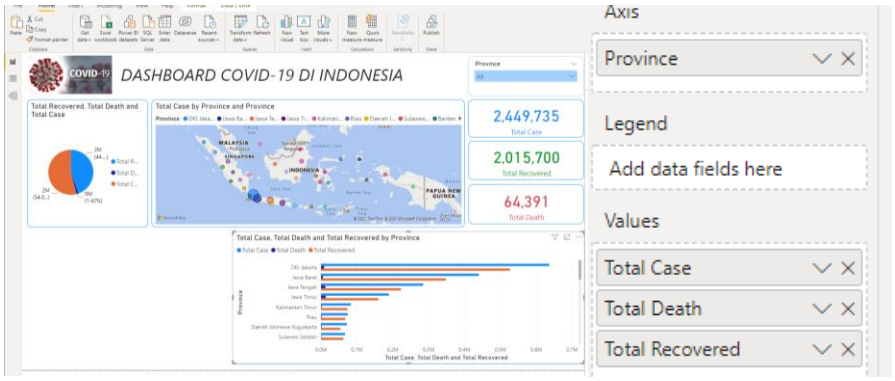


Pie chart dimasukan untuk untuk melihat persentase dari perbandingan data kasus COVID 19, total recovered dan total kematian

Kemudian saya memasukan Clustered Bar Chart dengan axis province dan values total case, total death dan total recovered



Clustered Bar Chart untuk melihat perbandingan data seperti yang dilakukan pie chart



Kemudian masukan table visualization dengan Values Province, Total Death, Total Recovered dan Total Case

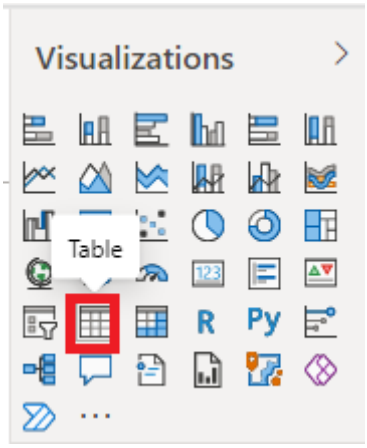
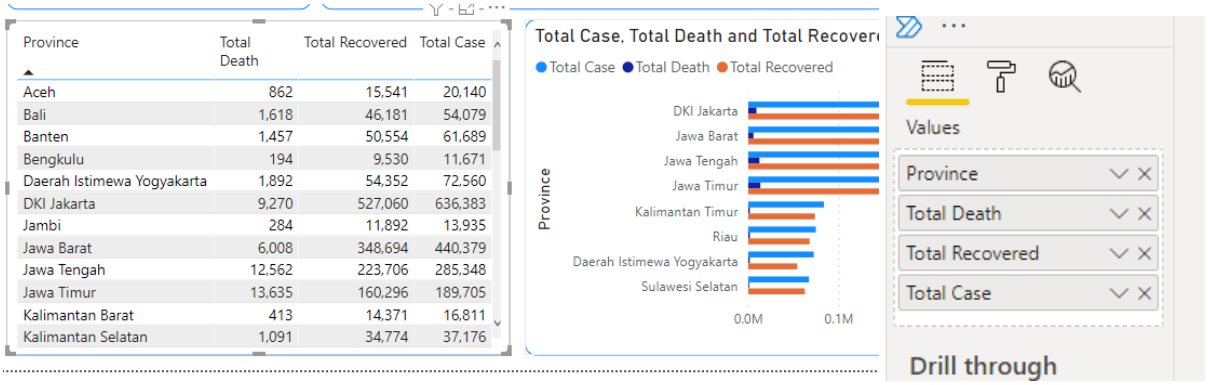
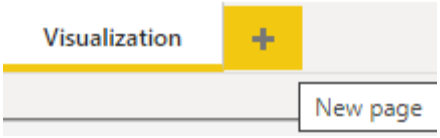


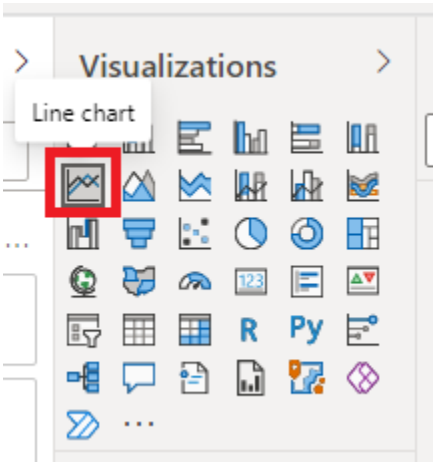
Table digunakan agar kita dapat melihat data dari berbagai daerah yang terdampak oleh COVID 19 dengan tabular row dan columns



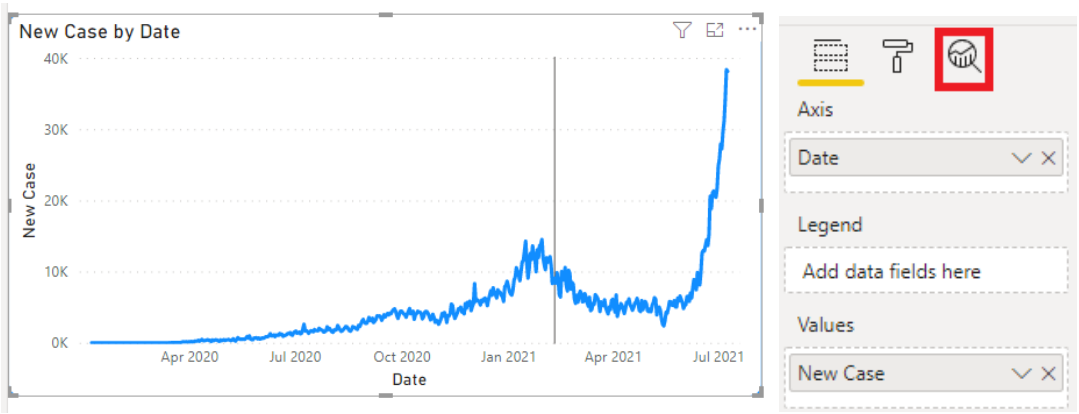
Kemudian buatlah tab baru untuk tab predictive analytics



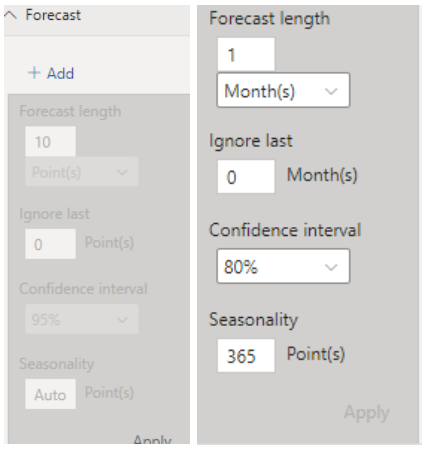
Masukan line chart

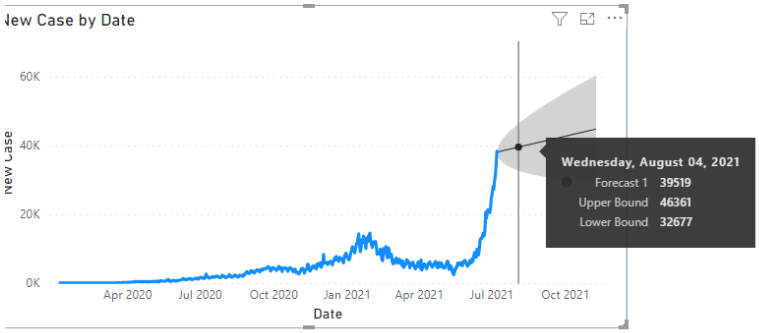


Untuk preddictive analytics saya menggunakan line chart agar dapat melihat trendline, dengan axis date dan values New Case, Kemudian Klik Analytics Menu



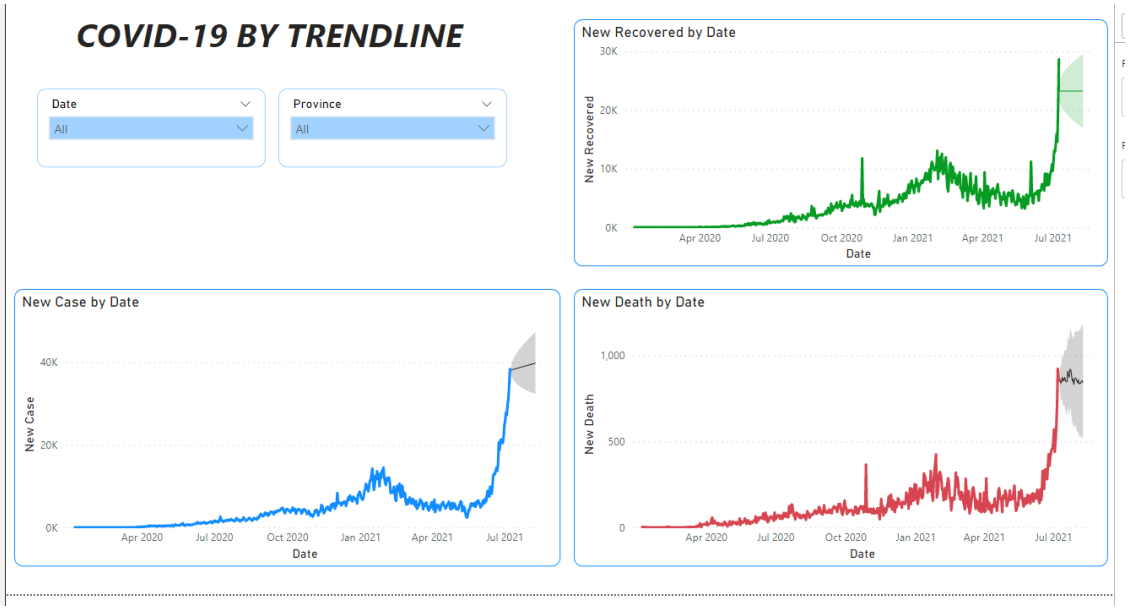
Kemudian klik add pada forecast kemudian masukan Forecast length berdasarkan jarak yang akan kita prediksi saya mencoba memprediksi data pada 1 bulan berikutnya ya itu dengan forecast value diganti menjadi 1 dan points diganti menjadi Month dengan confidence interval 80% dengan seasonality satu tahun yaitu 365 hari



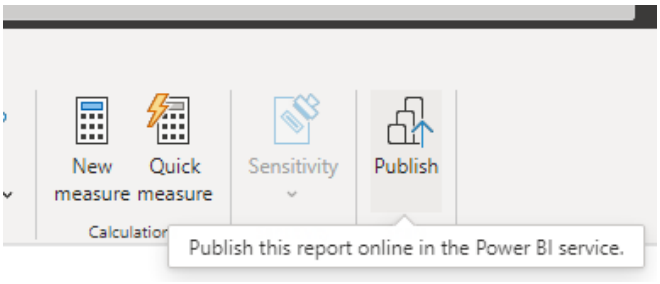


Area abu-abu mewakili confidence level. Semakin luas confidencenya, semakin kurang stabil dan, oleh karena itu, prediksi kemungkinan akan semakin kurang akurat, Ketika user mengetahui panjang siklus, dalam hal ini tahunan, user harus memasukkan poin musiman. Terkadang, bisa mingguan (7), atau bulanan (30).

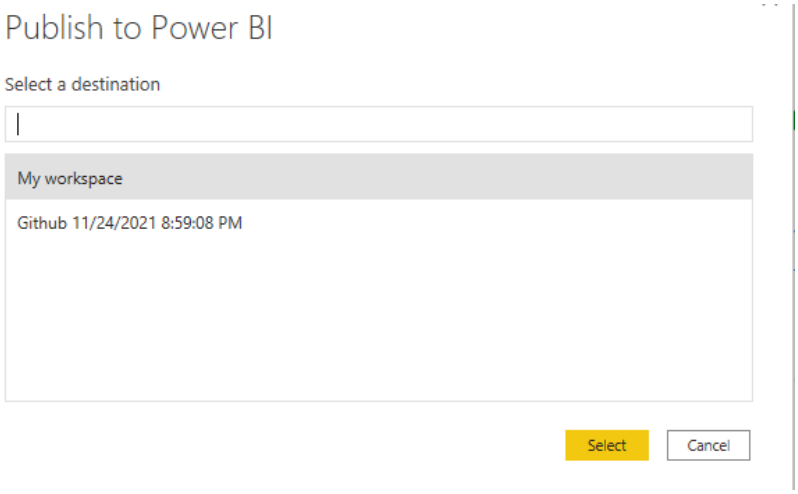
Kemudian lakukan hal yang sama pada data total recovered dan death dan tambahkan tile dan juga slicer pada page Summary agar kita dapat mensortir data dari beberapa daerah
Kurang lebihnya tampilan akan seperti ini



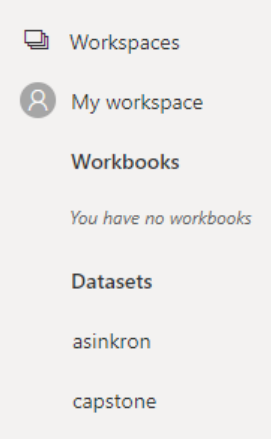
Setelah membuat report kita mencoba mempublish data kita pada power BI Cloud > klik Publish



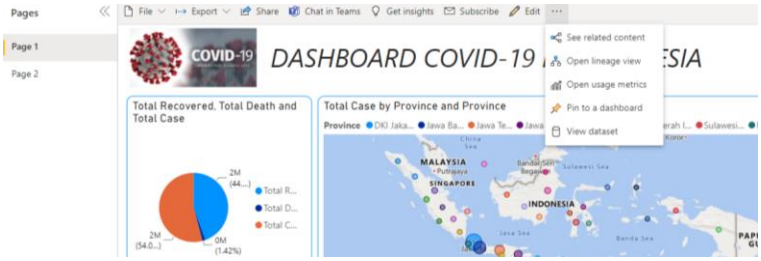
Kemudian Pilih My Workspace dan tunggu beberapa saat sampai data terpublish pada Power BI cloud



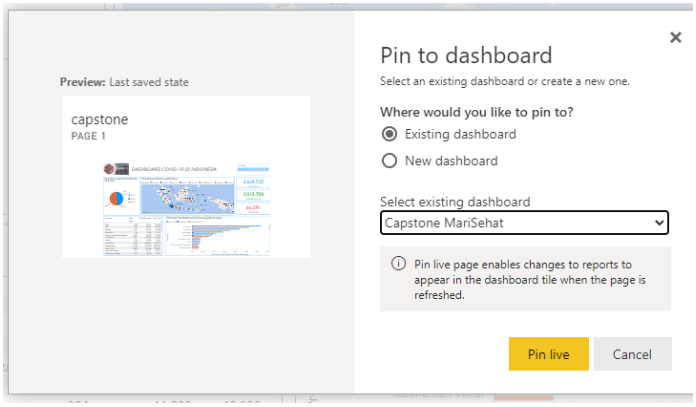
Kemudian buka Power BI Cloud dengan masuk ke website power bi dan buka data yang baru saja di publish



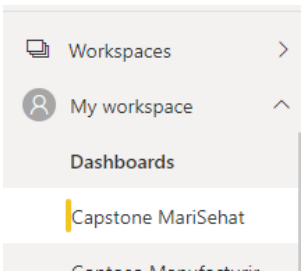
Kemudian kita pin data yang sudah kita buat kedalam dashboard



Kemudian Pilih dashboard yang sudah kita siapkan dan klik pin live dan lakukan juga pada data forecasting



Kemudian Pergi ke bagian dashboard dan lihat dashboard yang baru saja dibuat



Kurang lebih tampilan akan terlihat seperti ini