

## Visualización de datos

### Taller: Retrasos de compañías aéreas

2024/09/28

#### CONTEXTO:

Como científico de datos del departamento de transporte de Estados Unidos, tiene un conjunto de datos a su disposición con los retrasos aéreos para el mes de julio de los últimos años ("Delay\_Año\_Mes.csv"), el departamento requiere de su conocimiento en el análisis y reporte de datos para diagnosticar esta problemática y exponer hallazgos.

1. Explore los datos, evalúe es necesario hacer algunas transformaciones en los datos y aplíquelas si es el caso.
2. Considere las siguientes preguntas para su análisis:
  - ¿Cuál es la causa de retraso más frecuente?
  - ¿Dónde se presentan mayores retrasos en la salida?
  - ¿Dónde se presentan mayores retrasos en la llegada?
  - ¿Qué aerolínea presenta el mayor retraso?
  - ¿Qué día se presentan mayores retrasos?
  - ¿Cuál estado presenta mayor cantidad de vuelos?

#### ENTREGABLES:

1. Informe donde se resuma el análisis exploratorio de datos realizado y se documente el proceso (descripción técnica, listado de supuestos sobre los datos, etc.).
2. Visualización grafica (tablero o infografía), herramienta a elección de las vista en clase hasta el momento.
3. Deben enviar todos los archivos soporte (.rmd, .qmd, .ipynb, etc)

#### FECHA DE ENTREGA:

- 2024/10/05 11:00pm Reporte técnico (documentado) y Visualización (Tablero).

#### NOMBRAMIENTO DE ARCHIVO COMPRIMIDO:

ApellidoApellido\_Nombre1\_Taller\_RetrasosAereos

Ejemplo: GomezArdila\_Andres\_Taller\_RetrasosAereos

#### ENLACE DE ENTREGA:

<https://forms.gle/Vdp4XTk3LTTHExQD6>

#### NOTAS:

- Pueden trabajar en parejas, pero cada uno debe subir sus archivos.
- El nombramiento de archivos también es calificable.
- Entregas posteriores a la hora indicada no será consideradas.

## Diccionario de datos:

Year	Year
Quarter	Quarter (1-4)
Month	Month
DayofMonth	Day of Month
DayOfWeek	Day of Week
FlightDate	Flight Date (yyyymmdd)
Reporting_Airline	Unique Carrier Code. When the same code has been used by multiple carriers, a numeric suffix is used for earlier users, for example, PA, PA(1), PA(2). Use this field for analysis across a range of years.
DOT_ID_Reporting_Airline	An identification number assigned by US DOT to identify a unique airline (carrier). A unique airline (carrier) is defined as one holding and reporting under the same DOT certificate regardless of its Code, Name, or holding company/corporation.
IATA_CODE_Reporting_Airline	Code assigned by IATA and commonly used to identify a carrier. As the same code may have been assigned to different carriers over time, the code is not always unique. For analysis, use the Unique Carrier Code.
Tail_Number	Tail Number
Flight_Number_Reporting_Airline	Flight Number
OriginAirportID	Origin Airport, Airport ID. An identification number assigned by US DOT to identify a unique airport. Use this field for airport analysis across a range of years because an airport can change its airport code and airport codes can be reused.
OriginAirportSeqID	Origin Airport, Airport Sequence ID. An identification number assigned by US DOT to identify a unique airport at a given point of time. Airport attributes, such as airport name or coordinates, may change over time.
OriginCityMarketID	Origin Airport, City Market ID. City Market ID is an identification number assigned by US DOT to identify a city market. Use this field to consolidate airports serving the same city market.
Origin	Origin Airport
OriginCityName	Origin Airport, City Name
OriginState	Origin Airport, State Code
OriginStateFips	Origin Airport, State Fips
OriginStateName	Origin Airport, State Name
OriginWac	Origin Airport, World Area Code
DestAirportID	Destination Airport, Airport ID. An identification number assigned by US DOT to identify a unique airport. Use this field for airport analysis across a range of years because an airport can change its airport code and airport codes can be reused.
DestAirportSeqID	Destination Airport, Airport Sequence ID. An identification number assigned by US DOT to identify a unique airport at a given point of time. Airport attributes, such as airport name or coordinates, may change over time.

DestCityMarketID	Destination Airport, City Market ID. City Market ID is an identification number assigned by US DOT to identify a city market. Use this field to consolidate airports serving the same city market.
Dest	Destination Airport
DestCityName	Destination Airport, City Name
DestState	Destination Airport, State Code
DestStateFips	Destination Airport, State Fips
DestStateName	Destination Airport, State Name
DestWac	Destination Airport, World Area Code
CRSDepTime	CRS Departure Time (local time: hhmm)
DepTime	Actual Departure Time (local time: hhmm)
DepDelay	Difference in minutes between scheduled and actual departure time. Early departures show negative numbers.
DepDelayMinutes	Difference in minutes between scheduled and actual departure time. Early departures set to 0.
DepDel15	Departure Delay Indicator, 15 Minutes or More (1=Yes)
DepartureDelayGroups	Departure Delay intervals, every (15 minutes from <-15 to >180)
DepTimeBlk	CRS Departure Time Block, Hourly Intervals
TaxiOut	Taxi Out Time, in Minutes
WheelsOff	Wheels Off Time (local time: hhmm)
WheelsOn	Wheels On Time (local time: hhmm)
TaxiIn	Taxi In Time, in Minutes
CRSArrTime	CRS Arrival Time (local time: hhmm)
ArrTime	Actual Arrival Time (local time: hhmm)
ArrDelay	Difference in minutes between scheduled and actual arrival time. Early arrivals show negative numbers.
ArrDelayMinutes	Difference in minutes between scheduled and actual arrival time. Early arrivals set to 0.
ArrDel15	Arrival Delay Indicator, 15 Minutes or More (1=Yes)
ArrivalDelayGroups	Arrival Delay intervals, every (15-minutes from <-15 to >180)
ArrTimeBlk	CRS Arrival Time Block, Hourly Intervals
Cancelled	Cancelled Flight Indicator (1=Yes)
CancellationCode	Specifies The Reason For Cancellation
Diverted	Diverted Flight Indicator (1=Yes)
CRSElapsedTime	CRS Elapsed Time of Flight, in Minutes
ActualElapsedTime	Elapsed Time of Flight, in Minutes
AirTime	Flight Time, in Minutes
Flights	Number of Flights
Distance	Distance between airports (miles)
DistanceGroup	Distance Intervals, every 250 Miles, for Flight Segment
CarrierDelay	Carrier Delay, in Minutes
WeatherDelay	Weather Delay, in Minutes

NASDelay	National Air System Delay, in Minutes
SecurityDelay	Security Delay, in Minutes
LateAircraftDelay	Late Aircraft Delay, in Minutes
FirstDepTime	First Gate Departure Time at Origin Airport
TotalAddGTime	Total Ground Time Away from Gate for Gate Return or Cancelled Flight
LongestAddGTime	Longest Time Away from Gate for Gate Return or Cancelled Flight
DivAirportLandings	Number of Diverted Airport Landings
DivReachedDest	Diverted Flight Reaching Scheduled Destination Indicator (1=Yes)
DivActualElapsedTime	Elapsed Time of Diverted Flight Reaching Scheduled Destination, in Minutes. The ActualElapsedTime column remains NULL for all diverted flights.
DivArrDelay	Difference in minutes between scheduled and actual arrival time for a diverted flight reaching scheduled destination. The ArrDelay column remains NULL for all diverted flights.
DivDistance	Distance between scheduled destination and final diverted airport (miles). Value will be 0 for diverted flight reaching scheduled destination.
Div1Airport	Diverted Airport Code1
Div1AirportID	Airport ID of Diverted Airport 1. Airport ID is a Unique Key for an Airport
Div1AirportSeqID	Airport Sequence ID of Diverted Airport 1. Unique Key for Time Specific Information for an Airport
Div1WheelsOn	Wheels On Time (local time: hhmm) at Diverted Airport Code1
Div1TotalGTime	Total Ground Time Away from Gate at Diverted Airport Code1
Div1LongestGTime	Longest Ground Time Away from Gate at Diverted Airport Code1
Div1WheelsOff	Wheels Off Time (local time: hhmm) at Diverted Airport Code1
Div1TailNum	Aircraft Tail Number for Diverted Airport Code1
Div2Airport	Diverted Airport Code2
Div2AirportID	Airport ID of Diverted Airport 2. Airport ID is a Unique Key for an Airport
Div2AirportSeqID	Airport Sequence ID of Diverted Airport 2. Unique Key for Time Specific Information for an Airport
Div2WheelsOn	Wheels On Time (local time: hhmm) at Diverted Airport Code2
Div2TotalGTime	Total Ground Time Away from Gate at Diverted Airport Code2
Div2LongestGTime	Longest Ground Time Away from Gate at Diverted Airport Code2
Div2WheelsOff	Wheels Off Time (local time: hhmm) at Diverted Airport Code2
Div2TailNum	Aircraft Tail Number for Diverted Airport Code2
Div3Airport	Diverted Airport Code3
Div3AirportID	Airport ID of Diverted Airport 3. Airport ID is a Unique Key for an Airport
Div3AirportSeqID	Airport Sequence ID of Diverted Airport 3. Unique Key for Time Specific Information for an Airport
Div3WheelsOn	Wheels On Time (local time: hhmm) at Diverted Airport Code3
Div3TotalGTime	Total Ground Time Away from Gate at Diverted Airport Code3
Div3LongestGTime	Longest Ground Time Away from Gate at Diverted Airport Code3
Div3WheelsOff	Wheels Off Time (local time: hhmm) at Diverted Airport Code3
Div3TailNum	Aircraft Tail Number for Diverted Airport Code3

Div4Airport	Diverted Airport Code4
Div4AirportID	Airport ID of Diverted Airport 4. Airport ID is a Unique Key for an Airport
Div4AirportSeqID	Airport Sequence ID of Diverted Airport 4. Unique Key for Time Specific Information for an Airport
Div4WheelsOn	Wheels On Time (local time: hhmm) at Diverted Airport Code4
Div4TotalGTime	Total Ground Time Away from Gate at Diverted Airport Code4
Div4LongestGTime	Longest Ground Time Away from Gate at Diverted Airport Code4
Div4WheelsOff	Wheels Off Time (local time: hhmm) at Diverted Airport Code4
Div4TailNum	Aircraft Tail Number for Diverted Airport Code4
Div5Airport	Diverted Airport Code5
Div5AirportID	Airport ID of Diverted Airport 5. Airport ID is a Unique Key for an Airport
Div5AirportSeqID	Airport Sequence ID of Diverted Airport 5. Unique Key for Time Specific Information for an Airport
Div5WheelsOn	Wheels On Time (local time: hhmm) at Diverted Airport Code5
Div5TotalGTime	Total Ground Time Away from Gate at Diverted Airport Code5
Div5LongestGTime	Longest Ground Time Away from Gate at Diverted Airport Code5
Div5WheelsOff	Wheels Off Time (local time: hhmm) at Diverted Airport Code5
Div5TailNum	Aircraft Tail Number for Diverted Airport Code5