

## EXAMEN SUPLETORIO INTELIGENCIA DE NEGOCIOS

**FECHA:** 3 agosto 2022

**Hora:** 9H:00

**Duración:** 1H:50

**Profesor:** MSc. Fernando Garrido S.

**Email:** [jfgarridos@utn.edu.ec](mailto:jfgarridos@utn.edu.ec)

**Modalidad:** Presencial (Laboratorio 5)

**Herramientas a utilizar:** Power BI – Word – Excel – Python – Adobe

**NOMBRE ESTUDIANTE:**

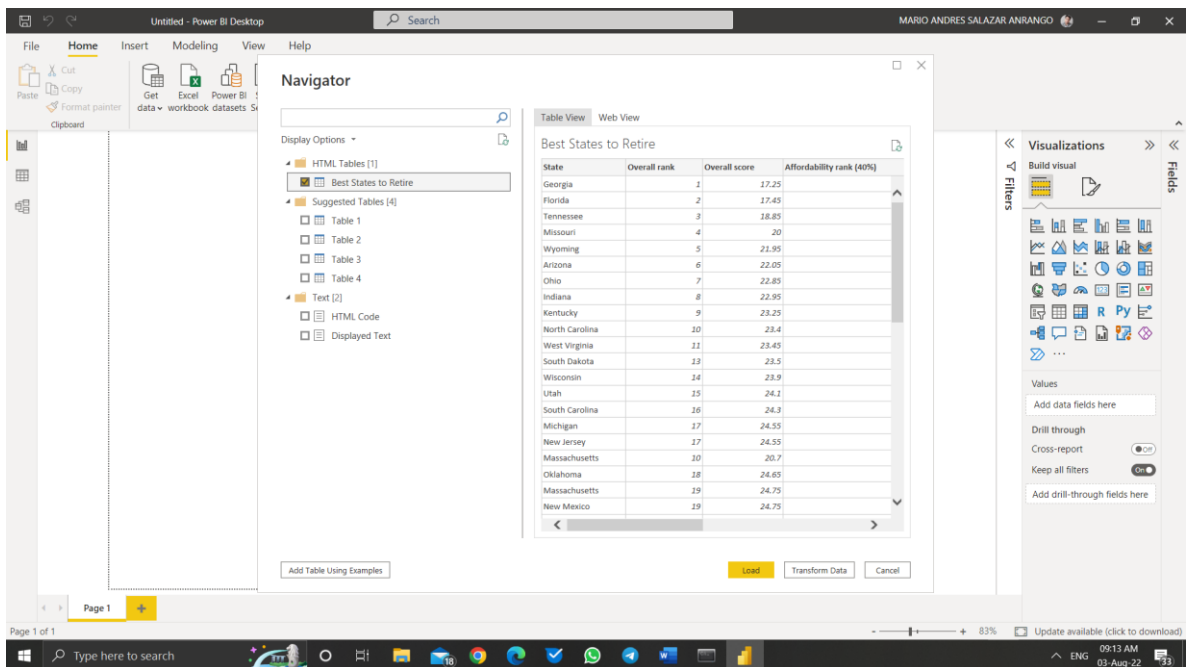
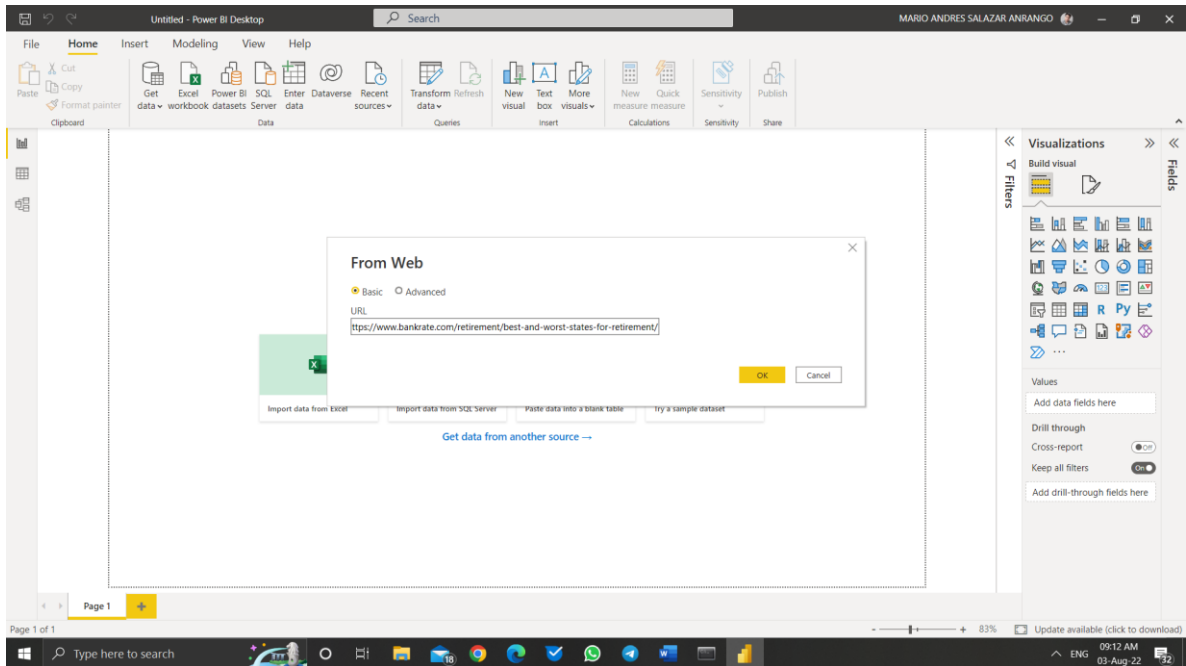
**AULA VIRTUAL:**

- Crear un archivo PDF (**ApellidoNombre-Resolución.pdf**) con las imágenes de lo desarrollado por cada cuestionario/pregunta.
- Subir al Aula Virtual un archivo empaquetado **ApellidoNombre.zip** conteniendo:  
ApellidoNombre.ipynb    ApellidoNombre.pbix    ApellidoNombre-Resolución.pdf

### **EJERCICIO 1:** Manipulación de Datos y Diseño de un Tablero en Power BI (5 PTOS)

Imagine que es un analista de negocios y desea que esa información ayude a las personas que se están jubilando. Desea identificar qué áreas de un país son los lugares más habitables para las personas jubiladas. Nos conectaremos a una fuente de datos web de EE. UU. para ayudar a responder estas preguntas.

Cargar datos desde el URL: [The Best And Worst States For Retirement 2021: All 50 States, Ranked | Bankrate](#)



Power Query Editor interface showing a table named "Best States to Retire". The table has 8 columns: State, Overall rank, Overall score, Affordability rank (40%), Wellness rank (20%), Culture rank (15%), Weather rank (15%), and Crime rank (10%). The data is sorted by Overall rank in descending order.

State	Overall rank	Overall score	Affordability rank (40%)	Wellness rank (20%)	Culture rank (15%)	Weather rank (15%)	Crime rank (10%)
Georgia	1	17.25	3	32	41	4	29
Florida	2	17.45	14	24	15	14	27
Tennessee	3	18.85	1	42	29	8	45
Missouri	4	20	3	34	34	18	42
Wyoming	5	21.95	17	28	10	49	7
Arizona	6	22.05	16	27	40	1	41
Ohio	7	22.85	19	31	32	15	20
Indiana	8	22.95	7	41	45	20	22
Kentucky	9	23.25	14	46	47	2	11
North Carolina	10	23.4	11	37	27	29	32
West Virginia	11	23.45	21	47	24	3	16
South Dakota	13	23.5	18	30	13	41	22

Best States to Retire

State	Overall rank	Overall score	Affordability rank (40%)	Wellness rank (20%)	Culture rank (15%)	Weather rank (15%)	Crime rank (10%)
Georgia	1	17.25	3	32	41	4	29
Florida	2	17.45	14	24	15	14	27
Tennessee	3	18.85	1	42	29	8	45
Missouri	4	20	3	34	34	18	42
Wyoming	5	21.95	17	28	10	49	7
Arizona	6	22.05	16	27	40	1	41
Ohio	7	22.85	19	31	32	15	20
Indiana	8	22.95	7	41	45	20	22
Kentucky	9	23.25	14	46	47	2	11
North Carolina	10	23.4	11	37	27	29	32
West Virginia	11	23.45	21	47	24	3	16
South Dakota	13	23.5	18	30	13	41	22

Utilizar la tabla “Best States to Retire”, como muestra la figura:

## Navegador

Opciones de presentación ▾

- Tablas HTML [1]
  - ☒ Best States to Retire
- Tablas sugeridas [4]
  - Tabla 1
  - Tabla 2
  - Tabla 3
  - Tabla 4
- Texto [2]
  - Código HTML
  - Texto mostrado

Vista de tabla Vista web

### Best States to Retire

State	Overall rank	Overall score	Affordability rank (40%)
Georgia	1	1725	
Florida	2	1745	
Tennessee	3	1885	
Missouri	4	20	
Wyoming	5	2195	
Arizona	6	2205	
Ohio	7	2285	
Indiana	8	2295	
Kentucky	9	2325	
North Carolina	10	234	
West Virginia	11	2345	
South Dakota	13	235	
Wisconsin	14	239	
Utah	15	241	
South Carolina	16	243	
Michigan	17	2455	
New Jersey	17	2455	
Massachusetts	10	207	
Oklahoma	18	2465	
Massachusetts	19	2475	

Archivo Inicio Ayuda Herramientas de tablas

Nombre: Best States to Retire

Estructura
 Marcar como tabla de fechas
Administrar relaciones
Nueva medida
Medida rápida
Nueva columna
Nueva tabla

State	Overall rank	Overall score	Affordability rank (40%)	Wellness rank (20%)	Culture rank (15%)	Weather rank (15%)	Crime rank (10%)
Georgia	1	1725	3	32	41	4	29
Florida	2	1745	14	24	15	14	27
Tennessee	3	1885	1	42	29	8	45
Missouri	4	20	3	34	34	18	42
Wyoming	5	2195	17	28	10	49	7
Arizona	6	2205	16	27	40	1	41
Ohio	7	2285	19	31	32	15	20
Indiana	8	2295	7	41	45	20	22
Kentucky	9	2325	14	46	47	2	11
North Carolina	10	234	11	37	27	29	32
West Virginia	11	2345	21	47	24	3	16
South Dakota	13	235	18	30	13	41	22
Wisconsin	14	239	30	25	17	21	12
Utah	15	241	26	10	48	18	18
South Carolina	16	243	9	40	21	33	46
Michigan	17	2455	13	38	33	28	26
New Jersey	17	2455	43	3	17	26	3
Massachusetts	10	207	42	1	12	6	10
Oklahoma	18	2465	2	45	44	27	42
Massachusetts	19	2475	42	1	12	32	10
New Mexico	19	2475	10	48	34	7	50
New York	19	2475	44	5	7	24	15
Rhode Island	20	2475	44	12	5	22	7
Delaware	23	249	37	19	6	12	36
Nebraska	24	2495	26	18	25	34	21
Nevada	25	25	30	21	19	13	40
Pennsylvania	26	252	35	17	14	30	12

- Transformar los datos (como cambiar un tipo de datos o eliminar columnas).

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply • New Source • Recent Sources • Data • Close • New Query

Data source settings • Manage Parameters • Refresh Preview • Query • Choose Columns • Remove Columns • Keep Rows • Remove Rows • Sort • Split Column • Group By • Transform

Data Type: Whole Number • Use First Row as Headers • Replace Values • Merge Queries • Append Queries • Text Analytics • Vision • Azure Machine Learning • Combine Files • Combine • AI Insights

Queries [1] • Table.TransformColumnTypes(\*Promoted Headers,{"State", type text}, {"Overall rank", Int64.Type}, {"Overall score", type number}, {"Affordability rank (2014)", type number}, {"Wellness rank (2013)", type number}, {"Culture rank (15%)", type number}, {"Worst", type number})

Best States to Retire

	State	Overall rank	Overall score	Affordability rank (2014)	Wellness rank (2013)	Culture rank (15%)	Worst
1	Georgia	1	17.25			41	
2	Florida	2	17.45			15	
3	Tennessee	3	18.85			29	
4	Missouri	4	20			34	
5	Wyoming	5	21.95			10	
6	Arizona	6	22.05			40	
7	Ohio	7	22.85			32	
8	Indiana	8	22.95				
9	Kentucky	9	23.25				
10	North Carolina	10	23.4				
11	West Virginia	11	23.45				
12	South Dakota	13	23.5				
13	Wisconsin	14	23.9				
14	Utah	15	24.1				
15	South Carolina	16	24.3				
16	Michigan	17	24.55				
17	New Jersey	17	24.55				
18	Massachusetts	10	20.7				
19	Oklahoma	18	24.65				
20	Massachusetts	19	24.75				
21	New Mexico	19	24.75				
22	New York	19	24.75				
23	Rhode Island	20	24.75				
24	Delaware	23	24.9				
25	Nebraska	24	24.95				
26	Nevada	25	25				
27	Pennsylvania	26	25.2				
28	Vermont	27	25.3				

8 COLUMNS, 51 ROWS Column profiling based on top 1000 rows

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Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Transpose • Reverse Rows • Group By • Use First Row as Headers • Count Rows • Table

Data Type: Any • Replace Values • Unpivot Columns • Merge Columns • Extract • Parse • Text Column • Number Column • Date & Time Column • Scripts

Queries [1] • Table.Transpose(\*"Changed Type")

Best States to Retire

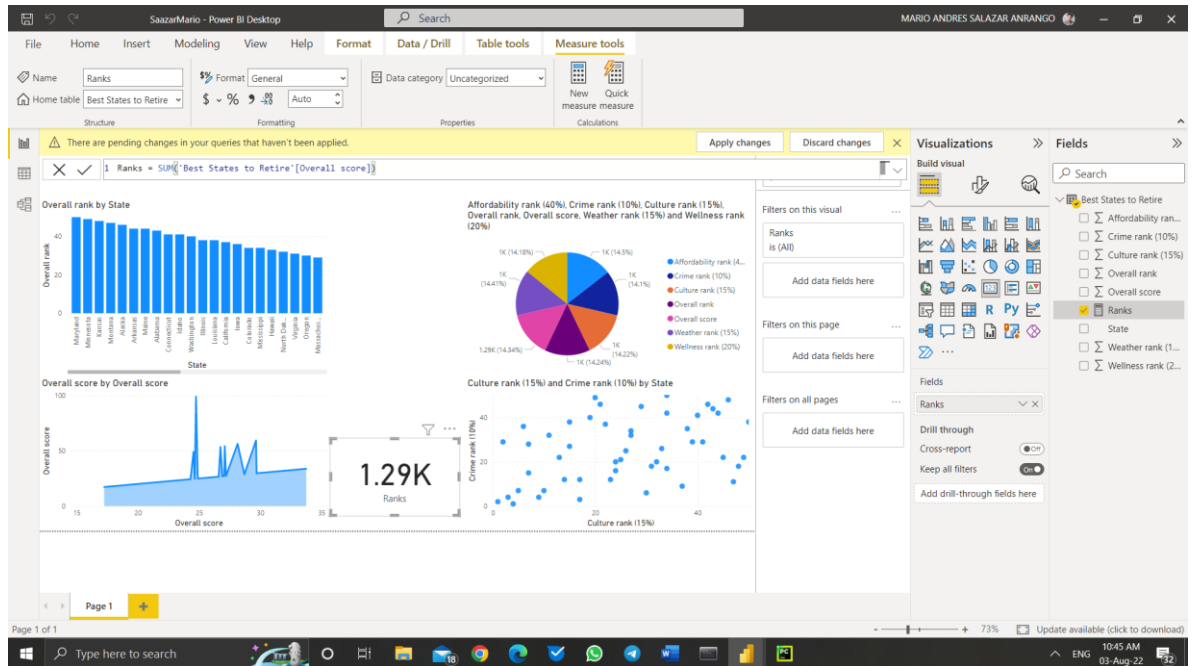
	Column1	Column2	Column3	Column4	Column5	Column6	Column7
1	Georgia	Florida	Tennessee	Missouri	Wyoming	Arizona	Ohio
2		1	2	3	4	5	6
3		17.25	17.45	18.85	20	21.95	22.05
4		3	14	1	3	17	16
5		32	24	42	34	28	27
6		41	15	29	34	10	40
7		4	14	8	18	49	1
8		29	27	45	42	7	41

51 COLUMNS, 8 ROWS Column profiling based on top 1000 rows

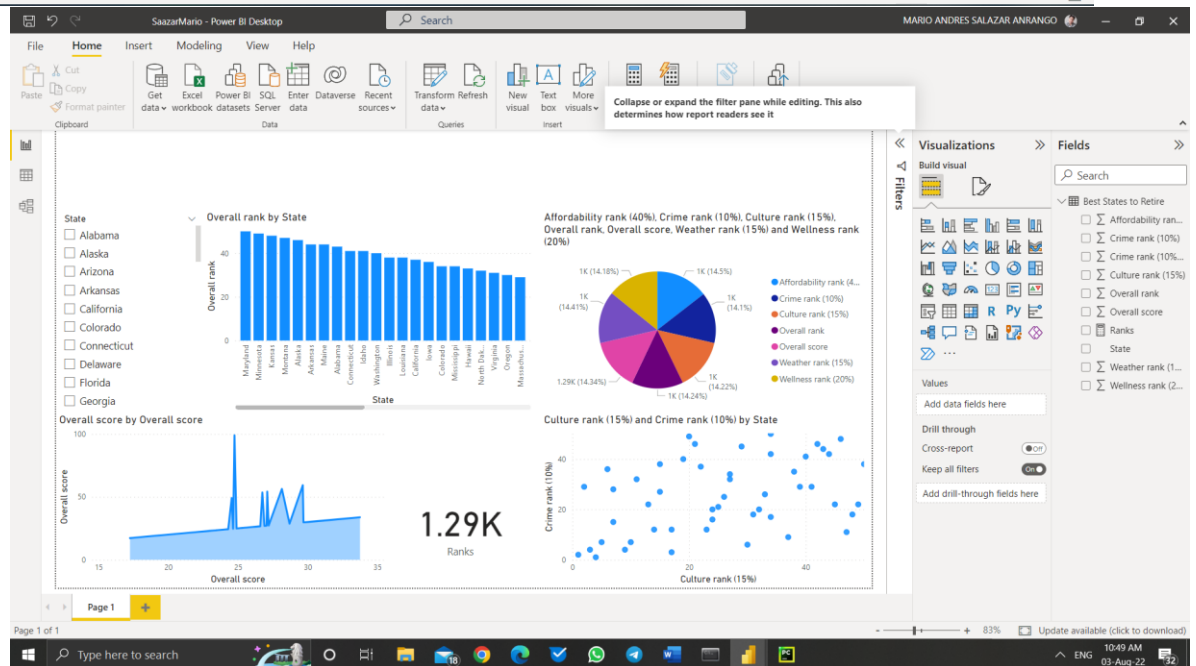
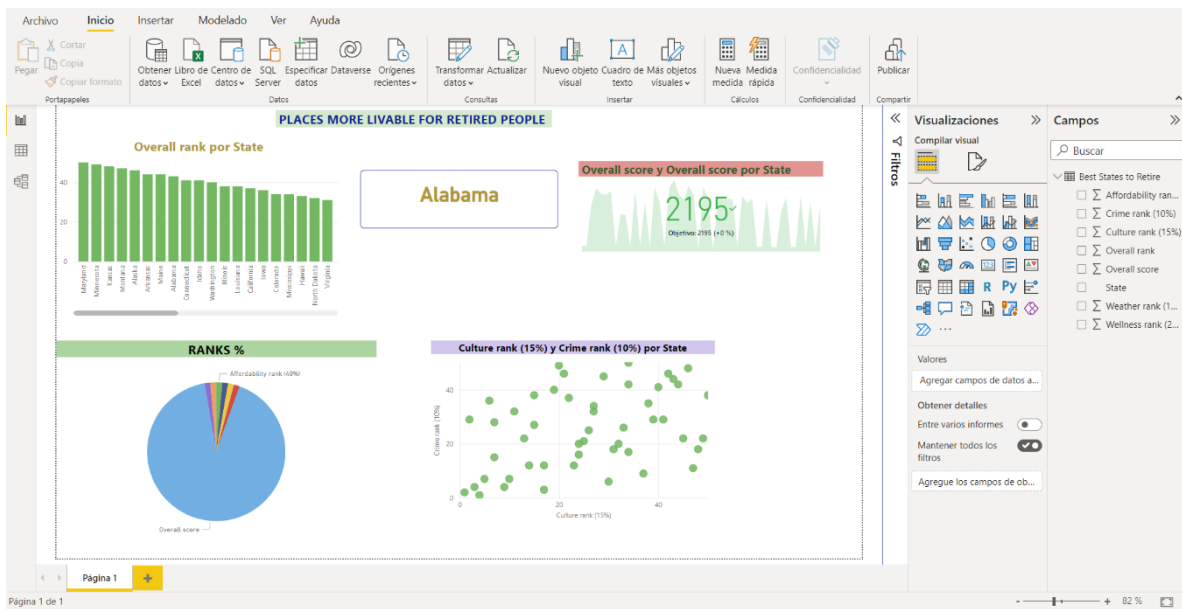
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Crear una medida



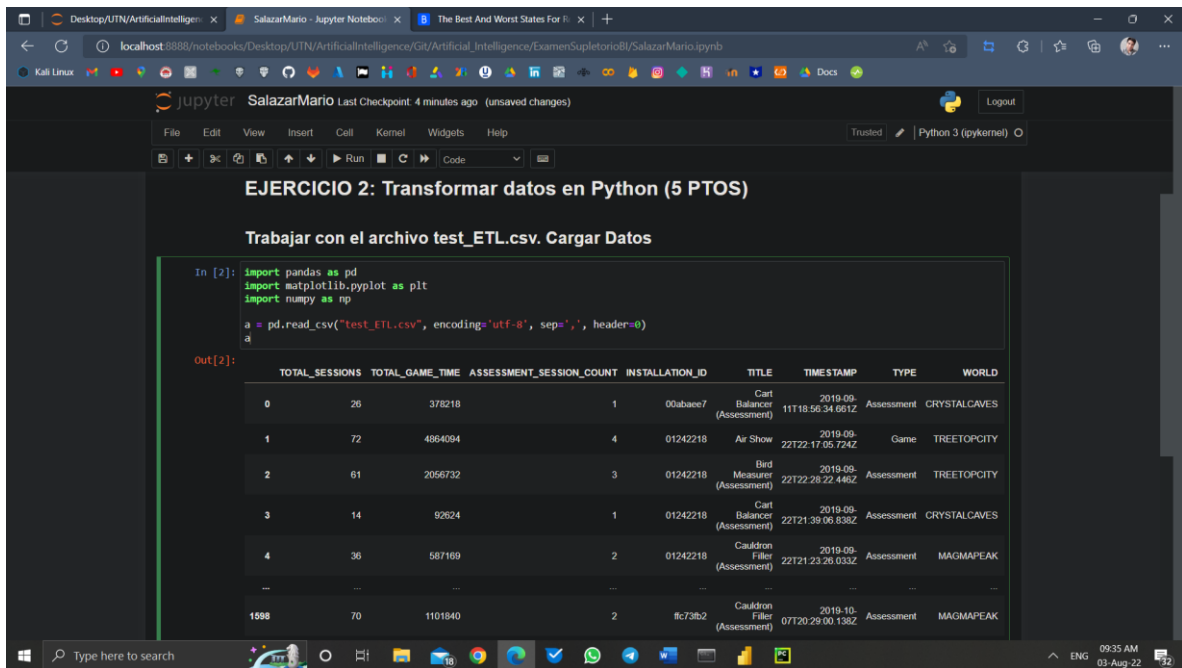
- Se desea crear el Dashboard como se muestra en la figura.



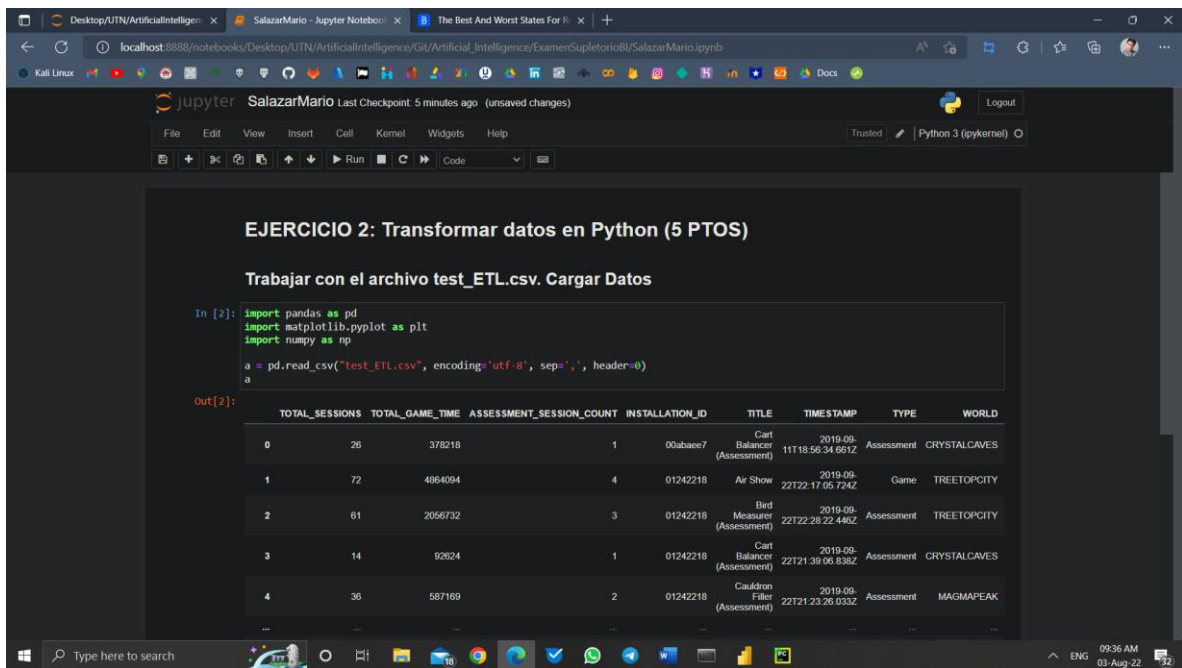
## EJERCICIO 2: Transformar datos en Python (5 PTOS)

### Indicaciones:

1) Trabajar con el archivo **test\_ETL.csv**.



2) Crear un notebook **ipynb**.



3) Para comenzar este análisis exploratorio, primero importe bibliotecas para cargar data set y para graficar los datos.



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localhost:8888/notebooks/Desktop/UTN/ArtificialIntelligence/ExamSupletorioBI/SalazarMario.ipynb

Jupyter SalazarMario Last Checkpoint: 8 minutes ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

EJERCICIO 2: Transformar datos en Python (5 PTOS)

Trabajar con el archivo test\_ETL.csv. Cargar Datos

Crear un notebook ipynb.

Para comenzar este análisis exploratorio, primero importe bibliotecas para cargar data set y para graficar los datos.

Importar Librerías

```
In [2]: import pandas as pd
import matplotlib.pyplot as plt
import numpy as np
```

```
Out[2]:
```

	TOTAL_SESSIONS	TOTAL_GAME_TIME	ASSESSMENT_SESSION_COUNT	INSTALLATION_ID	TITLE	TIMESTAMP	TYPE	WORLD
0	26	378218	1	00abae7	Cart Balancer (Assessment)	2019-09-11T18:56:34.661Z	Assessment	CRYSTALCAVES
1	72	4864094	4	01242218	Air Show	2019-09-22T12:17:05.724Z	Game	TREETOPCITY

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4) Echemos un vistazo rápido a cómo se ven los datos.

Desktop/UTN/ArtificialIntelligen: x SalazarMario - Jupyter Notebook: x The Best And Worst States For F: x | +

localhost:8888/notebooks/Desktop/UTN/ArtificialIntelligence/ExamSupletorioBI/SalazarMario.ipynb

Jupyter SalazarMario Last Checkpoint: 11 minutes ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

Cargar Datos - Dataframe

```
In [6]: dataset = pd.read_csv("test_ETL.csv", encoding='utf-8', sep=',', header=0)
dataset.head(10)
```

```
Out[6]:
```

	TOTAL_SESSIONS	TOTAL_GAME_TIME	ASSESSMENT_SESSION_COUNT	INSTALLATION_ID	TITLE	TIMESTAMP	TYPE	WORLD	GA
0	26	378218	1	00abae7	Cart Balancer (Assessment)	2019-09-11T18:56:34.661Z	Assessment	CRYSTALCAVES	
1	72	4864094	4	01242218	Air Show	2019-09-22T12:17:05.724Z	Game	TREETOPCITY	
2	61	2056732	3	01242218	Bed Measures (Assessment)	2019-09-22T12:28:22.446Z	Assessment	TREETOPCITY	
3	14	92624	1	01242218	Cart Balancer (Assessment)	2019-09-22T12:39:06.839Z	Assessment	CRYSTALCAVES	
4	36	587189	2	01242218	Cauldron Filler (Assessment)	2019-09-22T12:23:26.033Z	Assessment	MAGMAPEAK	
5	83	3109642	3	01242218	Chest Sorter (Assessment)	2019-09-22T12:51:29.635Z	Assessment	CRYSTALCAVES	
6	51	941408	2	01242218	Mushroom Sorter (Assessment)	2019-09-22T12:14:40.839Z	Assessment	TREETOPCITY	
7	124	8701318	9	01242218	Pan Balance	2019-09-22T12:44:46.970Z	Game	CRYSTALCAVES	
8	16	219996	1	02256298	Cart Balancer (Assessment)	2019-08-03T10:56:01.631Z	Assessment	CRYSTALCAVES	
9	237	47389165	17	02256298	Pan Balance	2019-08-03T11:03:33.076Z	Game	CRYSTALCAVES	

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```
In [7]: df1.head(5)
```

Out[7]:

	TOTAL_SESSIONS	TOTAL_GAME_TIME	ASSESSMENT_SESSION_COUNT	INSTALLATION_ID	TITLE	TIMESTAMP	TYPE	WORLD	GA
0	26	378218	1	00abae7	Cart Balancer (Assessment)	2019-09-11T18:56:34.661Z	Assessment	CRYSTALCAVES	
1	72	4864094	4	01242218	Air Show	2019-09-22T22:17:05.724Z	Game	TREETOPCITY	
2	61	2056732	3	01242218	Bird Measurer (Assessment)	2019-09-22T22:28:22.446Z	Assessment	TREETOPCITY	
3	14	92624	1	01242218	Cart Balancer (Assessment)	2019-09-22T21:39:06.838Z	Assessment	CRYSTALCAVES	
4	36	587169	2	01242218	Cauldron Filler (Assessment)	2019-09-22T21:23:26.033Z	Assessment	MAGMAPEAK	

5) Encontrar Gráficos de distribución (histograma/gráfico de barras) de columnas muestreadas:

Para los histogramas se tomo 25 filas iniciales

