

TEAM ID: PNT2022TMID14136

## PROJECT NAME: DemandEst - AI powered Food Demand Forecaster

Team Leader

The screenshot displays a Jupyter Notebook interface with two visible code cells. The browser address bar shows the URL: `localhost:8891/notebooks/Downloads/SBSPS-Challenge-8325-Food-Demand-Forecasting-for-Food-Delivery-Company-using-IBM-Cloud-main/SBSPS-Challenge-...`. The notebook title is "Code - Jupyter Notebook".

**Cell 1: Exploratory Data Analysis**

```
In [96]: train.head()
```

Out[96]:

	id	week	center_id	meal_id	checkout_price	base_price	emailer_for_promotion	homepage_featured	num_orders
0	1379560	1	55	1885	136.83	152.29	0	0	177
1	1466964	1	55	1993	136.83	135.83	0	0	270
2	1346989	1	55	2539	134.86	135.86	0	0	189
3	1338232	1	55	2139	339.50	437.53	0	0	54
4	1448490	1	55	2631	243.50	242.50	0	0	40

```
In [97]: test.head()
```

Out[97]:

	id	week	center_id	meal_id	checkout_price	base_price	emailer_for_promotion	homepage_featured
0	1028232	146	55	1885	158.11	159.11	0	0
1	1127204	146	55	1993	160.11	159.11	0	0
2	1212707	146	55	2539	157.14	159.14	0	0
3	1082698	146	55	2631	162.02	162.02	0	0
4	1400926	146	55	1248	163.93	163.93	0	0

```
In [98]: train.info()
```

Out[98]:

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 456548 entries, 0 to 456547
Data columns (total 9 columns):
#   Column                Non-Null Count  Dtype  
---  --
0   id                    456548 non-null  int64  
1   week                 456548 non-null  int64  
2   center_id            456548 non-null  int64  
3   meal_id              456548 non-null  int64  
4   checkout_price       456548 non-null  float64
5   base_price           456548 non-null  float64
6   emailer_for_promotion 456548 non-null  int64  
7   homepage_featured    456548 non-null  int64  
8   num_orders           456548 non-null  int64  
dtypes: float64(2), int64(7)
memory usage: 31.3 MB
```

```
In [99]: test.info()
```

Out[99]:

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 32573 entries, 0 to 32572
Data columns (total 8 columns):
#   Column                Non-Null Count  Dtype  
---  --
0   id                    32573 non-null  int64  
1   week                 32573 non-null  int64  
2   center_id            32573 non-null  int64  
3   meal_id              32573 non-null  int64
```

Out[100]: count 456548.000000  
std 395.922798

Name: num\_orders, dtype: float64

In [101]: train.describe()

Out[101]:

	id	week	center id	inea i id	checkout price	Base price	emailer for promotion	homepage	Teatur e d num orders
Count	456548	05	456548	000000	456548	000000	456548	000000	456548
ineaii	1.2h0096e+06	74.768	TT1	32.10h796	2024.3374h8	332.239955	354.1h6627	JZ	0.10920
sO	1.443548e+05	41.524956	45.975046	547.+20920	152.939723	160.715914	U.27.3069	U.31109	395.922798
mlil	1.124999e+06	1.000000	10.000000	1062.000000	2.970000	55.350000	0.000000	0.000000	13.000000
	256.1124999e+06	39.000000	43.000000	1558.000000	228.950000	243.500000	0.000000	0.000000	54.000000

Out[100]: count 456548.000000  
mean 261.872760  
std 395.922798

Name: num\_orders, dtype: float64

In [101]: train.describe()

Out[101]:

	id	week	center id	inea i id	checkout price	Base price	emailer for promotion	homepage	Teatur e d num orders
Ineeii	1.250096e+06	7.68771	10.000000	1062.000000	33.2.23.9.9.S.3	354.156627	52	0.000000	261.872760
sO	1.443548e+05	4.524956	45.975046	547.420920	152.93.9723	160.715914	0.273069	0.000000	395.922798
mlil	1.124999e+06	1.000000	10.000000	1062.000000	2.970000	55.350000	0.000000	0.000000	13.000000
256	1.124999e+06	39.000000	43.000000	1558.000000	228.950000	243.500000	0.000000	0.000000	54.000000
506	1.250194e+06	76.000000	76.000000	1993.000000	296.820000	310.460000	0.000000	0.000000	395.922798
756	1.375140P+06	111.000000	000000	2539000000	445.230000	458.870000	0.000000	1.000000	24259.000000
maz	1.499999e+06	145.000000	136.000000	2956.000000	866.270000	866.270000	1.000000	0.000000	0.000000

# Team Member 1

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## Exploratory Data Analysis

```
In [96]: train.head()
```

```
Out[96]:
```

	id	week	center_id	meal_id	checkout_price	base_price	emailer_for_promotion	homepage_featured	num_orders
0	1379560	1	55	1885	136.83	152.29	0	0	177
1	1466964	1	55	1993	136.83	135.83	0	0	270
2	1346889	1	55	2539	134.86	135.86	0	0	189
3	1338232	1	55	2139	339.50	437.53	0	0	54
4	1448490	1	55	2631	243.50	242.50	0	0	40

```
In [97]: test.head()
```

```
Out[97]:
```

	id	week	center_id	meal_id	checkout_price	base_price	emailer_for_promotion	homepage_featured
0	1028232	146	55	1885	158.11	159.11	0	0
1	1127204	146	55	1993	160.11	159.11	0	0
2	1212707	146	55	2539	157.14	159.14	0	0
3	1082698	146	55	2631	162.02	162.02	0	0
4	1400926	146	55	1248	163.93	163.93	0	0

```
In [98]: train.info()
```

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```
In [98]: train.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 456548 entries, 0 to 456547
Data columns (total 9 columns):
#   Column              Non-Null Count  Dtype
---  -
0   id                   456548 non-null int64
1   week                 456548 non-null int64
2   center_id            456548 non-null int64
3   meal_id              456548 non-null int64
4   checkout_price        456548 non-null float64
5   base_price            456548 non-null float64
6   emailer_for_promotion 456548 non-null int64
7   homepage_featured     456548 non-null int64
8   num_orders            456548 non-null int64
dtypes: float64(2), int64(7)
memory usage: 31.3 MB
```

```
In [99]: test.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 32573 entries, 0 to 32572
Data columns (total 8 columns):
#   Column              Non-Null Count  Dtype
---  -
0   id                   32573 non-null int64
1   week                 32573 non-null int64
2   center_id            32573 non-null int64
3   meal_id              32573 non-null int64
```

```
Out[100]: count    456548.000000
          std       395.922798
```

Name: num\_orders, dtype: float64

```
In [101]: train.describe()
```

	id	week	Center id	inea i id	checkout price	Base price	emailer for promotion homepage	Teatur e d num orders
Count	4565480e+05	456548 000000	456548 000000	456548 000000	456548 000000	456548 000000	456548 000000	456548 000000
ineaii	1.2h0096e+06	74.768TT1	32.10h796	2024.3374h8	332.2399S5	354.1h66Z7	JZ	0.10920 261.872760
sO	1.443548e+05	41.524956	45.975046	547.+20920	152.939723	160.715914	0.273069	0.31189 395.922798
mlil	1.000000e+00	1 000000	10 000000	1062 000000	2 970000	55 350000	0 000000	0 00000 13 000000
	256 1 124999e+06	39 000000	43 000000	1558 000000	228 950000	243 500000	0 000000	0 00000 54 000000

```
Out[100]: count    456548.000000
          mean     261.872760
          std       395.922798
```

Name: num\_orders, dtype: float64

```
In [101]: train.describe()
```

	id	week	center id	inea i id	checkout price	Base price	emailer for promotion homepage	Teatur e d num orders
Ineeii	1.250096e+06	7 68771	10 000000	1062 000000	33 2.23 9 9 S 3	354.15662 7	52	0.00000 261.872760
sO	1.443548e+05	4 524956	45 975046	547.420920	152.93 9723	160.715914	0.273069	0 00000 395.922798
mlil	1 000000e+00	1 0 000000	10 000000	1062 000000	2 970000	55 350000	0 000000	0 00000 13 000000
256	1.124999e+06	39 000000	43 000000	1558 000000	228 950000	243 500000	0 000000	0 00000 54 000000
506	1.250194e+06	76 000000	76 000000	1993 000000	296 820000	310 460000	0 000000	0 00000 395 922798
756	1 375140P+06	111 000000	000000	2539000000	445 230000	458 870000	0 000000	1 00000 24299 000000
maz	1 499999e+06	145 000000	136 000000	2956 000000	866 270000	866 270000	1 000000	

## Team Member 2

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### Exploratory Data Analysis

```
In [96]: train.head()
```

```
Out[96]:
```

	id	week	center_id	meal_id	checkout_price	base_price	emailer_for_promotion	homepage_featured	num_orders
0	1379560	1	55	1885	136.83	152.29	0	0	177
1	1466964	1	55	1993	136.83	135.83	0	0	270
2	1346989	1	55	2539	134.86	135.86	0	0	189
3	1338232	1	55	2139	339.50	437.53	0	0	54
4	1448490	1	55	2631	243.50	242.50	0	0	40

```
In [97]: test.head()
```

```
Out[97]:
```

	id	week	center_id	meal_id	checkout_price	base_price	emailer_for_promotion	homepage_featured
0	1028232	146	55	1885	158.11	159.11	0	0
1	1127204	146	55	1993	160.11	159.11	0	0
2	1212707	146	55	2539	157.14	159.14	0	0
3	1082698	146	55	2631	162.02	162.02	0	0
4	1400926	146	55	1248	163.93	163.93	0	0

```
In [98]: train.info()
```

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```
In [98]: train.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 456548 entries, 0 to 456547
Data columns (total 9 columns):
#   Column                Non-Null Count  Dtype
---  -
0   id                     456548 non-null int64
1   week                   456548 non-null int64
2   center_id              456548 non-null int64
3   meal_id                456548 non-null int64
4   checkout_price         456548 non-null float64
5   base_price              456548 non-null float64
6   emailer_for_promotion  456548 non-null int64
7   homepage_featured      456548 non-null int64
8   num_orders              456548 non-null int64
dtypes: float64(2), int64(7)
memory usage: 31.3 MB
```

```
In [99]: test.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 32573 entries, 0 to 32572
Data columns (total 8 columns):
#   Column                Non-Null Count  Dtype
---  -
0   id                     32573 non-null int64
1   week                   32573 non-null int64
2   center_id              32573 non-null int64
3   meal_id                32573 non-null int64
```

```
Out[100]: count    456548.000000
          std       395.922798
```

Name: num\_orders, dtype: float64

```
In [101]: train.describe()
```

	id	week	Center id	lineal id	checkout price	base price	emailer for promotion	homepage	teatur ed num orders
Count	456548	05	456548	000000	456548	000000	456548	000000	456548
lineal id	1.250096e+06	74.768771	32.10h796	2024.3374h8	332.239955	354.1h6627		JZ	0.10920
s0	1.443548e+05	41.524956	45.975046	547.+20920	152.939723	160.715914	0.273069		0.31189
mlil	1.000000e+00	1.000000	10.000000	1062.000000	2.970000	55.350000	0.000000		0.000000
256	1.124999e+06	39.000000	43.000000	1558.000000	228.950000	243.500000	0.000000		0.000000

```
Out[100]: count    456548.000000
          mean      261.872760
          std       395.922798
```

Name: num\_orders, dtype: float64

```
In [101]: train.describe()
```

	id	week	center id	lineal id	checkout price	base price	emailer for promotion	homepage	Teatur ed num orders
lineal id	1.250096e+06	7.68771	10.000000	1062.000000	33.2239953	354.156627		52	0.000000
s0	1.443548e+05	4.524956	45.975046	547.420920	152.939723	160.715914	0.273069		0.31189
mlil	1.000000e+00	1.000000	10.000000	1062.000000	2.970000	55.350000	0.000000		0.000000
256	1.124999e+06	39.000000	43.000000	1558.000000	228.950000	243.500000	0.000000		0.000000
506	1.250194e+06	76.000000	76.000000	1993.000000	296.820000	310.460000	0.000000		0.000000
756	1.375140e+06	111.000000	000000	2539000000	445.230000	458.870000	0.000000		1.000000
maz	1.499999e+06	145.000000	136.000000	2956.000000	866.270000	866.270000	1.000000		24299.000000

## Team Member 3

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### Exploratory Data Analysis

```
In [96]: train.head()
```

```
Out[96]:
```

	id	week	center_id	meal_id	checkout_price	base_price	emailer_for_promotion	homepage_featured	num_orders
0	1379560	1	55	1885	136.83	152.29	0	0	177
1	1466964	1	55	1993	136.83	135.83	0	0	270
2	1346989	1	55	2539	134.86	135.86	0	0	189
3	1338232	1	55	2139	339.50	437.53	0	0	54
4	1448490	1	55	2631	243.50	242.50	0	0	40

```
In [97]: test.head()
```

```
Out[97]:
```

	id	week	center_id	meal_id	checkout_price	base_price	emailer_for_promotion	homepage_featured
0	1028232	146	55	1885	158.11	159.11	0	0
1	1127204	146	55	1993	160.11	159.11	0	0
2	1212707	146	55	2539	157.14	159.14	0	0
3	1082698	146	55	2631	162.02	162.02	0	0
4	1400926	146	55	1248	163.93	163.93	0	0

```
In [98]: train.info()
```

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```
In [98]: train.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 456548 entries, 0 to 456547
Data columns (total 9 columns):
#   Column                Non-Null Count  Dtype
---  -
0   id                    456548 non-null int64
1   week                  456548 non-null int64
2   center_id             456548 non-null int64
3   meal_id               456548 non-null int64
4   checkout_price         456548 non-null float64
5   base_price             456548 non-null float64
6   emailer_for_promotion  456548 non-null int64
7   homepage_featured      456548 non-null int64
8   num_orders             456548 non-null int64
dtypes: float64(2), int64(7)
memory usage: 31.3 MB
```

```
In [99]: test.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 32573 entries, 0 to 32572
Data columns (total 8 columns):
#   Column                Non-Null Count  Dtype
---  -
0   id                    32573 non-null int64
1   week                  32573 non-null int64
2   center_id             32573 non-null int64
3   meal_id               32573 non-null int64
```

Out[100]: count 456548.000000  
std 395.922798

Name: num\_orders, dtype: float64

In [101]: train.describe()

Out[101]:

	id	week	center id	inea i id	checkout price	Base price	emailer for promotion	homepage	Teatur e d num orders
Count	456548.000000	456548.000000	456548.000000	456548.000000	456548.000000	456548.000000	456548.000000	456548.000000	456548.000000
ineaii	1.2h0096e+06	74.768TT1	32.10h796	2024.3374h8	332.2399S5	354.1h66Z7		JZ	0.10920 261.872760
sO	1.443548e+05	41.524956	45.975046	547.+20920	152.939723	160.715914	0.273069	0.31189	395.922798
mlil	1.000000e+00	1.000000	10.000000	1062.000000	2.970000	55.350000	0.000000	0.000000	13.000000
	256.1124999e+06	39.000000	43.000000	1558.000000	228.950000	243.500000	0.000000	0.000000	54.000000

Out[100]: count 456548.000000  
mean 261.872760  
std 395.922798

Name: num\_orders, dtype: float64

In [101]: train.describe()

Out[101]:

	id	week	center id	inea i id	checkout price	Base price	emailer for promotion	homepage	Teatur e d num orders
Ineeii	1.250096e+06	7.68771	10.000000	1062.000000	33.2.23.9.9.S.3	354.15662.7		52	0.000000 261.872760
sO	1.443548e+05	4.524956	45.975046	547.420920	152.93.9723	160.715914	0.273069		
mlil	1.000000e+00	1.000000	10.000000	1062.000000	2.970000	55.350000	0.000000	0.000000	13.000000
256	1.124999e+06	39.000000	43.000000	1558.000000	228.950000	243.500000	0.000000	0.000000	
506	1.250194e+06	76.000000	76.000000	1993.000000	296.820000	310.460000	0.000000	0.000000	395.922798
756	1.375140P+06	111.000000	000000	2539000000	445.230000	458.870000	0.000000	1.000000	24299.000000
maz	1.499999e+06	145.000000	136.000000	2956.000000	866.270000	866.270000	1.000000		