00w0nsi6g

March 4, 2023

1 1.Hotel Booking

```
[2]:  #Importing the data
      import pandas as pd
      import numpy as np
      import matplotlib.pyplot as plt
```

```
[30]:  data=pd.read_csv("hotel_bookings.csv")
```

```
[31]:  data
```

```
[31]:                 hotel  is_canceled  lead_time  arrival_date_year  \
       0        Resort Hotel            0        342               2015
       1        Resort Hotel            0        737               2015
       2        Resort Hotel            0          7               2015
       3        Resort Hotel            0         13               2015
       4        Resort Hotel            0         14               2015
       ...               ...          ...        ...                ...
       119385     City Hotel            0         23               2017
       119386     City Hotel            0        102               2017
       119387     City Hotel            0         34               2017
       119388     City Hotel            0        109               2017
       119389     City Hotel            0        205               2017

               arrival_date_month  arrival_date_week_number  \
       0                     July                        27
       1                     July                        27
       2                     July                        27
       3                     July                        27
       4                     July                        27
       ...                    ...                       ...
       119385              August                        35
       119386              August                        35
       119387              August                        35
       119388              August                        35
       119389              August                        35
```

	arrival_date_day_of_month	stays_in_weekend_nights \
0	1	0
1	1	0
2	1	0
3	1	0
4	1	0
…	…	…
119385	30	2
119386	31	2
119387	31	2
119388	31	2
119389	29	2

	stays_in_week_nights	adults	…	deposit_type	agent	company \
0	0	2	…	No Deposit	NaN	NaN
1	0	2	…	No Deposit	NaN	NaN
2	1	1	…	No Deposit	NaN	NaN
3	1	1	…	No Deposit	304.0	NaN
4	2	2	…	No Deposit	240.0	NaN
…	…	…	…	…	…	…
119385	5	2	…	No Deposit	394.0	NaN
119386	5	3	…	No Deposit	9.0	NaN
119387	5	2	…	No Deposit	9.0	NaN
119388	5	2	…	No Deposit	89.0	NaN
119389	7	2	…	No Deposit	9.0	NaN

	days_in_waiting_list	customer_type	adr \
0	0	Transient	0.00
1	0	Transient	0.00
2	0	Transient	75.00
3	0	Transient	75.00
4	0	Transient	98.00
…	…	…	…
119385	0	Transient	96.14
119386	0	Transient	225.43
119387	0	Transient	157.71
119388	0	Transient	104.40
119389	0	Transient	151.20

	required_car_parking_spaces	total_of_special_requests \
0	0	0
1	0	0
2	0	0
3	0	0
4	0	1
…	…	…
119385	0	0

```
119386                                      0                              2
119387                                      0                              4
119388                                      0                              0
119389                                      0                              2


           reservation_status reservation_status_date
0                  Check-Out                 01-07-15
1                  Check-Out                 01-07-15
2                  Check-Out                 02-07-15
3                  Check-Out                 02-07-15
4                  Check-Out                 03-07-15
...                      ...                      ...
119385             Check-Out                 06-09-17
119386             Check-Out                 07-09-17
119387             Check-Out                 07-09-17
119388             Check-Out                 07-09-17
119389             Check-Out                 07-09-17

[119390 rows x 32 columns]
```

[32]: `data.head()`   *#will show first five*

[32]:
```
            hotel  is_canceled  lead_time  arrival_date_year arrival_date_month  \
0  Resort Hotel             0        342               2015               July
1  Resort Hotel             0        737               2015               July
2  Resort Hotel             0          7               2015               July
3  Resort Hotel             0         13               2015               July
4  Resort Hotel             0         14               2015               July


   arrival_date_week_number  arrival_date_day_of_month  \
0                        27                          1
1                        27                          1
2                        27                          1
3                        27                          1
4                        27                          1


   stays_in_weekend_nights  stays_in_week_nights  adults  …  deposit_type  \
0                        0                     0       2  …    No Deposit
1                        0                     0       2  …    No Deposit
2                        0                     1       1  …    No Deposit
3                        0                     1       1  …    No Deposit
4                        0                     2       2  …    No Deposit


   agent company days_in_waiting_list customer_type   adr  \
0    NaN     NaN                    0     Transient   0.0
1    NaN     NaN                    0     Transient   0.0
2    NaN     NaN                    0     Transient  75.0
```

3

```
3  304.0     NaN                         0     Transient  75.0
4  240.0     NaN                         0     Transient  98.0

   required_car_parking_spaces  total_of_special_requests  reservation_status  \
0                            0                          0             Check-Out
1                            0                          0             Check-Out
2                            0                          0             Check-Out
3                            0                          0             Check-Out
4                            0                          1             Check-Out

  reservation_status_date
0                01-07-15
1                01-07-15
2                02-07-15
3                02-07-15
4                03-07-15

[5 rows x 32 columns]
```

[6]: `data.info()`

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 119390 entries, 0 to 119389
Data columns (total 32 columns):
 #   Column                          Non-Null Count   Dtype
---  ------                          --------------   -----
 0   hotel                           119390 non-null  object
 1   is_canceled                     119390 non-null  int64
 2   lead_time                       119390 non-null  int64
 3   arrival_date_year               119390 non-null  int64
 4   arrival_date_month              119390 non-null  object
 5   arrival_date_week_number        119390 non-null  int64
 6   arrival_date_day_of_month       119390 non-null  int64
 7   stays_in_weekend_nights         119390 non-null  int64
 8   stays_in_week_nights            119390 non-null  int64
 9   adults                          119390 non-null  int64
 10  children                        119386 non-null  float64
 11  babies                          119390 non-null  int64
 12  meal                            119390 non-null  object
 13  country                         118902 non-null  object
 14  market_segment                  119390 non-null  object
 15  distribution_channel            119390 non-null  object
 16  is_repeated_guest               119390 non-null  int64
 17  previous_cancellations          119390 non-null  int64
 18  previous_bookings_not_canceled  119390 non-null  int64
 19  reserved_room_type              119390 non-null  object
 20  assigned_room_type              119390 non-null  object
```

```
21  booking_changes                 119390 non-null  int64
22  deposit_type                    119390 non-null  object
23  agent                           103050 non-null  float64
24  company                           6797 non-null  float64
25  days_in_waiting_list            119390 non-null  int64
26  customer_type                   119390 non-null  object
27  adr                             119390 non-null  float64
28  required_car_parking_spaces     119390 non-null  int64
29  total_of_special_requests       119390 non-null  int64
30  reservation_status              119390 non-null  object
31  reservation_status_date         119390 non-null  object
dtypes: float64(4), int64(16), object(12)
memory usage: 29.1+ MB
```

[33]: `data.shape`   *#shows rowsand columns*

[33]: (119390, 32)

[9]: `data.dtypes`

[9]:
```
hotel                             object
is_canceled                        int64
lead_time                          int64
arrival_date_year                  int64
arrival_date_month                object
arrival_date_week_number           int64
arrival_date_day_of_month          int64
stays_in_weekend_nights            int64
stays_in_week_nights               int64
adults                             int64
children                         float64
babies                             int64
meal                              object
country                           object
market_segment                    object
distribution_channel              object
is_repeated_guest                  int64
previous_cancellations             int64
previous_bookings_not_canceled     int64
reserved_room_type                object
assigned_room_type                object
booking_changes                    int64
deposit_type                      object
agent                            float64
company                          float64
days_in_waiting_list               int64
customer_type                     object
```

```
adr                               float64
required_car_parking_spaces         int64
total_of_special_requests           int64
reservation_status                 object
reservation_status_date            object
dtype: object
```

[10]: `data.isnull().sum()`

```
[10]: hotel                             0
      is_canceled                       0
      lead_time                         0
      arrival_date_year                 0
      arrival_date_month                0
      arrival_date_week_number          0
      arrival_date_day_of_month         0
      stays_in_weekend_nights           0
      stays_in_week_nights              0
      adults                            0
      children                          4
      babies                            0
      meal                              0
      country                         488
      market_segment                    0
      distribution_channel              0
      is_repeated_guest                 0
      previous_cancellations            0
      previous_bookings_not_canceled    0
      reserved_room_type                0
      assigned_room_type                0
      booking_changes                   0
      deposit_type                      0
      agent                         16340
      company                      112593
      days_in_waiting_list              0
      customer_type                     0
      adr                               0
      required_car_parking_spaces       0
      total_of_special_requests         0
      reservation_status                0
      reservation_status_date           0
      dtype: int64
```

[11]: `data['hotel'].unique()`

[11]: `array(['Resort Hotel', 'City Hotel'], dtype=object)`

```
[12]: data['hotel'].value_counts()
```

```
[12]: City Hotel      79330
      Resort Hotel    40060
      Name: hotel, dtype: int64
```

```
[13]: d1=data[data['hotel']=='Resort Hotel']
      d1
```

```
[13]:                hotel  is_canceled  lead_time  arrival_date_year  \
      0       Resort Hotel            0        342               2015
      1       Resort Hotel            0        737               2015
      2       Resort Hotel            0          7               2015
      3       Resort Hotel            0         13               2015
      4       Resort Hotel            0         14               2015
      ...              ...          ...        ...                ...
      40055   Resort Hotel            0        212               2017
      40056   Resort Hotel            0        169               2017
      40057   Resort Hotel            0        204               2017
      40058   Resort Hotel            0        211               2017
      40059   Resort Hotel            0        161               2017

            arrival_date_month  arrival_date_week_number  arrival_date_day_of_month  \
      0                   July                        27                          1
      1                   July                        27                          1
      2                   July                        27                          1
      3                   July                        27                          1
      4                   July                        27                          1
      ...                  ...                       ...                        ...
      40055             August                        35                         31
      40056             August                        35                         30
      40057             August                        35                         29
      40058             August                        35                         31
      40059             August                        35                         31

            stays_in_weekend_nights  stays_in_week_nights  adults  ...  \
      0                           0                     0       2  ...
      1                           0                     0       2  ...
      2                           0                     1       1  ...
      3                           0                     1       1  ...
      4                           0                     2       2  ...
      ...                       ...                   ...     ...  ...
      40055                       2                     8       2  ...
      40056                       2                     9       2  ...
      40057                       4                    10       2  ...
      40058                       4                    10       2  ...
      40059                       4                    10       2  ...
```

```
       deposit_type   agent  company days_in_waiting_list        customer_type  \
0        No Deposit     NaN     NaN                     0            Transient
1        No Deposit     NaN     NaN                     0            Transient
2        No Deposit     NaN     NaN                     0            Transient
3        No Deposit   304.0     NaN                     0            Transient
4        No Deposit   240.0     NaN                     0            Transient
...             ...     ...     ...                   ...                  ...
40055    No Deposit   143.0     NaN                     0            Transient
40056    No Deposit   250.0     NaN                     0      Transient-Party
40057    No Deposit   250.0     NaN                     0            Transient
40058    No Deposit    40.0     NaN                     0             Contract
40059    No Deposit    69.0     NaN                     0            Transient

          adr  required_car_parking_spaces  total_of_special_requests  \
0        0.00                            0                          0
1        0.00                            0                          0
2       75.00                            0                          0
3       75.00                            0                          0
4       98.00                            0                          1
...       ...                          ...                        ...
40055   89.75                            0                          0
40056  202.27                            0                          1
40057  153.57                            0                          3
40058  112.80                            0                          1
40059   99.06                            0                          0

      reservation_status reservation_status_date
0              Check-Out                 01-07-15
1              Check-Out                 01-07-15
2              Check-Out                 02-07-15
3              Check-Out                 02-07-15
4              Check-Out                 03-07-15
...                  ...                      ...
40055          Check-Out                 10-09-17
40056          Check-Out                 10-09-17
40057          Check-Out                 12-09-17
40058          Check-Out                 14-09-17
40059          Check-Out                 14-09-17

[40060 rows x 32 columns]
```

[14]: `data.columns`

[14]: Index(['hotel', 'is_canceled', 'lead_time', 'arrival_date_year',
       'arrival_date_month', 'arrival_date_week_number',
       'arrival_date_day_of_month', 'stays_in_weekend_nights',

```
       'stays_in_week_nights', 'adults', 'children', 'babies', 'meal',
       'country', 'market_segment', 'distribution_channel',
       'is_repeated_guest', 'previous_cancellations',
       'previous_bookings_not_canceled', 'reserved_room_type',
       'assigned_room_type', 'booking_changes', 'deposit_type', 'agent',
       'company', 'days_in_waiting_list', 'customer_type', 'adr',
       'required_car_parking_spaces', 'total_of_special_requests',
       'reservation_status', 'reservation_status_date'],
      dtype='object')
```

[15]: `data.drop("company",axis=1,inplace=True)`

[16]: `data`

[16]:
```
                  hotel  is_canceled  lead_time  arrival_date_year  \
0          Resort Hotel            0        342               2015
1          Resort Hotel            0        737               2015
2          Resort Hotel            0          7               2015
3          Resort Hotel            0         13               2015
4          Resort Hotel            0         14               2015
...                 ...          ...        ...                ...
119385       City Hotel            0         23               2017
119386       City Hotel            0        102               2017
119387       City Hotel            0         34               2017
119388       City Hotel            0        109               2017
119389       City Hotel            0        205               2017

        arrival_date_month  arrival_date_week_number  \
0                     July                        27
1                     July                        27
2                     July                        27
3                     July                        27
4                     July                        27
...                    ...                       ...
119385              August                        35
119386              August                        35
119387              August                        35
119388              August                        35
119389              August                        35

        arrival_date_day_of_month  stays_in_weekend_nights  \
0                               1                        0
1                               1                        0
2                               1                        0
3                               1                        0
4                               1                        0
...                           ...                      ...
```

119385	30	2
119386	31	2
119387	31	2
119388	31	2
119389	29	2

	stays_in_week_nights	adults	…	booking_changes	deposit_type \
0	0	2	…	3	No Deposit
1	0	2	…	4	No Deposit
2	1	1	…	0	No Deposit
3	1	1	…	0	No Deposit
4	2	2	…	0	No Deposit
…	…	… …	…	…	…
119385	5	2	…	0	No Deposit
119386	5	3	…	0	No Deposit
119387	5	2	…	0	No Deposit
119388	5	2	…	0	No Deposit
119389	7	2	…	0	No Deposit

	agent	days_in_waiting_list	customer_type	adr \
0	NaN	0	Transient	0.00
1	NaN	0	Transient	0.00
2	NaN	0	Transient	75.00
3	304.0	0	Transient	75.00
4	240.0	0	Transient	98.00
…	…	…	…	…
119385	394.0	0	Transient	96.14
119386	9.0	0	Transient	225.43
119387	9.0	0	Transient	157.71
119388	89.0	0	Transient	104.40
119389	9.0	0	Transient	151.20

	required_car_parking_spaces	total_of_special_requests \
0	0	0
1	0	0
2	0	0
3	0	0
4	0	1
…	…	…
119385	0	0
119386	0	2
119387	0	4
119388	0	0
119389	0	2

	reservation_status	reservation_status_date
0	Check-Out	01-07-15

```
1              Check-Out              01-07-15
2              Check-Out              02-07-15
3              Check-Out              02-07-15
4              Check-Out              03-07-15
...            ...                    ...
119385         Check-Out              06-09-17
119386         Check-Out              07-09-17
119387         Check-Out              07-09-17
119388         Check-Out              07-09-17
119389         Check-Out              07-09-17

[119390 rows x 31 columns]
```

[17]: `data['arrival_date_month'].value_counts().sort_values(ascending=False).head()`

```
[17]: August     13877
      July       12661
      May        11791
      October    11160
      April      11089
      Name: arrival_date_month, dtype: int64
```

[18]: `data.groupby('hotel').agg(np.mean)`

```
[18]:               is_canceled    lead_time   arrival_date_year  \
      hotel
      City Hotel       0.417270   109.735724        2016.174285
      Resort Hotel     0.277634    92.675686        2016.121443


                    arrival_date_week_number   arrival_date_day_of_month  \
      hotel
      City Hotel                    27.177449                   15.786625
      Resort Hotel                  27.140864                   15.821243


                    stays_in_weekend_nights   stays_in_week_nights     adults  \
      hotel
      City Hotel                    0.795185               2.182957   1.850977
      Resort Hotel                  1.189815               3.128732   1.867149


                    children     babies   is_repeated_guest   previous_cancellations  \
      hotel
      City Hotel    0.091370   0.004941            0.025615                 0.079743
      Resort Hotel  0.128682   0.013904            0.044383                 0.101722


                    previous_bookings_not_canceled   booking_changes      agent  \
      hotel
      City Hotel                          0.132371          0.187369   28.144721
```

```
Resort Hotel                          0.146455        0.287968  217.571725

           days_in_waiting_list         adr  required_car_parking_spaces  \
hotel
City Hotel             3.226774  105.304465                     0.024367
Resort Hotel           0.527758   94.952930                     0.138068

           total_of_special_requests
hotel
City Hotel                   0.546918
Resort Hotel                 0.619770
```

2 2.Titanic Data

```
[3]: df=pd.read_csv("titanic.csv")                # reading csv file
```

```
[4]: df
```

```
[4]:      PassengerId  Survived  Pclass  \
     0              1         0       3
     1              2         1       1
     2              3         1       3
     3              4         1       1
     4              5         0       3
     ..           ...       ...     ...
     886          887         0       2
     887          888         1       1
     888          889         0       3
     889          890         1       1
     890          891         0       3

                                                     Name     Sex   Age  SibSp  \
     0                              Braund, Mr. Owen Harris    male  22.0      1
     1    Cumings, Mrs. John Bradley (Florence Briggs Th…  female  38.0      1
     2                               Heikkinen, Miss. Laina  female  26.0      0
     3         Futrelle, Mrs. Jacques Heath (Lily May Peel)  female  35.0      1
     4                             Allen, Mr. William Henry    male  35.0      0
     ..                                                 ...     ...   ...    ...
     886                              Montvila, Rev. Juozas    male  27.0      0
     887                       Graham, Miss. Margaret Edith  female  19.0      0
     888           Johnston, Miss. Catherine Helen "Carrie"  female   NaN      1
     889                              Behr, Mr. Karl Howell    male  26.0      0
     890                                Dooley, Mr. Patrick    male  32.0      0

          Parch           Ticket     Fare Cabin Embarked
     0         0        A/5 21171   7.2500   NaN        S
```

```
1        0          PC 17599   71.2833   C85        C
2        0   STON/O2. 3101282   7.9250   NaN        S
3        0          113803   53.1000   C123        S
4        0          373450    8.0500   NaN        S
..       …            …        …       …
886      0          211536   13.0000   NaN        S
887      0          112053   30.0000   B42        S
888      2       W./C. 6607   23.4500   NaN        S
889      0          111369   30.0000   C148        C
890      0          370376    7.7500   NaN        Q

[891 rows x 12 columns]
```

[25]: `df.shape`   *#shows columns and rows*

[25]: (891, 12)

[9]: `df.columns`

[9]:
```
Index(['PassengerId', 'Survived', 'Pclass', 'Name', 'Sex', 'Age', 'SibSp',
       'Parch', 'Ticket', 'Fare', 'Cabin', 'Embarked'],
      dtype='object')
```

[5]: `df.isnull().sum()`   *#null values*

[5]:
```
PassengerId      0
Survived         0
Pclass           0
Name             0
Sex              0
Age            177
SibSp            0
Parch            0
Ticket           0
Fare             0
Cabin          687
Embarked         2
dtype: int64
```

[6]:
```
x=df.isnull().sum()
drop_col=x[x>(35/100)*df.shape[0]]
drop_col
```

[6]:
```
Cabin    687
dtype: int64
```

[7]: `drop_col.index`

```
[7]: Index(['Cabin'], dtype='object')
```

```
[8]: df.fillna(df.mean(),inplace=True)
     df.isnull().sum()
```

C:\Users\dell\AppData\Local\Temp\ipykernel_11792\749260251.py:1: FutureWarning:
Dropping of nuisance columns in DataFrame reductions (with 'numeric_only=None')
is deprecated; in a future version this will raise TypeError. Select only valid
columns before calling the reduction.
  df.fillna(df.mean(),inplace=True)

```
[8]: PassengerId      0
     Survived         0
     Pclass           0
     Name             0
     Sex              0
     Age              0
     SibSp            0
     Parch            0
     Ticket           0
     Fare             0
     Cabin          687
     Embarked         2
     dtype: int64
```

```
[9]: df.drop("cabin",axis=1,inplace=True)              #dropping the coulmn cabin
```

```
---------------------------------------------------------------------------
KeyError                                  Traceback (most recent call last)
Input In [9], in <cell line: 1>()
----> 1 df.drop("cabin",axis=1,inplace=True)

File C:\ProgramData\Anaconda3\lib\site-packages\pandas\util\_decorators.py:311,
  in deprecate_nonkeyword_arguments.<locals>.decorate.<locals>.wrapper(*args,
  **kwargs)
    305 if len(args) > num_allow_args:
    306     warnings.warn(
    307         msg.format(arguments=arguments),
    308         FutureWarning,
    309         stacklevel=stacklevel,
    310     )
--> 311 return func(*args, **kwargs)

File C:\ProgramData\Anaconda3\lib\site-packages\pandas\core\frame.py:4954, in
  DataFrame.drop(self, labels, axis, index, columns, level, inplace, errors)
    4806 @deprecate_nonkeyword_arguments(version=None, allowed_args=["self",
  "labels"])
    4807 def drop(
```

```
   4808        self,
   (…)
   4815        errors: str = "raise",
   4816 ):
   4817        """
   4818        Drop specified labels from rows or columns.
   4819
   (…)
   4952                weight   1.0      0.8
   4953        """
-> 4954        return super().drop(
   4955            labels=labels,
   4956            axis=axis,
   4957            index=index,
   4958            columns=columns,
   4959            level=level,
   4960            inplace=inplace,
   4961            errors=errors,
   4962        )

File C:\ProgramData\Anaconda3\lib\site-packages\pandas\core\generic.py:4267, in
 ↪NDFrame.drop(self, labels, axis, index, columns, level, inplace, errors)
   4265 for axis, labels in axes.items():
   4266     if labels is not None:
-> 4267         obj = obj._drop_axis(labels, axis, level=level, errors=errors)
   4269 if inplace:
   4270     self._update_inplace(obj)

File C:\ProgramData\Anaconda3\lib\site-packages\pandas\core\generic.py:4311, in
 ↪NDFrame._drop_axis(self, labels, axis, level, errors, consolidate, only_slice
   4309         new_axis = axis.drop(labels, level=level, errors=errors)
   4310     else:
-> 4311         new_axis = axis.drop(labels, errors=errors)
   4312     indexer = axis.get_indexer(new_axis)
   4314 # Case for non-unique axis
   4315 else:

File C:\ProgramData\Anaconda3\lib\site-packages\pandas\core\indexes\base.py:
 ↪6644, in Index.drop(self, labels, errors)
   6642 if mask.any():
   6643     if errors != "ignore":
-> 6644         raise KeyError(f"{list(labels[mask])} not found in axis")
   6645     indexer = indexer[~mask]
   6646 return self.delete(indexer)

KeyError: "['cabin'] not found in axis"
```

```
[12]: df.head()
```

```
[12]:    PassengerId  Survived  Pclass  \
      0            1         0       3
      1            2         1       1
      2            3         1       3
      3            4         1       1
      4            5         0       3

                                                      Name     Sex   Age  SibSp  \
      0                            Braund, Mr. Owen Harris    male  22.0      1
      1  Cumings, Mrs. John Bradley (Florence Briggs Th…  female  38.0      1
      2                             Heikkinen, Miss. Laina  female  26.0      0
      3       Futrelle, Mrs. Jacques Heath (Lily May Peel)  female  35.0      1
      4                           Allen, Mr. William Henry    male  35.0      0

         Parch            Ticket     Fare Cabin Embarked
      0      0         A/5 21171   7.2500   NaN        S
      1      0          PC 17599  71.2833   C85        C
      2      0  STON/O2. 3101282   7.9250   NaN        S
      3      0            113803  53.1000  C123        S
      4      0            373450   8.0500   NaN        S
```

```
[13]: df['Embarked'].describe()
```

```
[13]: count     889
      unique      3
      top         S
      freq      644
      Name: Embarked, dtype: object
```

```
[14]: df.corr()          #pairwise correlation of column
```

```
[14]:              PassengerId  Survived    Pclass       Age     SibSp     Parch  \
      PassengerId     1.000000 -0.005007 -0.035144  0.033207 -0.057527 -0.001652
      Survived       -0.005007  1.000000 -0.338481 -0.069809 -0.035322  0.081629
      Pclass         -0.035144 -0.338481  1.000000 -0.331339  0.083081  0.018443
      Age             0.033207 -0.069809 -0.331339  1.000000 -0.232625 -0.179191
      SibSp          -0.057527 -0.035322  0.083081 -0.232625  1.000000  0.414838
      Parch          -0.001652  0.081629  0.018443 -0.179191  0.414838  1.000000
      Fare            0.012658  0.257307 -0.549500  0.091566  0.159651  0.216225

                       Fare
      PassengerId  0.012658
      Survived     0.257307
      Pclass      -0.549500
      Age          0.091566
```

```
SibSp          0.159651
Parch          0.216225
Fare           1.000000
```

[15]:
```python
df['Alone']=[0 if df['Parch'][i]>0 else 1 for i  in df.index]
df.head()
```

[15]:
```
   PassengerId  Survived  Pclass  \
0            1         0       3
1            2         1       1
2            3         1       3
3            4         1       1
4            5         0       3

                                                Name     Sex   Age  SibSp  \
0                            Braund, Mr. Owen Harris    male  22.0      1
1  Cumings, Mrs. John Bradley (Florence Briggs Th…  female  38.0      1
2                             Heikkinen, Miss. Laina  female  26.0      0
3        Futrelle, Mrs. Jacques Heath (Lily May Peel)  female  35.0      1
4                            Allen, Mr. William Henry    male  35.0      0

   Parch            Ticket     Fare Cabin Embarked  Alone
0      0         A/5 21171   7.2500   NaN        S      1
1      0          PC 17599  71.2833   C85        C      1
2      0  STON/O2. 3101282   7.9250   NaN        S      1
3      0            113803  53.1000  C123        S      1
4      0            373450   8.0500   NaN        S      1
```

[16]:
```python
df.groupby(['Alone'])['Survived'].mean()
```

[16]:
```
Alone
0    0.511737
1    0.343658
Name: Survived, dtype: float64
```

[17]:
```python
df[['Alone','Fare']].corr()
```

[17]:
```
          Alone      Fare
Alone  1.000000 -0.237717
Fare  -0.237717  1.000000
```

[18]:
```python
df.groupby(['Embarked'])['Survived'].mean()
```

[18]:
```
Embarked
C    0.553571
Q    0.389610
S    0.336957
```

```
Name: Survived, dtype: float64
```

[19]: `import seaborn as sns`

[20]: `sns.countplot(df['Sex']);`   `#Comparing between males and females`
      `↪who are more`

C:\ProgramData\Anaconda3\lib\site-packages\seaborn_decorators.py:36:
FutureWarning: Pass the following variable as a keyword arg: x. From version
0.12, the only valid positional argument will be `data`, and passing other
arguments without an explicit keyword will result in an error or
misinterpretation.
    warnings.warn(
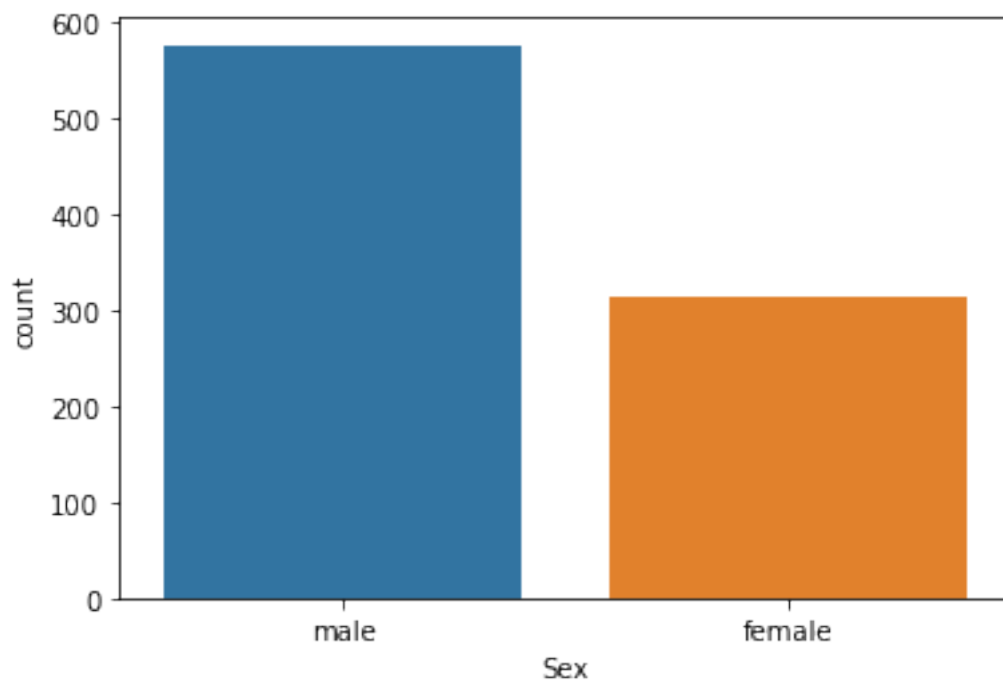
[21]: `plt.figure(figsize=(12,9))`
      `sns.barplot(x='Pclass',y='Survived',hue='Sex',data=df)`

[21]: `<AxesSubplot:xlabel='Pclass', ylabel='Survived'>`
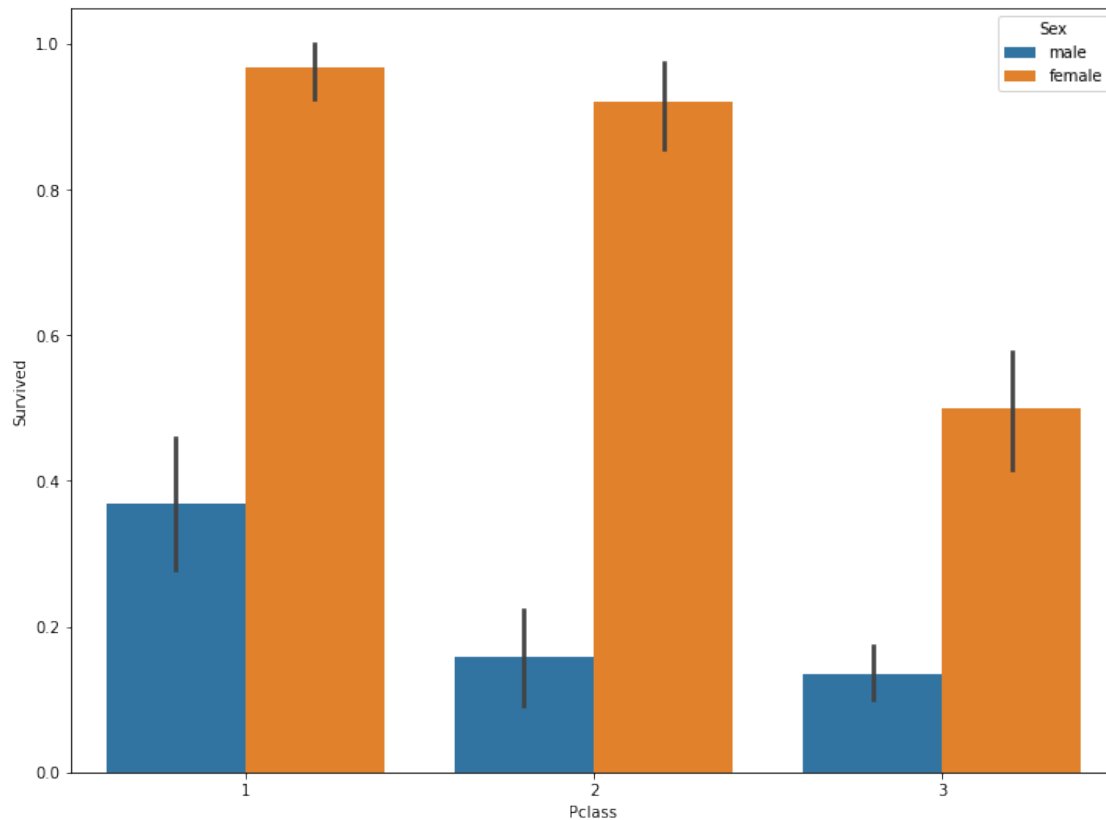
```
[22]: import sys
      !{sys.executable} -m pip install pandas-profiling
```

Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: pandas-profiling in
c:\users\dell\appdata\roaming\python\python39\site-packages (3.2.0)
Requirement already satisfied: PyYAML>=5.0.0 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling) (6.0)
Requirement already satisfied: phik>=0.11.1 in
c:\users\dell\appdata\roaming\python\python39\site-packages (from pandas-
profiling) (0.12.2)
Requirement already satisfied: missingno>=0.4.2 in
c:\users\dell\appdata\roaming\python\python39\site-packages (from pandas-
profiling) (0.5.1)

WARNING: Retrying (Retry(total=4, connect=None, read=None, redirect=None,
status=None)) after connection broken by
'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection object at
0x000002537E73C8B0>: Failed to establish a new connection: [Errno 11001]
getaddrinfo failed')': /simple/markupsafe/
WARNING: Retrying (Retry(total=3, connect=None, read=None, redirect=None,
status=None)) after connection broken by

19

```
'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection object at
0x000002537E73C2B0>: Failed to establish a new connection: [Errno 11001]
getaddrinfo failed')': /simple/markupsafe/
WARNING: Retrying (Retry(total=2, connect=None, read=None, redirect=None,
status=None)) after connection broken by
'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection object at
0x000002537E677A60>: Failed to establish a new connection: [Errno 11001]
getaddrinfo failed')': /simple/markupsafe/
WARNING: Retrying (Retry(total=1, connect=None, read=None, redirect=None,
status=None)) after connection broken by
'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection object at
0x000002537E7133D0>: Failed to establish a new connection: [Errno 11001]
getaddrinfo failed')': /simple/markupsafe/
WARNING: Retrying (Retry(total=0, connect=None, read=None, redirect=None,
status=None)) after connection broken by
'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection object at
0x000002537E713F10>: Failed to establish a new connection: [Errno 11001]
getaddrinfo failed')': /simple/markupsafe/
WARNING: Retrying (Retry(total=4, connect=None, read=None, redirect=None,
status=None)) after connection broken by
'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection object at
0x000002537E742910>: Failed to establish a new connection: [Errno 11001]
getaddrinfo failed')': /simple/pandas-profiling/
WARNING: Retrying (Retry(total=3, connect=None, read=None, redirect=None,
status=None)) after connection broken by
'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection object at
0x000002537E742550>: Failed to establish a new connection: [Errno 11001]
getaddrinfo failed')': /simple/pandas-profiling/
WARNING: Retrying (Retry(total=2, connect=None, read=None, redirect=None,
status=None)) after connection broken by
'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection object at
0x000002537E73C280>: Failed to establish a new connection: [Errno 11001]
getaddrinfo failed')': /simple/pandas-profiling/
WARNING: Retrying (Retry(total=1, connect=None, read=None, redirect=None,
status=None)) after connection broken by
'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection object at
0x000002537E73C1C0>: Failed to establish a new connection: [Errno 11001]
getaddrinfo failed')': /simple/pandas-profiling/
WARNING: Retrying (Retry(total=0, connect=None, read=None, redirect=None,
status=None)) after connection broken by 'ProtocolError('Connection aborted.',
ConnectionResetError(10054, 'An existing connection was forcibly closed by the
remote host', None, 10054, None))': /simple/pandas-profiling/
ERROR: Could not find a version that satisfies the requirement markupsafe~=2.1.1
(from pandas-profiling) (from versions: none)
ERROR: No matching distribution found for markupsafe~=2.1.1
```

```
[23]: pip install pandas-profiling
```

```
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: pandas-profiling in
c:\users\dell\appdata\roaming\python\python39\site-packages (3.2.0)
Requirement already satisfied: jinja2>=2.11.1 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling) (2.11.3)
Requirement already satisfied: tqdm>=4.48.2 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling) (4.64.0)
Requirement already satisfied: scipy>=1.4.1 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling) (1.7.3)
Requirement already satisfied: numpy>=1.16.0 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling) (1.21.5)
Collecting markupsafe~=2.1.1
  Downloading MarkupSafe-2.1.2-cp39-cp39-win_amd64.whl (16 kB)
Requirement already satisfied: phik>=0.11.1 in
c:\users\dell\appdata\roaming\python\python39\site-packages (from pandas-
profiling) (0.12.2)
Requirement already satisfied: htmlmin>=0.1.12 in
c:\users\dell\appdata\roaming\python\python39\site-packages (from pandas-
profiling) (0.1.12)
Requirement already satisfied: multimethod>=1.4 in
c:\users\dell\appdata\roaming\python\python39\site-packages (from pandas-
profiling) (1.8)
Requirement already satisfied: missingno>=0.4.2 in
c:\users\dell\appdata\roaming\python\python39\site-packages (from pandas-
profiling) (0.5.1)
Requirement already satisfied: joblib~=1.1.0 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling) (1.1.0)
Requirement already satisfied: matplotlib>=3.2.0 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling) (3.5.1)
Requirement already satisfied: visions[type_image_path]==0.7.4 in
c:\users\dell\appdata\roaming\python\python39\site-packages (from pandas-
profiling) (0.7.4)
Requirement already satisfied: requests>=2.24.0 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling) (2.27.1)
Requirement already satisfied: pydantic>=1.8.1 in
c:\users\dell\appdata\roaming\python\python39\site-packages (from pandas-
profiling) (1.9.2)
Requirement already satisfied: tangled-up-in-unicode==0.2.0 in
c:\users\dell\appdata\roaming\python\python39\site-packages (from pandas-
profiling) (0.2.0)
Requirement already satisfied: pandas!=1.0.0,!=1.0.1,!=1.0.2,!=1.1.0,>=0.25.3 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling) (1.4.2)
Requirement already satisfied: seaborn>=0.10.1 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling) (0.11.2)
Requirement already satisfied: PyYAML>=5.0.0 in
c:\programdata\anaconda3\lib\site-packages (from pandas-profiling) (6.0)
Requirement already satisfied: attrs>=19.3.0 in
c:\programdata\anaconda3\lib\site-packages (from
```

visions[type_image_path]==0.7.4->pandas-profiling) (21.4.0)
Requirement already satisfied: networkx>=2.4 in
c:\programdata\anaconda3\lib\site-packages (from
visions[type_image_path]==0.7.4->pandas-profiling) (2.7.1)
Requirement already satisfied: imagehash in
c:\users\dell\appdata\roaming\python\python39\site-packages (from
visions[type_image_path]==0.7.4->pandas-profiling) (4.2.1)
Requirement already satisfied: Pillow in c:\programdata\anaconda3\lib\site-
packages (from visions[type_image_path]==0.7.4->pandas-profiling) (9.0.1)
Requirement already satisfied: cycler>=0.10 in
c:\programdata\anaconda3\lib\site-packages (from matplotlib>=3.2.0->pandas-
profiling) (0.11.0)
Requirement already satisfied: kiwisolver>=1.0.1 in
c:\programdata\anaconda3\lib\site-packages (from matplotlib>=3.2.0->pandas-
profiling) (1.3.2)
Requirement already satisfied: pyparsing>=2.2.1 in
c:\programdata\anaconda3\lib\site-packages (from matplotlib>=3.2.0->pandas-
profiling) (3.0.4)
Requirement already satisfied: fonttools>=4.22.0 in
c:\programdata\anaconda3\lib\site-packages (from matplotlib>=3.2.0->pandas-
profiling) (4.25.0)
Requirement already satisfied: packaging>=20.0 in
c:\programdata\anaconda3\lib\site-packages (from matplotlib>=3.2.0->pandas-
profiling) (21.3)
Requirement already satisfied: python-dateutil>=2.7 in
c:\programdata\anaconda3\lib\site-packages (from matplotlib>=3.2.0->pandas-
profiling) (2.8.2)
Requirement already satisfied: pytz>=2020.1 in
c:\programdata\anaconda3\lib\site-packages (from
pandas!=1.0.0,!=1.0.1,!=1.0.2,!=1.1.0,>=0.25.3->pandas-profiling) (2021.3)
Requirement already satisfied: typing-extensions>=3.7.4.3 in
c:\programdata\anaconda3\lib\site-packages (from pydantic>=1.8.1->pandas-
profiling) (4.1.1)
Requirement already satisfied: six>=1.5 in c:\programdata\anaconda3\lib\site-
packages (from python-dateutil>=2.7->matplotlib>=3.2.0->pandas-profiling)
(1.16.0)
Requirement already satisfied: certifi>=2017.4.17 in
c:\programdata\anaconda3\lib\site-packages (from requests>=2.24.0->pandas-
profiling) (2021.10.8)
Requirement already satisfied: charset-normalizer~=2.0.0 in
c:\programdata\anaconda3\lib\site-packages (from requests>=2.24.0->pandas-
profiling) (2.0.4)
Requirement already satisfied: idna<4,>=2.5 in
c:\programdata\anaconda3\lib\site-packages (from requests>=2.24.0->pandas-
profiling) (3.3)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in
c:\programdata\anaconda3\lib\site-packages (from requests>=2.24.0->pandas-
profiling) (1.26.9)

Requirement already satisfied: colorama in c:\programdata\anaconda3\lib\site-packages (from tqdm>=4.48.2->pandas-profiling) (0.4.4)
Requirement already satisfied: PyWavelets in c:\programdata\anaconda3\lib\site-packages (from imagehash->visions[type_image_path]==0.7.4->pandas-profiling) (1.3.0)
Installing collected packages: markupsafe
  Attempting uninstall: markupsafe
    Found existing installation: MarkupSafe 2.0.1
    Uninstalling MarkupSafe-2.0.1:
      Successfully uninstalled MarkupSafe-2.0.1
Note: you may need to restart the kernel to use updated packages.

WARNING: Retrying (Retry(total=4, connect=None, read=None, redirect=None, status=None)) after connection broken by 'ReadTimeoutError("HTTPSConnectionPool(host='pypi.org', port=443): Read timed out. (read timeout=15)")': /simple/markupsafe/
ERROR: Could not install packages due to an OSError: [WinError 5] Access is denied: 'C:\\Users\\dell\\AppData\\Roaming\\Python\\Python39\\site-packages\\~-rkupsafe_speedups.cp39-win_amd64.pyd'
Check the permissions.

3   3.Pandas Profiling Report

```python
import pandas as pd
from pandas_profiling import ProfileReport
df=pd.read_csv("titanic.csv")
print(df)
profile=ProfileReport(df)
profile.to_file(output_file="titanic.html")
```

```
---------------------------------------------------------------------------
ImportError                               Traceback (most recent call last)
Input In [24], in <cell line: 2>()
      1 import pandas as pd
----> 2 from pandas_profiling import ProfileReport
      3 df=pd.read_csv("titanic.csv")
      4 print(df)

File ~\AppData\Roaming\Python\Python39\site-packages\pandas_profiling\__init__.
  ↪py:6, in <module>
      1 """Main module of pandas-profiling.
      2
      3 .. include:: ../../README.md
      4 """
----> 6 from pandas_profiling.controller import pandas_decorator
      7 from pandas_profiling.profile_report import ProfileReport
```

```
         8 from pandas_profiling.version import __version__

File
  ↪~\AppData\Roaming\Python\Python39\site-packages\pandas_profiling\controller\pandas_decorato
  ↪py:4, in <module>
         1 """This file add the decorator on the DataFrame object."""
         2 from pandas import DataFrame
----> 4 from pandas_profiling.profile_report import ProfileReport
         7 def profile_report(df: DataFrame, **kwargs) -> ProfileReport:
         8     """Profile a DataFrame.
         9
        10     Args:
    (…)
        15         A ProfileReport of the DataFrame.
        16     """

File
  ↪~\AppData\Roaming\Python\Python39\site-packages\pandas_profiling\profile_report.
  ↪py:27, in <module>
        25 from pandas_profiling.report.presentation.core import Root
        26 from pandas_profiling.report.presentation.core.renderable import
  ↪Renderable
---> 27 from pandas_profiling.report.presentation.flavours.html.templates import
  ↪(
        28     create_html_assets,
        29 )
        30 from pandas_profiling.serialize_report import SerializeReport
        31 from pandas_profiling.utils.dataframe import hash_dataframe

File
  ↪~\AppData\Roaming\Python\Python39\site-packages\pandas_profiling\report\presentation\flavou
  ↪py:1, in <module>
----> 1 from pandas_profiling.report.presentation.flavours.html.alerts import
  ↪HTMLAlerts
         2 from pandas_profiling.report.presentation.flavours.html.collapse import
  ↪HTMLCollapse
         3 from pandas_profiling.report.presentation.flavours.html.container import
  ↪HTMLContainer

File
  ↪~\AppData\Roaming\Python\Python39\site-packages\pandas_profiling\report\presentation\flavou
  ↪py:2, in <module>
         1 from pandas_profiling.report.presentation.core.alerts import Alerts
----> 2 from pandas_profiling.report.presentation.flavours.html import templates
         5 class HTMLAlerts(Alerts):
         6     def render(self) -> str:
```

```
File
 ↪~\AppData\Roaming\Python\Python39\site-packages\pandas_profiling\report\presentation\flavou
 ↪py:5, in <module>
      2 import shutil
      3 from pathlib import Path
----> 5 import jinja2
      7 from pandas_profiling.config import Settings, Theme
      8 from pandas_profiling.report.formatters import fmt, fmt_badge,
 ↪fmt_numeric, fmt_percent

File C:\ProgramData\Anaconda3\lib\site-packages\jinja2\__init__.py:12, in
 ↪<module>
     10 from .bccache import FileSystemBytecodeCache
     11 from .bccache import MemcachedBytecodeCache
---> 12 from .environment import Environment
     13 from .environment import Template
     14 from .exceptions import TemplateAssertionError

File C:\ProgramData\Anaconda3\lib\site-packages\jinja2\environment.py:25, in
 ↪<module>
     23 from .compiler import CodeGenerator
     24 from .compiler import generate
---> 25 from .defaults import BLOCK_END_STRING
     26 from .defaults import BLOCK_START_STRING
     27 from .defaults import COMMENT_END_STRING

File C:\ProgramData\Anaconda3\lib\site-packages\jinja2\defaults.py:3, in <module>
      1 # -*- coding: utf-8 -*-
      2 from ._compat import range_type
----> 3 from .filters import FILTERS as DEFAULT_FILTERS  # noqa: F401
      4 from .tests import TESTS as DEFAULT_TESTS  # noqa: F401
      5 from .utils import Cycler

File C:\ProgramData\Anaconda3\lib\site-packages\jinja2\filters.py:13, in <module>
     11 from markupsafe import escape
     12 from markupsafe import Markup
---> 13 from markupsafe import soft_unicode
     15 from ._compat import abc
     16 from ._compat import imap

ImportError: cannot import name 'soft_unicode' from 'markupsafe' (C:
 ↪\Users\dell\AppData\Roaming\Python\Python39\site-packages\markupsafe\__init__
 ↪py)
```

[8]: `pip install MarkupSafe`

Defaulting to user installation because normal site-packages is not
writeableNote: you may need to restart the kernel to use updated packages.

Requirement already satisfied: MarkupSafe in
c:\users\dell\appdata\roaming\python\python39\site-packages (2.1.1)

[9]: ```
pip install --user --upgrade aws-sam-cli
```

Collecting aws-sam-cli
  Downloading aws_sam_cli-1.55.0-py3-none-any.whl (5.1 MB)
Collecting aws-sam-translator==1.50.0
  Downloading aws_sam_translator-1.50.0-py3-none-any.whl (232 kB)
Collecting PyYAML~=5.3
  Downloading PyYAML-5.4.1-cp39-cp39-win_amd64.whl (213 kB)
Collecting tomlkit==0.7.2
  Downloading tomlkit-0.7.2-py2.py3-none-any.whl (32 kB)
Collecting regex==2021.9.30
  Downloading regex-2021.9.30-cp39-cp39-win_amd64.whl (273 kB)
Collecting typing-extensions==3.10.0.0Note: you may need to restart the kernel
to use updated packages.

ERROR: Could not install packages due to an OSError: [WinError 5] Access is
denied: 'C:\\Users\\dell\\AppData\\Roaming\\Python\\Python39\\site-
packages\\~arkupsafe\\_speedups.cp39-win_amd64.pyd'
Check the permissions.


  Downloading typing_extensions-3.10.0.0-py3-none-any.whl (26 kB)
Collecting MarkupSafe==2.0.1
  Downloading MarkupSafe-2.0.1-cp39-cp39-win_amd64.whl (14 kB)
Collecting dateparser~=1.0
  Downloading dateparser-1.1.1-py2.py3-none-any.whl (288 kB)
Collecting Flask~=1.1.4
  Downloading Flask-1.1.4-py2.py3-none-any.whl (94 kB)
Collecting tzlocal==3.0
  Downloading tzlocal-3.0-py3-none-any.whl (16 kB)
Requirement already satisfied: jmespath~=0.10.0 in
c:\programdata\anaconda3\lib\site-packages (from aws-sam-cli) (0.10.0)
Collecting requests==2.25.1
  Downloading requests-2.25.1-py2.py3-none-any.whl (61 kB)
Collecting chevron~=0.12
  Downloading chevron-0.14.0-py3-none-any.whl (11 kB)
Collecting docker~=4.2.0
  Downloading docker-4.2.2-py2.py3-none-any.whl (144 kB)
Collecting serverlessrepo==0.1.10
  Downloading serverlessrepo-0.1.10-py2.py3-none-any.whl (23 kB)
Collecting aws-lambda-builders==1.18.0
  Downloading aws_lambda_builders-1.18.0-py3-none-any.whl (114 kB)
Collecting cookiecutter~=2.1.1
  Downloading cookiecutter-2.1.1-py2.py3-none-any.whl (36 kB)

```
Collecting click~=7.1
  Downloading click-7.1.2-py2.py3-none-any.whl (82 kB)
Requirement already satisfied: boto3==1.*,>=1.19.5 in
c:\programdata\anaconda3\lib\site-packages (from aws-sam-cli) (1.21.32)
Collecting watchdog==2.1.2
  Downloading watchdog-2.1.2-py3-none-win_amd64.whl (74 kB)
Requirement already satisfied: setuptools in c:\programdata\anaconda3\lib\site-
packages (from aws-lambda-builders==1.18.0->aws-sam-cli) (61.2.0)
Requirement already satisfied: wheel in c:\programdata\anaconda3\lib\site-
packages (from aws-lambda-builders==1.18.0->aws-sam-cli) (0.37.1)
Collecting jsonschema~=3.2
  Downloading jsonschema-3.2.0-py2.py3-none-any.whl (56 kB)
Requirement already satisfied: s3transfer<0.6.0,>=0.5.0 in
c:\programdata\anaconda3\lib\site-packages (from boto3==1.*,>=1.19.5->aws-sam-
cli) (0.5.0)
Requirement already satisfied: botocore<1.25.0,>=1.24.32 in
c:\programdata\anaconda3\lib\site-packages (from boto3==1.*,>=1.19.5->aws-sam-
cli) (1.24.32)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in
c:\programdata\anaconda3\lib\site-packages (from requests==2.25.1->aws-sam-cli)
(1.26.9)
Collecting idna<3,>=2.5
  Downloading idna-2.10-py2.py3-none-any.whl (58 kB)
Requirement already satisfied: chardet<5,>=3.0.2 in
c:\programdata\anaconda3\lib\site-packages (from requests==2.25.1->aws-sam-cli)
(4.0.0)
Requirement already satisfied: certifi>=2017.4.17 in
c:\programdata\anaconda3\lib\site-packages (from requests==2.25.1->aws-sam-cli)
(2021.10.8)
Requirement already satisfied: six~=1.11 in c:\programdata\anaconda3\lib\site-
packages (from serverlessrepo==0.1.10->aws-sam-cli) (1.16.0)
Collecting tzdata
  Downloading tzdata-2022.2-py2.py3-none-any.whl (336 kB)
Requirement already satisfied: python-dateutil<3.0.0,>=2.1 in
c:\programdata\anaconda3\lib\site-packages (from
botocore<1.25.0,>=1.24.32->boto3==1.*,>=1.19.5->aws-sam-cli) (2.8.2)
Requirement already satisfied: Jinja2<4.0.0,>=2.7 in
c:\programdata\anaconda3\lib\site-packages (from cookiecutter~=2.1.1->aws-sam-
cli) (2.11.3)
Requirement already satisfied: binaryornot>=0.4.4 in
c:\programdata\anaconda3\lib\site-packages (from cookiecutter~=2.1.1->aws-sam-
cli) (0.4.4)
Requirement already satisfied: python-slugify>=4.0.0 in
c:\programdata\anaconda3\lib\site-packages (from cookiecutter~=2.1.1->aws-sam-
cli) (5.0.2)
Requirement already satisfied: jinja2-time>=0.2.0 in
c:\programdata\anaconda3\lib\site-packages (from cookiecutter~=2.1.1->aws-sam-
cli) (0.2.0)
```

```
Requirement already satisfied: pytz in c:\programdata\anaconda3\lib\site-
packages (from dateparser~=1.0->aws-sam-cli) (2021.3)
Requirement already satisfied: websocket-client>=0.32.0 in
c:\programdata\anaconda3\lib\site-packages (from docker~=4.2.0->aws-sam-cli)
(0.58.0)
Collecting pypiwin32==223
  Downloading pypiwin32-223-py3-none-any.whl (1.7 kB)
Requirement already satisfied: pywin32>=223 in
c:\programdata\anaconda3\lib\site-packages (from
pypiwin32==223->docker~=4.2.0->aws-sam-cli) (302)
Collecting Werkzeug<2.0,>=0.15
  Downloading Werkzeug-1.0.1-py2.py3-none-any.whl (298 kB)
Collecting itsdangerous<2.0,>=0.24
  Downloading itsdangerous-1.1.0-py2.py3-none-any.whl (16 kB)
Requirement already satisfied: arrow in c:\programdata\anaconda3\lib\site-
packages (from jinja2-time>=0.2.0->cookiecutter~=2.1.1->aws-sam-cli) (1.2.2)
Requirement already satisfied: attrs>=17.4.0 in
c:\programdata\anaconda3\lib\site-packages (from jsonschema~=3.2->aws-sam-
translator==1.50.0->aws-sam-cli) (21.4.0)
Requirement already satisfied: pyrsistent>=0.14.0 in
c:\programdata\anaconda3\lib\site-packages (from jsonschema~=3.2->aws-sam-
translator==1.50.0->aws-sam-cli) (0.18.0)
Requirement already satisfied: text-unidecode>=1.3 in
c:\programdata\anaconda3\lib\site-packages (from python-
slugify>=4.0.0->cookiecutter~=2.1.1->aws-sam-cli) (1.3)
Installing collected packages: MarkupSafe, tzdata, idna, Werkzeug, tzlocal,
requests, regex, PyYAML, pypiwin32, jsonschema, itsdangerous, click, watchdog,
typing-extensions, tomlkit, serverlessrepo, Flask, docker, dateparser,
cookiecutter, chevron, aws-sam-translator, aws-lambda-builders, aws-sam-cli
  Attempting uninstall: MarkupSafe
    Found existing installation: MarkupSafe 2.1.1
    Uninstalling MarkupSafe-2.1.1:
      Successfully uninstalled MarkupSafe-2.1.1
```

[1]: `pip install --user aws-sam-cli ==1.37.0`

Note: you may need to restart the kernel to use updated packages.

ERROR: Invalid requirement: '==1.37.0'

These are third and fouth Mini Projects.Our third project is about the data of hotel bookings.We have used some commands which will be easy for the user to check about different things like in which time the bookings are more and in which time they are less,how many customers are cancelling the hotel bookings and more data like this. Our fourth Mini Project is about the data of titanic.It shows all the data in a way that is easy to understand.We have also used plottings.It makes understanding the data in easy way. Atlast,we have also performed pandas profiling.It extends the DataFrame for quick data analysis.

```
minimalist 0.8% l abcorbic acid
```