

# AGENT PERFORMANCE TASK

1 .Find out there avarage rating on weekly basis keep this in a mind that they take two days of leave 2 .Total working days for each agents 3. Total query that you hvae taken 4. total Feedback that you have received 5. a agent name who have average rating between 3.5 to 4 6 . Agent name who have rating lesss then 3.5 7 . agent name who have rating more then 4.5 8 . how many feedaback agents have received more then 4.5 average 9 . average weekly response time for each agent 10 . average weekly resolution time for each agents 11 . list of all agents name 12 . percentage of chat on which they have received a feedback 13 . Total contribution hour for each and every agents weekly basis 14. total percentage of active hour for a month

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In [1]:

```
1 import pandas as pd
2 import numpy as np
```

In [67]:

```
1 df= pd.read_excel("Agent_Login_Report.xls" )
2 df.drop("SL No" , axis = 1, inplace= True)
3 df.head()
```

Out[67]:

	Agent	Date	Login Time	Logout Time	Duration
0	Shivananda Sonwane	30-Jul-22	03:35:29 PM	05:39:39 PM	02:04:10
1	Khushboo Priya	30-Jul-22	03:06:59 PM	03:07:16 PM	00:00:17
2	Nandani Gupta	30-Jul-22	03:04:24 PM	05:31:07 PM	02:26:42
3	Hrisikesh Neogi	30-Jul-22	02:34:29 PM	03:19:35 PM	00:45:06
4	Mukesh	30-Jul-22	02:03:15 PM	03:11:52 PM	01:08:36

In [62]:

```
1 df1= pd.read_excel("Agent_Performance.xlsx")
2 df1.drop("SL No" , axis = 1, inplace= True)
3 df1.head()
```

Out[62]:

	Date	Agent Name	Total Chats	Average Response Time	Average Resolution Time	Average Rating	Total Feedback
0	2022-07-30	Prerna Singh	11	00:00:38	00:04:20	4.11	9
1	2022-07-30	Nandani Gupta	11	00:01:15	00:28:25	3.14	7
2	2022-07-30	Ameya Jain	14	00:00:30	00:11:36	4.55	11
3	2022-07-30	Mahesh Sarade	14	00:01:04	00:15:46	4.71	7
4	2022-07-30	Swati	14	00:01:11	00:16:33	3.67	6

In [11]:

```
1 df1.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2160 entries, 1 to 2160
Data columns (total 7 columns):
#   Column                                Non-Null Count  Dtype
---  -
0   Date                                2160 non-null   object
1   Agent Name                          2160 non-null   object
2   Total Chats                         2160 non-null   object
3   Average Response Time               2160 non-null   object
4   Average Resolution Time             2160 non-null   object
5   Average Rating                      2160 non-null   object
6   Total Feedback                      2160 non-null   object
dtypes: object(7)
memory usage: 118.3+ KB
```

In [12]:

```
1 df.shape
```

Out[12]:

(1002, 6)

In [13]:

```
1 df.describe().T
```

Out[13]:

	count	unique	top	freq
1				
SL No	1001	1001	SL No	1
Agent	1001	50	Dibyanshu	208
Date	1001	13	22-Jul-22	138
Login Time	1001	958	03:02:35 PM	4
Logout Time	1001	984	09:02:03 PM	3
Duration	1001	728	00:02:00	150

In [13]:

```
1 df1["Total Feedback"]=df1["Total Feedback"].astype (int)
2 df1["Total Feedback"].dtype
```

Out[13]:

dtype('int32')

In [14]:

```
1 df1[["Total Feedback","Total Chats"]] =df1[["Total Feedback","Total Chats"]].astype(int)
2 df1["Average Rating"] =df1["Average Rating"].astype(float)
3 df1["Date"]=pd.to_datetime(df1["Date"])
4 df1.info()
```

<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 2160 entries, 0 to 2159  
Data columns (total 7 columns):  
# Column Non-Null Count Dtype  
--- -  
0 Date 2160 non-null datetime64[ns]  
1 Agent Name 2160 non-null object  
2 Total Chats 2160 non-null int32  
3 Average Response Time 2160 non-null object  
4 Average Resolution Time 2160 non-null object  
5 Average Rating 2160 non-null float64  
6 Total Feedback 2160 non-null int32  
dtypes: datetime64[ns](1), float64(1), int32(2), object(3)  
memory usage: 101.4+ KB

```
1 # Converting Multiple columns to int
2 df = pd.DataFrame(technologies)
3 df = df.astype({"Fee":"int","Discount":"int"})
4 print(df.dtypes)
```

In [15]:

```
1 df1.columns
```

Out[15]:

```
Index(['Date', 'Agent Name', 'Total Chats', 'Average Response Time',  
      'Average Resolution Time', 'Average Rating', 'Total Feedback'],  
      dtype='object')
```

## Calculation of number of weeks

*there are 30 days means 4 weeks( 4\*7= 28days) and 2 days*

**As working days in the week is only 5 so only 20 days need to consider if we assume that *last two days are weekly off.***

In [16]:

```
1 df1['Date'].unique().shape
```

Out[16]:

```
(30,)
```

## 1 .Find out there avarage rating on weekly basis keep this in a mind that they take two days of leave

In [17]:

```
1 df1.groupby('Agent Name')['Average Rating'].sum()/4
```

Out[17]:

```
Agent Name  
Abhishek      0.0000  
Aditya        0.0000  
Aditya Shinde 13.5025  
Aditya_iot    17.5900  
Amersh        0.0000  
...  
Uday Mishra   0.0000  
Vasanth P     0.0000  
Vivek         3.7550  
Wasim         18.0000  
Zeeshan       17.1525  
Name: Average Rating, Length: 70, dtype: float64
```

## 2 .Total working days for each agents

In [18]:

```
1 agent_chat= df1[df1['Total Chats']>0 ]
2 agent_chat
```

Out[18]:

	Date	Agent Name	Total Chats	Average Response Time	Average Resolution Time	Average Rating	Total Feedback
0	2022-07-30	Perna Singh	11	00:00:38	00:04:20	4.11	9
1	2022-07-30	Nandani Gupta	11	00:01:15	00:28:25	3.14	7
2	2022-07-30	Ameya Jain	14	00:00:30	00:11:36	4.55	11
3	2022-07-30	Mahesh Sarade	14	00:01:04	00:15:46	4.71	7
4	2022-07-30	Swati	14	00:01:11	00:16:33	3.67	6
...	...	...	...	...	...	...	...
2101	2022-07-01	Jaydeep Dixit	25	00:01:15	00:26:27	4.77	13
2102	2022-07-01	Shivananda Sonwane	23	00:01:24	00:30:14	4.86	14
2103	2022-07-01	Khushboo Priya	24	00:01:46	00:29:28	4.61	18
2104	2022-07-01	Hrisikesh Neogi	15	00:01:05	00:25:29	4.56	9
2105	2022-07-01	Tarun	22	00:00:00	00:45:14	1.50	6

745 rows × 7 columns

In [19]:

```
1 # agent Present day
2 agent_chat.groupby('Agent Name')['Total Chats'].count()
3
```

Out[19]:

Agent Name	
Aditya Shinde	12
Aditya_iot	17
Ameya Jain	15
Anirudh	7
Ankitjha	3
Anurag Tiwari	2
Aravind	14
Ashad Nasim	2
Ayushi Mishra	24
Bharath	19
Boktiar Ahmed Bappy	26
Chaitra K Hiremath	6
Deepranjan Gupta	21
Dibyanshu	1
Harikrishnan Shaji	19
Hitesh Choudhary	1
Hrisikesh Neogi	21
Ishawant Kumar	24
Jawala Prakash	25
Jayant Kumar	8
Jaydeep Dixit	21
Khushboo Priya	26
Madhulika G	24
Mahak	1
Mahesh Sarade	18
Maitry	20
Maneesh	3
Manjunatha A	25
Mithun S	18
Mukesh	2
Mukesh Rao	3
Muskan Garg	5
Nandani Gupta	21
Nishtha Jain	23
Prabir Kumar Satapathy	17
Prateek _iot	17
Prerna Singh	22
Rishav Dash	21
Saikumarreddy N	13
Samprit	1
Sandipan Saha	3
Sanjeev Kumar	23
Saurabh Shukla	4
Shiva Srivastava	7
Shivan K	22
Shivan_S	1
Shivananda Sonwane	28
Shubham Sharma	21
Sowmiya Sivakumar	9
Sudhanshu Kumar	2
Suraj S Bilgi	2
Swati	17

Tarun	1
Vivek	5
Wasim	16
Zeeshan	16

Name: Total Chats, dtype: int64

In [20]:

```
1 agent_chat.groupby('Agent Name')['Total Chats'].count().min()
```

Out[20]:

1

In [21]:

```
1 agent_chat.groupby('Agent Name')['Total Chats'].count().max()
```

Out[21]:

28

Observations

Minimum working day is 1 and maximum working day is 28

### 3. Total query that a agent has taken

In [22]:

```
1 df1.groupby('Agent Name')['Total Chats'].sum()
```

Out[22]:

Agent Name	
Abhishek	0
Aditya	0
Aditya Shinde	277
Aditya_iot	231
Amersh	0
...	
Uday Mishra	0
Vasanth P	0
Vivek	44
Wasim	433
Zeeshan	542

Name: Total Chats, Length: 70, dtype: int32

### 4. total Feedback that a agent has received

In [23]:

```
1 df1.groupby('Agent Name')['Total Feedback'].sum()  
2
```

Out[23]:

Agent Name	
Abhishek	0
Aditya	0
Aditya Shinde	153
Aditya_iot	131
Amersh	0
...	
Uday Mishra	0
Vasanth P	0
Vivek	20
Wasim	284
Zeeshan	335

Name: Total Feedback, Length: 70, dtype: int32

## 5. A agent name who have average rating between 3.5 to 4



In [24]:

```
1 df1[(df1['Average Rating'] > 3.5) & (df1['Average Rating'] < 4)]
```

Out[24]:

	Date	Agent Name	Total Chats	Average Response Time	Average Resolution Time	Average Rating	Total Feedback
4	2022-07-30	Swati	14	00:01:11	00:16:33	3.67	6
10	2022-07-30	Manjunatha A	11	00:00:47	00:42:56	3.60	5
76	2022-07-29	Prateek _iot	8	00:00:36	00:10:41	3.75	4
78	2022-07-29	Nandani Gupta	24	00:01:24	00:28:53	3.79	14
80	2022-07-29	Jaydeep Dixit	27	00:00:52	00:24:13	3.95	22
...	...	...	...	...	...	...	...
1869	2022-07-05	Boktiar Ahmed Bappy	24	00:00:53	00:09:53	3.78	18
1874	2022-07-04	Ayushi Mishra	29	00:01:11	00:17:59	3.80	20
1941	2022-07-04	Jawala Prakash	6	00:00:44	00:02:28	3.80	5
2021	2022-07-02	Aditya Shinde	57	00:01:26	00:19:52	3.54	28
2023	2022-07-02	Deepranjan Gupta	52	00:01:10	00:35:14	3.71	24

78 rows × 7 columns

## 6 . Agent name who have rating lesss then 3.5

following are 1474 agents whoes rating are less than 3.5

In [25]:

```
1 df1[df1['Average Rating'] < 3.5]['Agent Name']
```

Out[25]:

```
1      Nandani Gupta
19     Hitesh Choudhary
20      Sanjeevan
21      Anirudh
22     Shiva Srivastava
...
2155    Sowmiya Sivakumar
2156      Nitin M
2157      Vivek
2158    Ayushi Mishra
2159    Chaitra K Hiremath
Name: Agent Name, Length: 1474, dtype: object
```

## 7 . Agent name who have rating more then 4.5

*following are 307 agents whoes rating are less than 4.5*

In [26]:

```
1 df1[df1['Average Rating'] > 4.5]['Agent Name']
```

Out[26]:

```
2      Ameya Jain
3      Mahesh Sarade
5      Mukesh
6    Saikumarreddy N
7    Sanjeev Kumar
...
2100    Shubham Sharma
2101    Jaydeep Dixit
2102    Shivananda Sonwane
2103    Khushboo Priya
2104    Hrisikesh Neogi
Name: Agent Name, Length: 307, dtype: object
```

## 8 . how many feedaback agents have received more then 4.5 average

In [27]:

```
1 df1.groupby ('Agent Name')['Total Feedback'].sum()
```

Out[27]:

```
Agent Name
Abhishek      0
Aditya         0
Aditya Shinde 153
Aditya_iot    131
Amersh         0
...
Uday Mishra   0
Vasanth P     0
Vivek         20
Wasim         284
Zeeshan       335
Name: Total Feedback, Length: 70, dtype: int32
```

## 9 . Average weekly response time for each agent

In [28]:

```
1 df1.columns
```

Out[28]:

```
Index(['Date', 'Agent Name', 'Total Chats', 'Average Response Time',
       'Average Resolution Time', 'Average Rating', 'Total Feedback'],
      dtype='object')
```

In [29]:

```
1 # to check data type
2 df1['Average Response Time'].dtype
```

Out[29]:

```
dtype('O')
```

In [30]:

```
1 # convert object data into time scale
2 df1['Average Response Time']=pd.to_datetime(df1['Average Response Time'])
3 df1['Average Response Time'].dtype
```

Out[30]:

```
dtype('<M8[ns]')
```

In [31]:

```
1 df1['AVT_hour'] = df1['Average Response Time'].dt.hour
2 df1['AVT_min'] = df1['Average Response Time'].dt.minute
3
4 df1['AVT_sec'] = df1['Average Response Time'].dt.second
5 # conversion has done
```

In [32]:

```
1 # to check changes
2 df1.head()
```

Out[32]:

	Date	Agent Name	Total Chats	Average Response Time	Average Resolution Time	Average Rating	Total Feedback	AVT_hour	AVT_min	AVT
0	2022-07-30	Prerna Singh	11	2022-10-19 00:00:38	00:04:20	4.11	9	0	0	
1	2022-07-30	Nandani Gupta	11	2022-10-19 00:01:15	00:28:25	3.14	7	0	1	
2	2022-07-30	Ameya Jain	14	2022-10-19 00:00:30	00:11:36	4.55	11	0	0	
3	2022-07-30	Mahesh Sarade	14	2022-10-19 00:01:04	00:15:46	4.71	7	0	1	
4	2022-07-30	Swati	14	2022-10-19 00:01:11	00:16:33	3.67	6	0	1	

In [33]:

```
1 #Average weekly response time for each agent
2 (df1.groupby('Agent Name')['AVT_hour'].sum()*60*60)+(df1.groupby('Agent Name')['AVT_min'
```

Out[33]:

```
Agent Name
Abhishek      0.00
Aditya        0.00
Aditya Shinde 673.00
Aditya_iot    524.75
Amersh        0.00
...
Uday Mishra   0.00
Vasanth P     0.00
Vivek        282.75
Wasim        492.75
Zeeshan     1453.00
Length: 70, dtype: float64
```

## 10 . average weekly resolution time for each agents

In [34]:

```
1 # to check data type
2 df1['Average Resolution Time'].dtype
```

Out[34]:

dtype('O')

In [35]:

```
1 # convert object data into time scale
2 df1['Average Resolution Time']=pd.to_datetime(df1['Average Resolution Time'])
3 df1['Average Resolution Time'].dtype
```

Out[35]:

dtype('<M8[ns]')

In [36]:

```
1 df1['ART_hour'] = df1['Average Resolution Time'].dt.hour
2 df1['ART_min'] = df1['Average Resolution Time'].dt.minute
3
4 df1['ART_sec'] = df1['Average Resolution Time'].dt.second
5 # conversion has done
```

In [37]:

```
1 #Average weekly resolution time for each agent
2 (df1.groupby('Agent Name')['ART_hour'].sum()*60*60)+(df1.groupby('Agent Name')['ART_min'
```

Out[37]:

Agent Name	
Abhishek	0.00
Aditya	0.00
Aditya Shinde	18379.75
Aditya_iot	17244.75
Amersh	0.00
...	
Uday Mishra	0.00
Vasanth P	0.00
Vivek	4475.75
Wasim	20286.50
Zeeshan	19058.00
Length: 70, dtype: float64	

## 11 . list of all agents name

In [38]:

```
1 df1['Agent Name'].unique()
```

Out[38]:

```
array(['Prerna Singh', 'Nandani Gupta', 'Ameya Jain', 'Mahesh Sarade',  
      'Swati ', 'Mukesh ', 'Saikumarreddy N', 'Sanjeev Kumar',  
      'Shubham Sharma', 'Nishtha Jain', 'Manjunatha A', 'Khushboo Priya',  
      'Suraj S Bilgi', 'Harikrishnan Shaji', 'Hrisikesh Neogi',  
      'Shivan K', 'Sowmiya Sivakumar', 'Madhulika G', 'Mithun S',  
      'Hitesh Choudhary', 'Sanjeevan ', 'Anirudh ', 'Shiva Srivastava',  
      'Dibyanshu ', 'Ashish ', 'Uday Mishra', 'Aditya Shinde',  
      'Jayant Kumar', 'Aditya_iot ', 'Prabir Kumar Satapathy',  
      'Saurabh Shukla', 'Wasim ', 'Samprit ', 'Maitry ', 'Abhishek ',  
      'Rishav Dash', 'Aravind ', 'Tarun ', 'Muskan Garg', 'Ankit Sharma',  
      'Bharath ', 'Ashad Nasim', 'Vasanth P', 'Aditya ', 'Amersh ',  
      'Sandipan Saha', 'Ineuron Intelligence ', 'Mahak ', 'Mukesh Rao ',  
      'Zeeshan ', 'Anurag Tiwari', 'Ankitjha ', 'Saif Khan',  
      'Jaydeep Dixit', 'Sudhanshu Kumar', 'Maneesh ', 'Hyder Abbas',  
      'Rohan ', 'Vivek ', 'Nitin M', 'Shivan_S ', 'Spuri ',  
      'Ayushi Mishra', 'Chaitra K Hiremath', 'Prateek _iot ',  
      'Boktiar Ahmed Bappy', 'Shivananda Sonwane', 'Ishawant Kumar',  
      'Deepranjan Gupta', 'Jawala Prakash'], dtype=object)
```

## 12 . Percentage of chat on which they have received a feedback

percentage of chat on which they have received a feedback =  $((\text{total chats} - \text{total feedbacks}) / \text{total chats}) * 100$

or

percentage of chat on which they have received a feedback =  $((\text{total feedbacks}) / (\text{total chats})) * 100$

In [39]:

```
1 (df1.groupby('Agent Name')['Total Chats'].sum())
```

Out[39]:

```
Agent Name
Abhishek      0
Aditya         0
Aditya Shinde 277
Aditya_iot    231
Amersh         0
...
Uday Mishra   0
Vasanth P     0
Vivek         44
Wasim        433
Zeeshan       542
Name: Total Chats, Length: 70, dtype: int32
```

In [40]:

```
1 (df1.groupby('Agent Name')['Total Feedback'].sum())
```

Out[40]:

```
Agent Name
Abhishek      0
Aditya         0
Aditya Shinde 153
Aditya_iot    131
Amersh         0
...
Uday Mishra   0
Vasanth P     0
Vivek         20
Wasim        284
Zeeshan       335
Name: Total Feedback, Length: 70, dtype: int32
```

In [41]:

```
1 feedback_received = (((df1.groupby('Agent Name')['Total Chats'].sum()) - (df1.groupby('
```

In [42]:

```
1 feedback_received
```

Out[42]:

Agent Name		
Abhishek		NaN
Aditya		NaN
Aditya Shinde	44.765343	
Aditya_iot	43.290043	
Amersh		NaN
...		
Uday Mishra		NaN
Vasanth P		NaN
Vivek	54.545455	
Wasim	34.411085	
Zeeshan	38.191882	
Length: 70, dtype: float64		

In [43]:

```
1 feedback_received2=((df1.groupby('Agent Name')['Total Feedback'].sum()))/(df1.groupby('Agent Name')['Total Feedback'].count())
2
```

In [44]:

```
1 feedback_received2
```

Out[44]:

Agent Name		
Abhishek		NaN
Aditya		NaN
Aditya Shinde	55.234657	
Aditya_iot	56.709957	
Amersh		NaN
...		
Uday Mishra		NaN
Vasanth P		NaN
Vivek	45.454545	
Wasim	65.588915	
Zeeshan	61.808118	
Length: 70, dtype: float64		

### 13 . Total contributation hour for each and every agents weekly basis



In [45]:

```
1 # convert dtype into hour
2 df.columns
3
```

Out[45]:

```
Index(['Agent', 'Date', 'Login Time', 'Logout Time', 'Duration'], dtype='object')
```

In [68]:

```
1 df.head()
```

Out[68]:

	Agent	Date	Login Time	Logout Time	Duration
0	Shivananda Sonwane	30-Jul-22	03:35:29 PM	05:39:39 PM	02:04:10
1	Khushboo Priya	30-Jul-22	03:06:59 PM	03:07:16 PM	00:00:17
2	Nandani Gupta	30-Jul-22	03:04:24 PM	05:31:07 PM	02:26:42
3	Hrisikesh Neogi	30-Jul-22	02:34:29 PM	03:19:35 PM	00:45:06
4	Mukesh	30-Jul-22	02:03:15 PM	03:11:52 PM	01:08:36

In [69]:

```
1 df['modified_Duration']=(pd.to_datetime(df.Date) + pd.to_timedelta(df.Duration))
```

In [71]:

```
1 df['Duration_hour'] = df['modified_Duration'].dt.hour
```

In [72]:

```
1 df['Duration_minute'] =df['modified_Duration'].dt.minute
```

In [73]:

```
1 df['Duration_second'] = df['modified_Duration'].dt.second
```

In [74]:

```
1 df.head()
```

Out[74]:

	Agent	Date	Login Time	Logout Time	Duration	modified_Duration	Duration_hour	Duration_r
0	Shivananda Sonwane	30-Jul-22	03:35:29 PM	05:39:39 PM	02:04:10	2022-07-30 02:04:10	2	
1	Khushboo Priya	30-Jul-22	03:06:59 PM	03:07:16 PM	00:00:17	2022-07-30 00:00:17	0	
2	Nandani Gupta	30-Jul-22	03:04:24 PM	05:31:07 PM	02:26:42	2022-07-30 02:26:42	2	
3	Hrisikesh Neogi	30-Jul-22	02:34:29 PM	03:19:35 PM	00:45:06	2022-07-30 00:45:06	0	
4	Mukesh	30-Jul-22	02:03:15 PM	03:11:52 PM	01:08:36	2022-07-30 01:08:36	1	



In [ ]:

```
1
```

In [ ]:

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