```
                              [ FP20 IT HELP DESK ANALYSIS BY SQL ]
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-------------------------------------------------------------------------------------------------------------
select * from Agents ;          # Agents Details

select * from Tickets ;         # Tickets Details


*** Create DOB and age column with CTE and Create View for use this data in further equation ***

create view agent_data as
with Agents_dob as(
select * ,
    DATEFROMPARTS(year_of_birth,month_of_birth, day_of_birth) as DOB
from
    Agents
)
select *,
    DATEDIFF(year,DOB,'2020-12-31') as age
from
    Agents_dob


select * from agent_data

*** Joining both Tables and Create View because we can not write the whole query everytime ***

create view it_table as
select
    a.Agent_ID, Full_Name, Email, Year_of_Birth, Month_of_Birth, Day_of_Birth, DOB, age, ID_Ticket,
Employee_ID,
    Request_Category, Issue_Type, Severity, Priority, Resolution_Time_Days, Satisfaction_Rate
from
    agent_data a
inner join
    Tickets t
    on a.Agent_ID = t.Agent_ID

*** Next steps for extracting first name & last name from email column ***

create view it_1 as
select
    *, LEFT(email,charindex('@',email)-1) as name
from it_table


create view it_2 as
select *,
    LEFT(name,charindex('.',name)-1) as f_name
from it_1


create view it_3 as
select *,
    RIGHT(name,charindex('.',name)-1) as l_name
from it_2

*** Creating the final table for the analysis ***

create view it_final as
select
    Agent_ID, f_name, l_name, Email, Year_of_Birth, Month_of_Birth, Day_of_Birth, DOB, age, ID_Ticket,
Employee_ID,
    Request_Category, Issue_Type, Severity, Priority, Resolution_Time_Days, Satisfaction_Rate
from it_3
```

```
*** Data Analysis ***

select
    request_category, priority,
    count(id_ticket) as issues,
    rank() over (partition by request_category order by count(id_ticket) desc ) as ranking
from
    it_final
group by
    Request_Category, Priority
order by
    issues desc


--- Result ---

System          3 - High        14313   1
System          0 - Unassiged   11675   2
Login Access    3 - High        10599   1
Login Access    0 - Unassiged   8877    2
Software        3 - High        7079    1
System          1 - Low         6795    3
System          2 - Mid         6219    4
Software        0 - Unassiged   5935    2
Login Access    1 - Low         4952    3
Login Access    2 - Mid         4765    4
Hardware        3 - High        3558    1
Software        2 - Mid         3285    3
Software        1 - Low         3271    4
Hardware        0 - Unassiged   2923    2
Hardware        1 - Low         1676    3
Hardware        2 - Mid         1576    4


*** Changing data types on "Resolution_Time_Days" column, because this column was nvarchar data types
    thos reson we can not perform any kind of arithmetics on this column so, we change the data types
    nvarchar to int ***

alter table tickets
alter column Resolution_Time_Days int


*** age wise average resolution time with no of tickets ***

select
    age,
    count(id_ticket) as issues,
    avg(Resolution_Time_Days) as avg_resolution_time
from
    it_final
group by
    age
order by
    issues desc,
    avg_resolution_time desc


--- Result ---


38  11643   4
40  11637   4
24  9645    4
27  7942    4
25  5896    4
41  3995    4
37  3946    4
48  3934    3
33  3911    4
35  3888    4
32  3855    5
46  3853    4
29  3835    4
47  2000    4
42  1988    5
30  1984    4
31  1969    5
49  1961    3
45  1958    4
39  1949    4
34  1915    4
44  1897    4
36  1897    3
```

*** Data Analysis ***

*** age wise average satisfaction rate to average resolution time ***

```
select
    age,
    AVG(Satisfaction_Rate) as avg_satisfaction,
    AVG(Resolution_Time_Days) as avg_resolution_time
from
    it_final
group by
    age
order by
    avg_satisfaction desc,
    avg_resolution_time desc
```

--- Result ---

```
42  4   5
31  4   5
47  4   4
41  4   4
44  4   4
37  4   4
24  4   4
25  4   4
27  4   4
29  4   4
33  4   4
34  4   4
35  4   4
48  4   3
49  4   3
32  3   5
30  3   4
38  3   4
39  3   4
40  3   4
45  3   4
46  3   4
36  3   3
```

*** Top agent with no of tickets in their hand category wise ***

```
with ranking as(
select
    request_category,
    f_name,
    COUNT(id_ticket) as issues,
    RANK() over (PARTITION BY request_category ORDER BY COUNT(id_ticket) desc) AS category_rank
FROM
    it_final
GROUP BY
    Request_Category, f_name
)

select * from ranking
where category_rank = 1
```

--- Result ---

```
Hardware        alberto     805     1
Login Access    guadalupe   2356    1
Software        guadalupe   1582    1
System          guadalupe   3146    1
```

```
*** Data Analysis ***

*** SLA wise calculations ***

create view final_it as
SELECT
    *,
    CASE WHEN Resolution_Time_Days > 3.5 THEN 'outside_sla' ELSE 'within_sla' END AS sla
FROM
    it_final


select * from final_it


*** SLA wise issued tickets ***

select
    sla,
    COUNT(id_ticket) as issues
from
    final_it
group by
    sla
order by
    issues desc


--- Result ---

outside_sla     50484
within_sla      47014


*** Top rank of age wise sla with agents name & number of tickets they have ***


with rankz as
(select
    age,sla,f_name,
    COUNT(id_ticket) as issues,
    RANK() over (PARTITION BY age, sla ORDER BY COUNT(id_ticket) DESC ) AS category_rank
from
    final_it
group by
    age, sla, f_name
)

select * from rankz
where category_rank = 1

--- Result ---

24  outside_sla lorena      1053    1
24  within_sla  diana       993     1
25  outside_sla parra       1062    1
25  within_sla  guadalupe   1017    1
27  outside_sla elena       1102    1
27  within_sla  guadalupe   1008    1
29  outside_sla armando     1025    1
29  within_sla  darwin      954     1
30  outside_sla alfonso     1081    1
30  within_sla  alfonso     903     1
31  outside_sla lucero      1052    1
31  within_sla  lucero      917     1
32  outside_sla alberto     1041    1
32  within_sla  sandra      919     1
33  outside_sla eva         1065    1
33  within_sla  isela       1018    1
34  outside_sla guadalupe   995     1
34  within_sla  guadalupe   920     1
35  outside_sla enrique     1056    1
35  within_sla  rosa        916     1
36  outside_sla reyna       949     1
36  within_sla  reyna       948     1
37  outside_sla jesus       1124    1
37  within_sla  eduardo     931     1
38  outside_sla luis        1931    1
38  within_sla  luis        1911    1
39  outside_sla jose        985     1
39  within_sla  jose        964     1
40  outside_sla estuardo    1061    1
40  within_sla  lopez       947     1
41  outside_sla aurelio     1040    1
41  within_sla  jesus       1008    1
42  outside_sla alberto     1058    1
42  within_sla  alberto     930     1
44  outside_sla javier      935     1
44  within_sla  javier      962     1
45  outside_sla guadalupe   1046    1
45  within_sla  guadalupe   912     1
46  outside_sla yomaira     988     1
46  within_sla  alfredo     945     1
46  within_sla  yomaira     945     1
47  outside_sla willyberto  986     1
47  within_sla  willyberto  1014    1
48  outside_sla barbara     1030    1
48  within_sla  segura      1017    1
49  outside_sla lourdes     975     1
49  within_sla  lourdes     986     1
```

*** Data Analysis ***

```
with time_rank as
(select
    f_name,
    COUNT(id_ticket) as issues,
    RANK() over (partition by f_name order by count(id_ticket) desc) as category_rank
from
    final_it
group by
    f_name
)

select * from time_rank
where category_rank = 1
```

--- Result ---

alberto	7800	1
aldo	1966	1
alfonso	1984	1
alfredo	1920	1
armando	1890	1
aurelio	2027	1
barbara	2003	1
carlos	1926	1
darwin	1945	1
diana	1927	1
eduardo	1920	1
elena	2021	1
enrique	1938	1
estuardo	3877	1
eva	1943	1
flores	1963	1
griselda	1856	1
guadalupe	7851	1
isela	1968	1
javier	1897	1
jesus	5925	1
jose	1949	1
lopez	1956	1
lorena	1966	1
lourdes	1961	1
lucero	1969	1
luis	3842	1
marisol	1960	1
melinda	2007	1
miller	1892	1
nurio	1946	1
parra	1963	1
ramon	1949	1
reyna	1897	1
rosa	1950	1
sandra	1906	1
segura	1931	1
silvia	1974	1
willyberto	2000	1
yomaira	1933	1

*** Top sla by Employee ID ***

```
with time_rank as
(select
    Employee_ID,
    age,
    sla,
    COUNT(id_ticket) as issues,
    RANK() over (partition by sla order by count(id_ticket) desc) as category_rank
from
    final_it
group by
    Employee_ID, age,sla
)

select * from time_rank
where category_rank = 1
```

--- Result ---

1617	40	outside_sla	11	1
1288	40	outside_sla	11	1
214	38	outside_sla	11	1
79	24	outside_sla	11	1
1728	40	within_sla	11	1