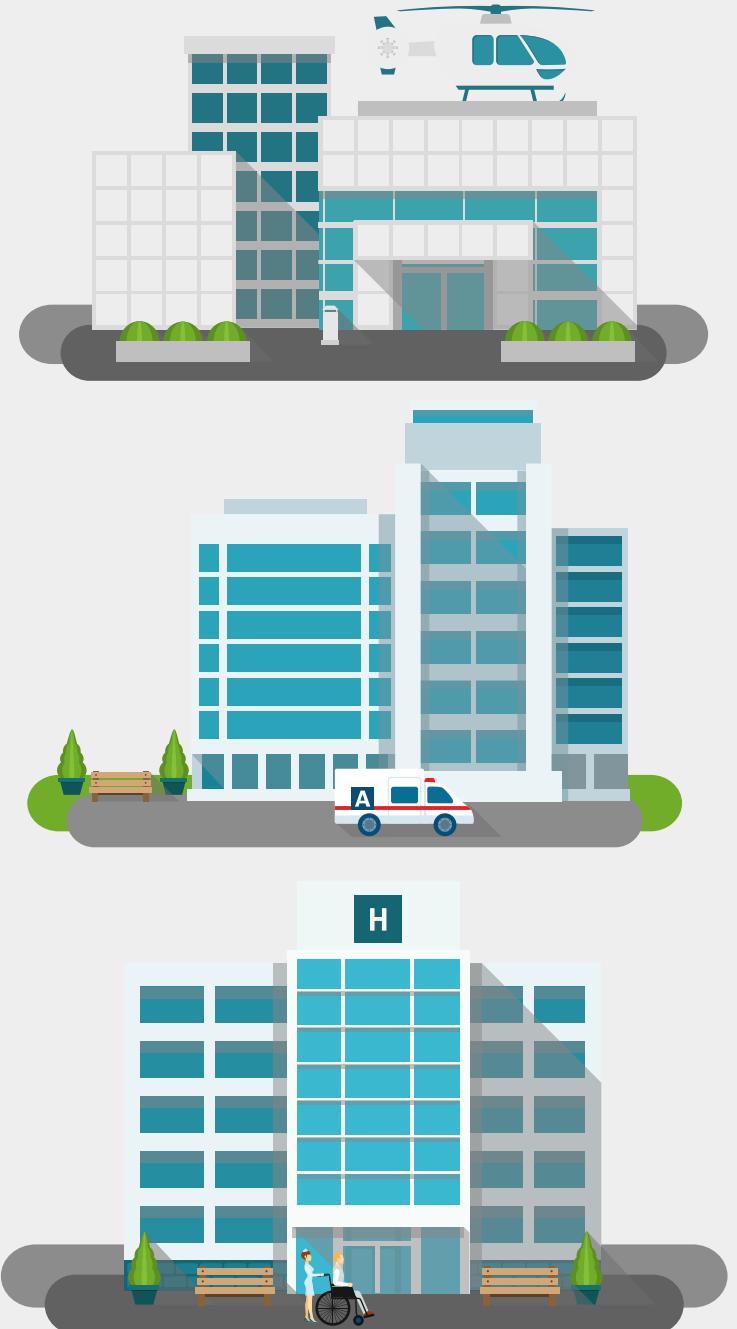


With three hospitals in different locations and different management styles

- How can we use data to evaluate each hospital's performance in a consistent and unbiased way?
- How can we use data to evaluate each hospital's performance in a consistent and unbiased way?



Hospital and Heart Failure Records Analysis

Group 2

Cognitia



Team



Eng. Amr Ayyad

Supervisor



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Quality Specialist at Ministry
of Health and Population



Samar Mohamed

Medical Coordinator at
Dakahlia Health Directorate



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Computer Engineering
Graduate & TA



Esraa Allam

Biotechnologist &
PPT Designer

Tools



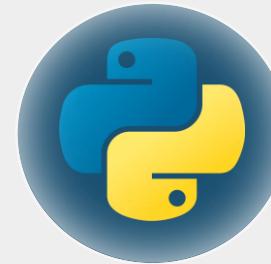
Data Collection



Create database and Schema



Server, upload Database

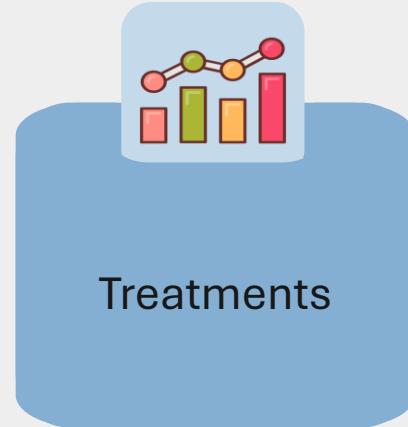
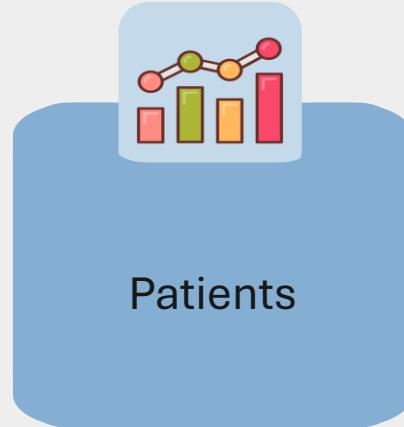
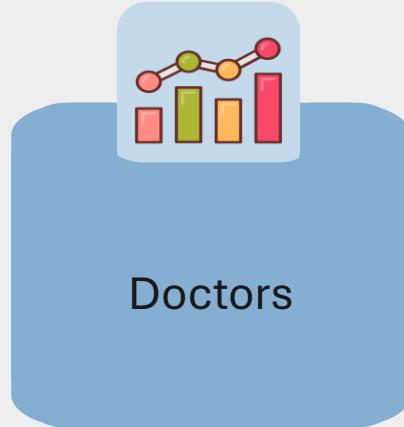
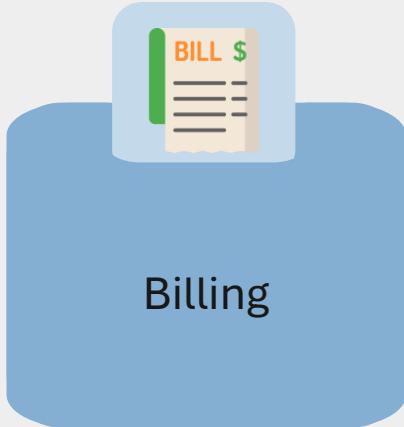
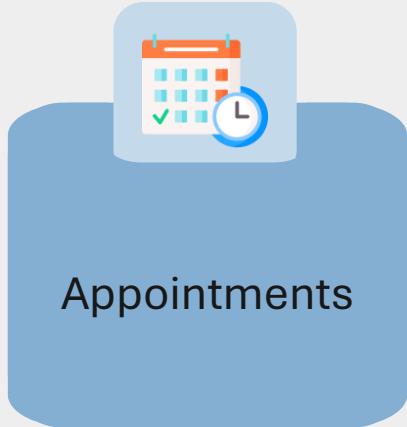


Upload Data to Aiven



Visualization

Dataset



KPIs



Performance



Doctors



Treatment



Patients
Time life

Hospital performance insights

No. of patients

50

insurance providers

4

payment method

3

total billing amount

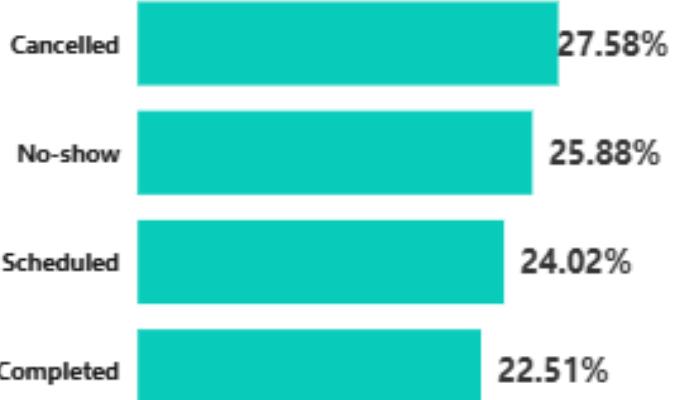
551.25K

Hospital branches

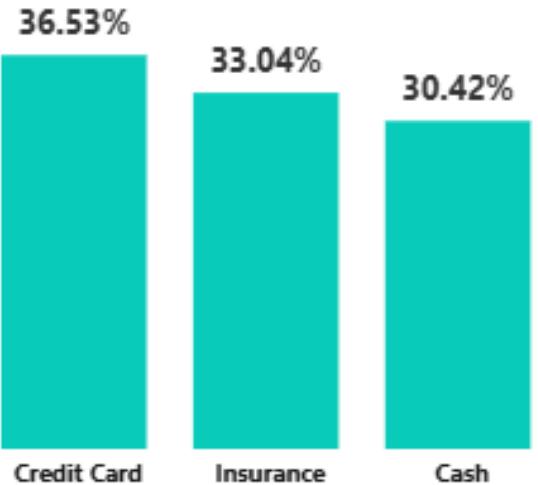
3

overall

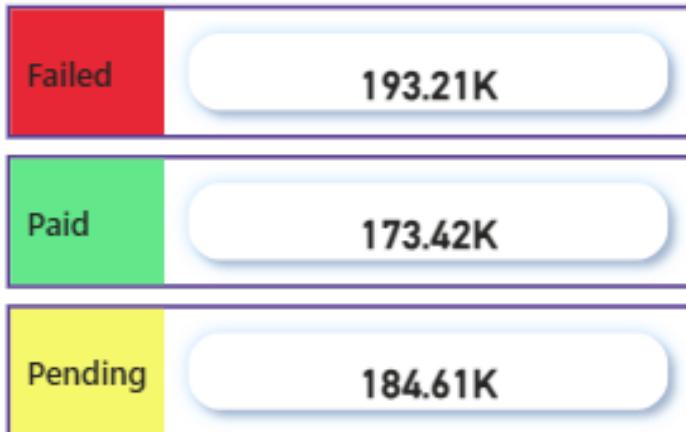
%GT Sum of cost by status



Billing by payment_method



Billing amount



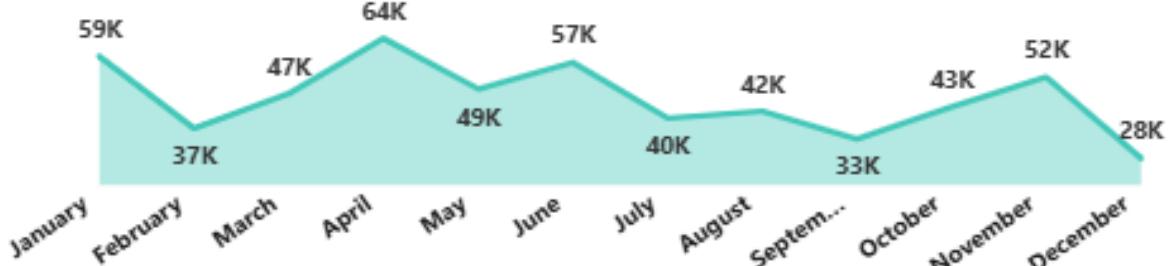
Hospital Operations KPIs

Doctors insights

Treatment insights

Patient Lifetime Value

Sum of amount by Month



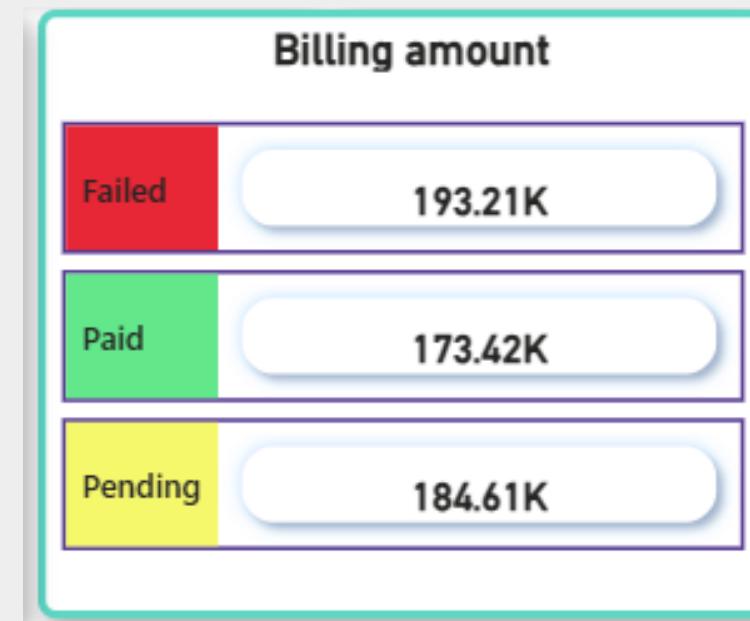
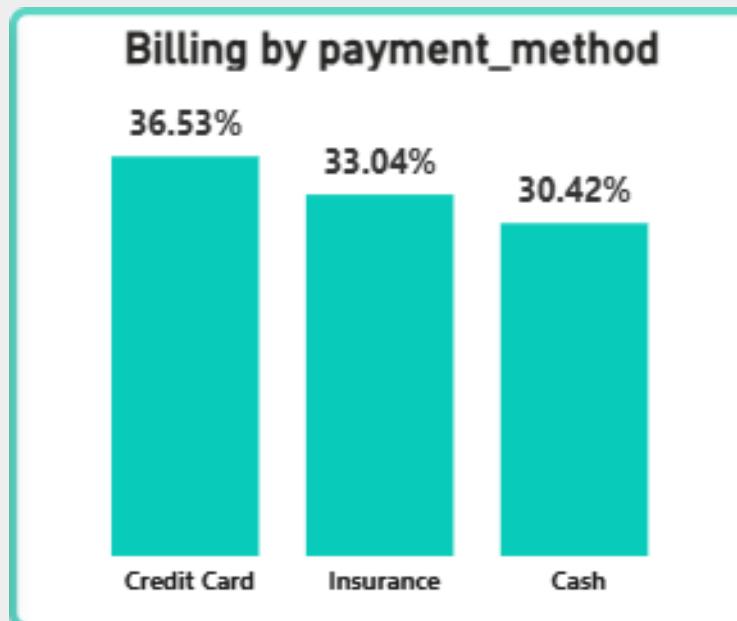
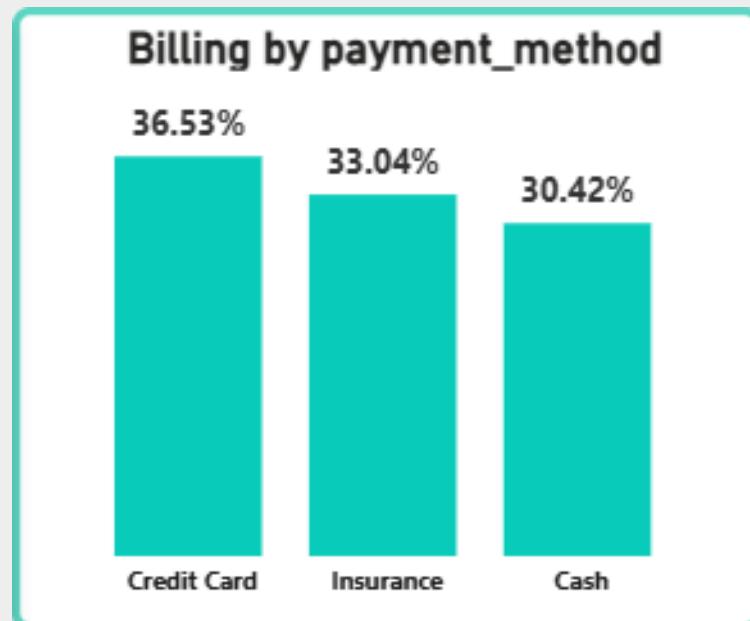
revenue of each hospital_branch





Performance

- Total billing: 551K
- Highest payment method: Credit Card (201K)
- Major issue: High failed and pending payments
- Insight: Improve billing follow-up and payment processing



Hospital performance insights

overall

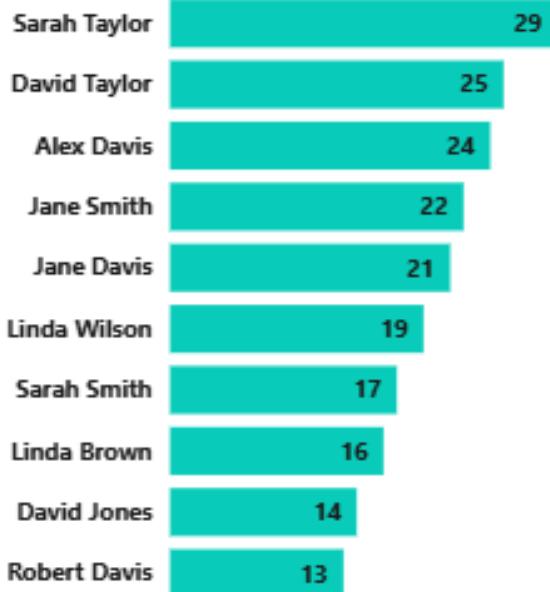
Hospital Operations KPIs

Doctors insights

Treatment insights

Patient Lifetime Value

No . of treatments by each doctor



Avg year experience

21.50

Specializations

3

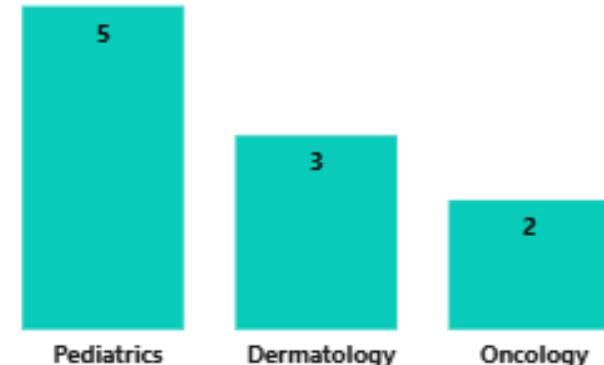
Doctors

10

patients per each clinic

Dermato...	Oncology	Pediatrics
70	32	98

No of doctors per each specialization



Average of years_experience by specialization



Doctors in each branch





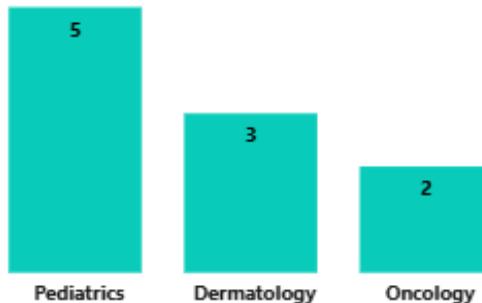
Doctors

- Ten doctors across 3 specialties
- Average experience: 21.5 years
- Pediatrics has the largest team
- Insight: Strong, experienced workforce with balanced distribution

patients per each clinic

Dermato...	Oncology	Pediatrics
70	32	98

No of doctors per each specialization



Average of years_experience by specialization



Hospital performance insights



min. treatment cost

695.36

Max. treatment cost

4.96K

Avg. cost

2.70K

overall

Completed Treatments

46

Hospital Operations KPIs

Doctors insights

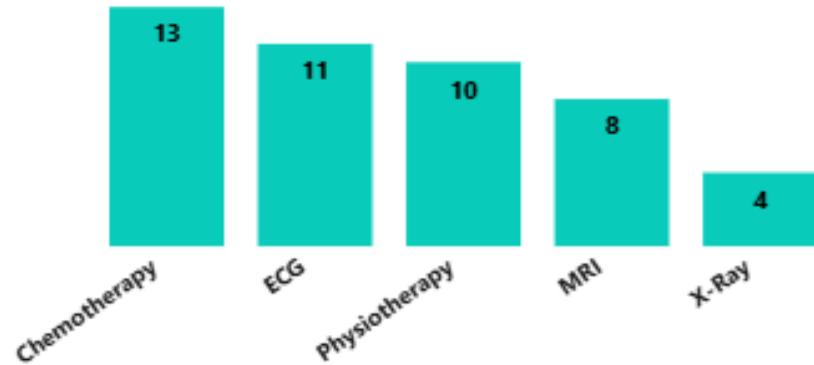
Treatment insights

Patient Lifetime Value

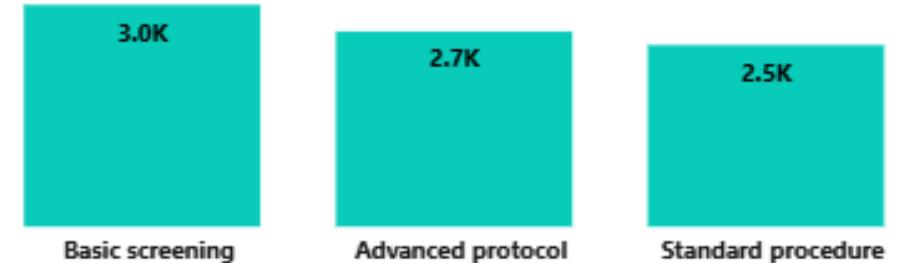
description level by doctors

David Taylor		Alex Davis		Robert Davis		David Jo...
Basic screening		Basic scre...	Standard ...	Ad...	Advanced pro...	B...
Advanced protocol		Jane Davis		Linda Brown		St...
Jane Smith		Advanced...	Basic scre...	St...	Standard ...	Sarah S...
Standard proc...	Adva...	Linda Wilson		Sarah Taylor		Standard ...
		Basic screening	Advanced...	Advanced ...	Standard p...	Basic scre...

No of patient in each service



avg. cost by description level



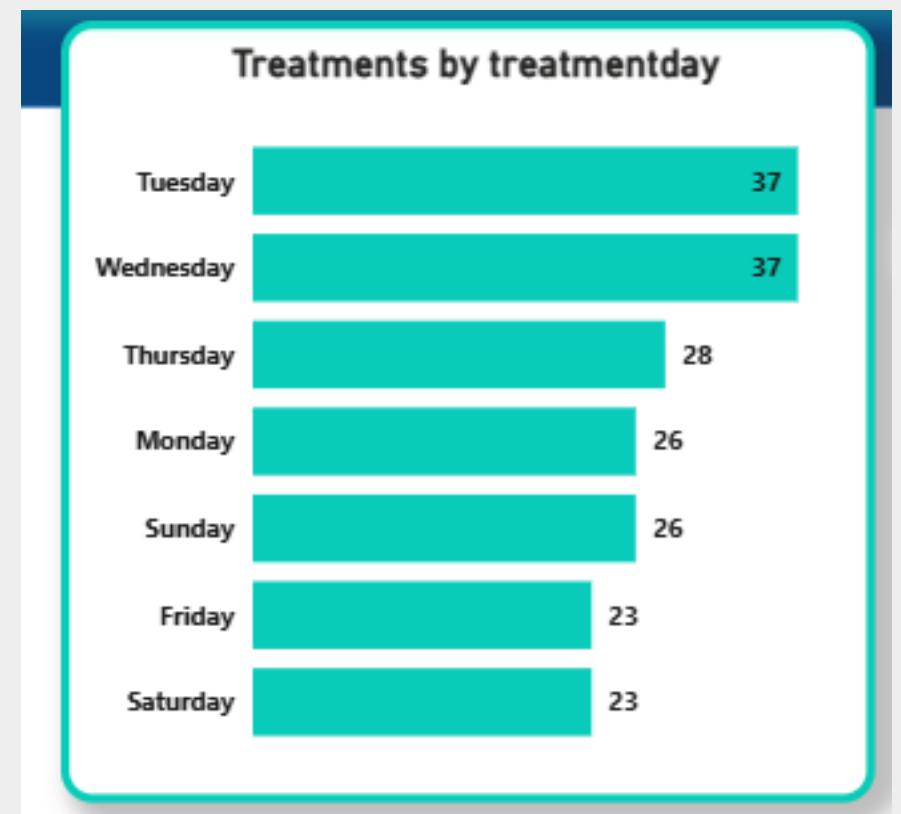
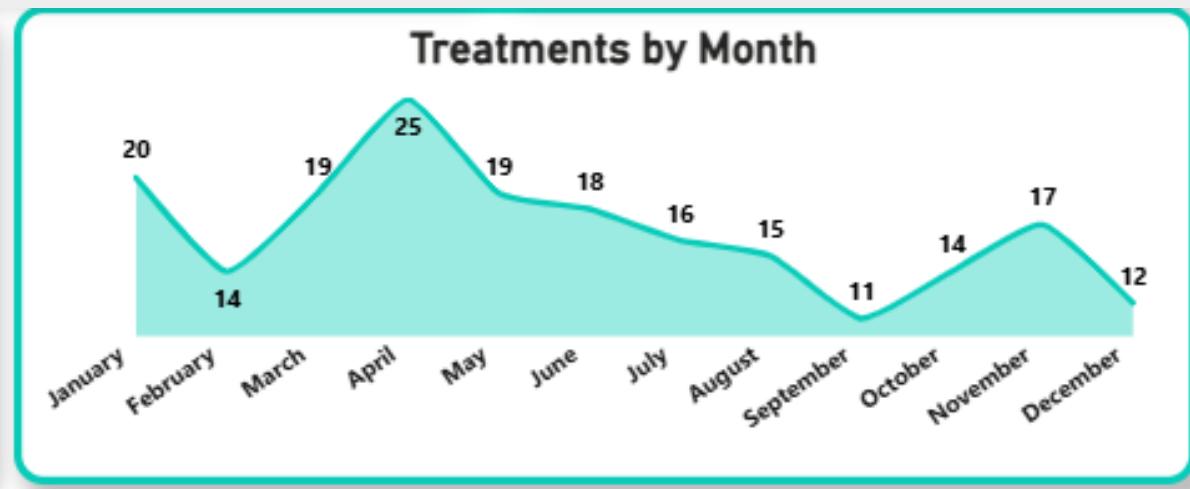
patients according to description level





Treatment

- Peak treatment days: Tuesday & Wednesday
- Central Hospital leads in treatment volume
- Treatment peak month: April
- Insight: Mid-week and April demand more resources.



Hospital performance insights



patients lifespan

11

Active patients growth %

-14.29%

average visit per patient

4.17

Average Patient LTV

11.48K

Active patient

12

overall

Hospital Operations KPIs

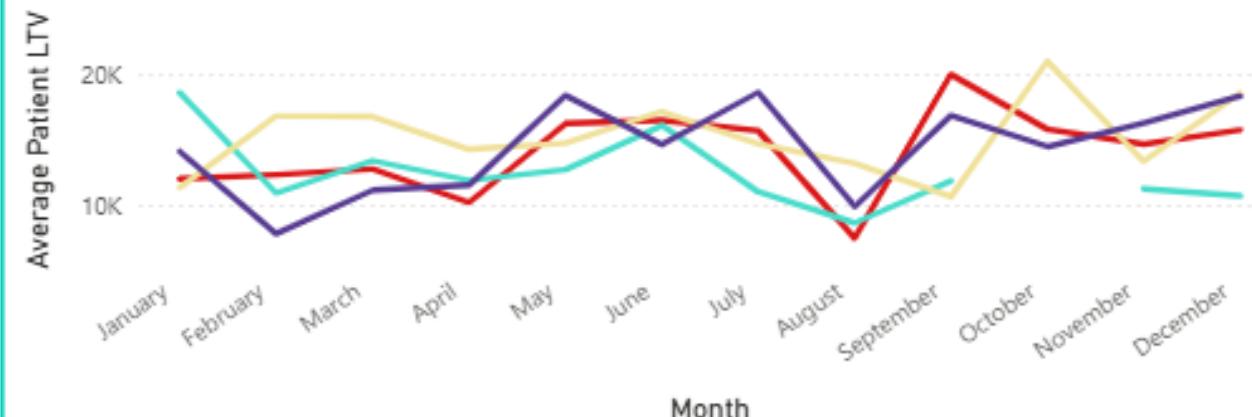
Doctors insights

Treatment insights

Patient Lifetime Value

Patients LTV over the year

status ● Cancelled ● Completed ● No-show ● Scheduled



Top 10 patients LTV



Active Patients Growth % by hospital_branch

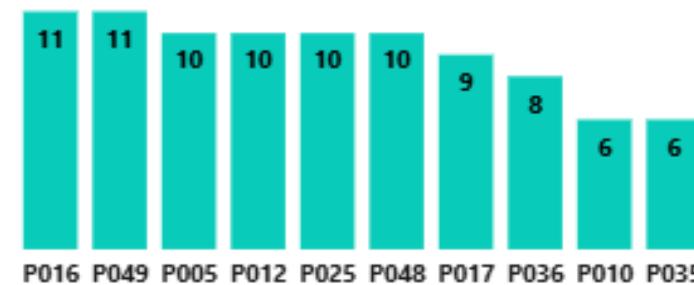


Central Hospital

Westside Clinic

Eastside Clinic

Patient Lifespan for top 10 patients ltv



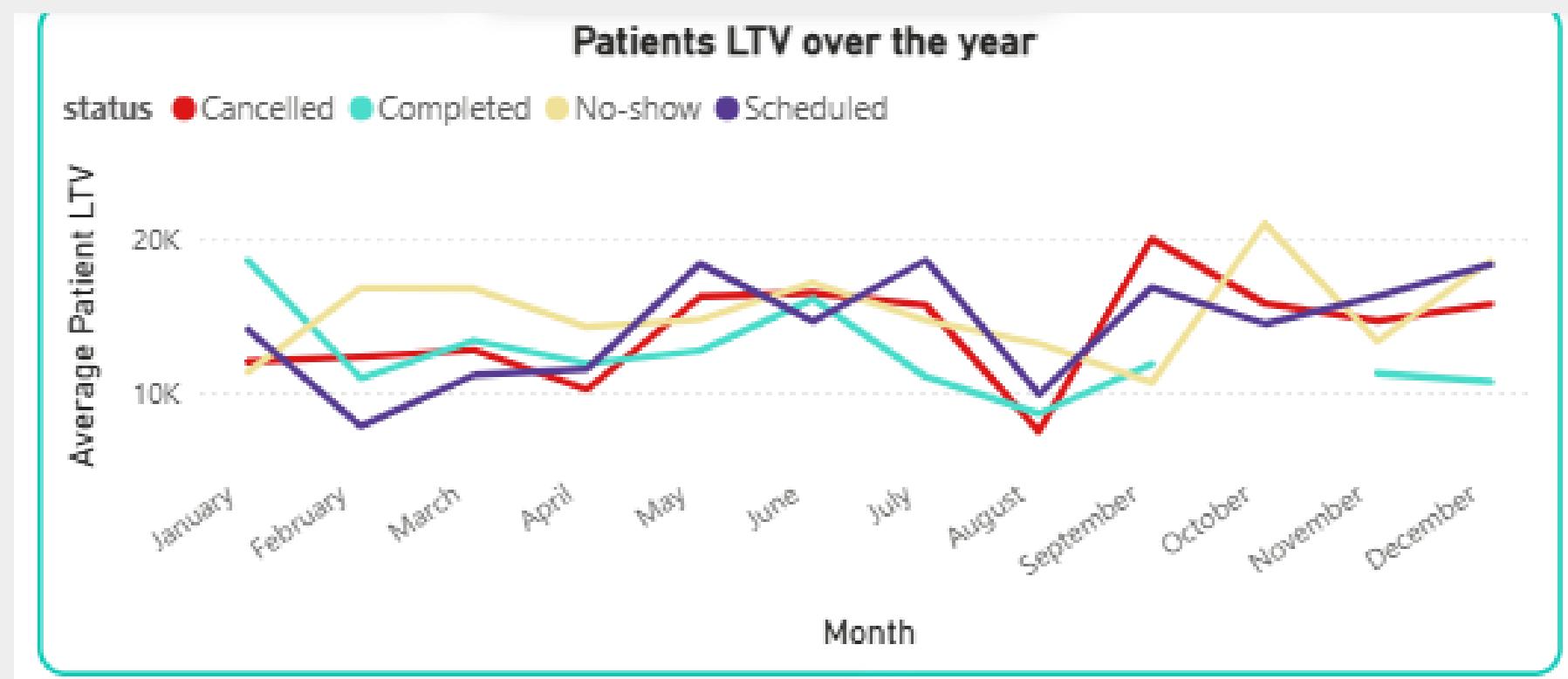
Patient LTV in each branch





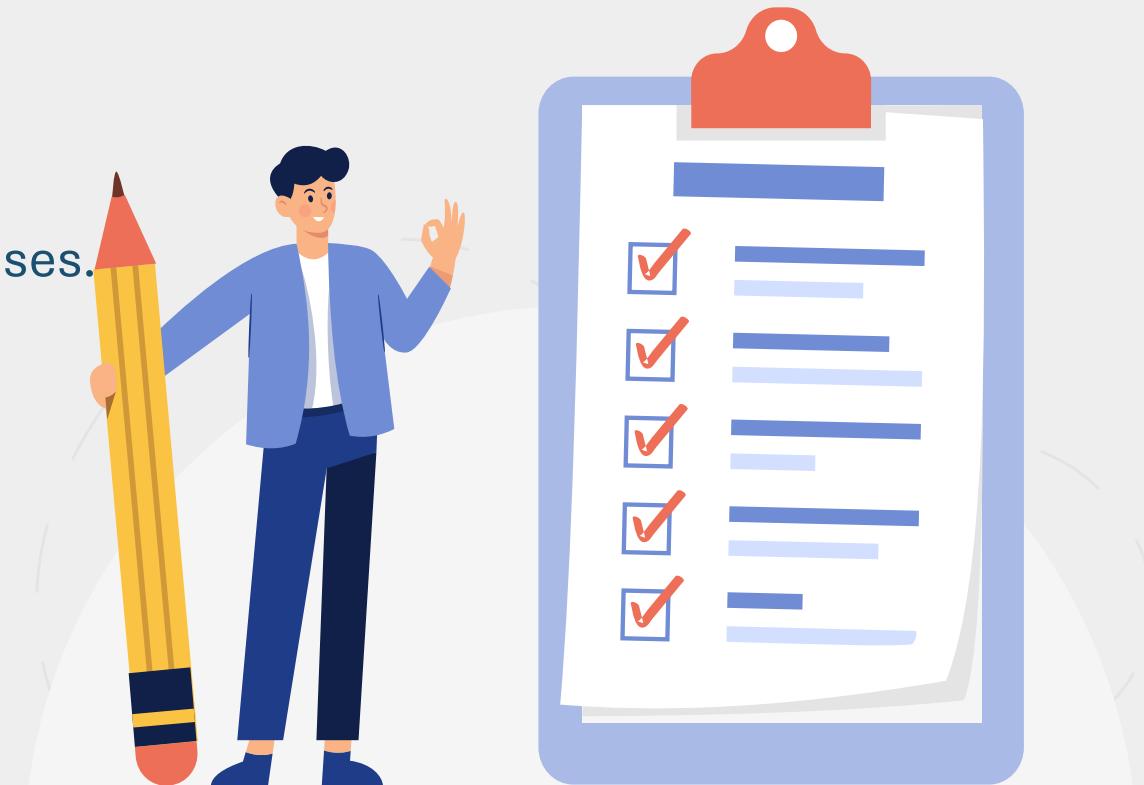
Patients Time life

- Patient growth rate is negative due to rising cancelled and no-show appointments over the months.
- Completed appointments are decreasing, reducing overall patient activity.
- The shift from completed visits to cancellations and no-shows directly drives the negative growth trend.



Conclusion |

- Central Hospital drives most revenue and activity.
- No-shows and cancellations are major operational losses.
- Billing processes need improvement
- Staffing should align with PM and mid-week demand.



Thank You!

**We need your feedback to
improve**

