

PowerBI Project

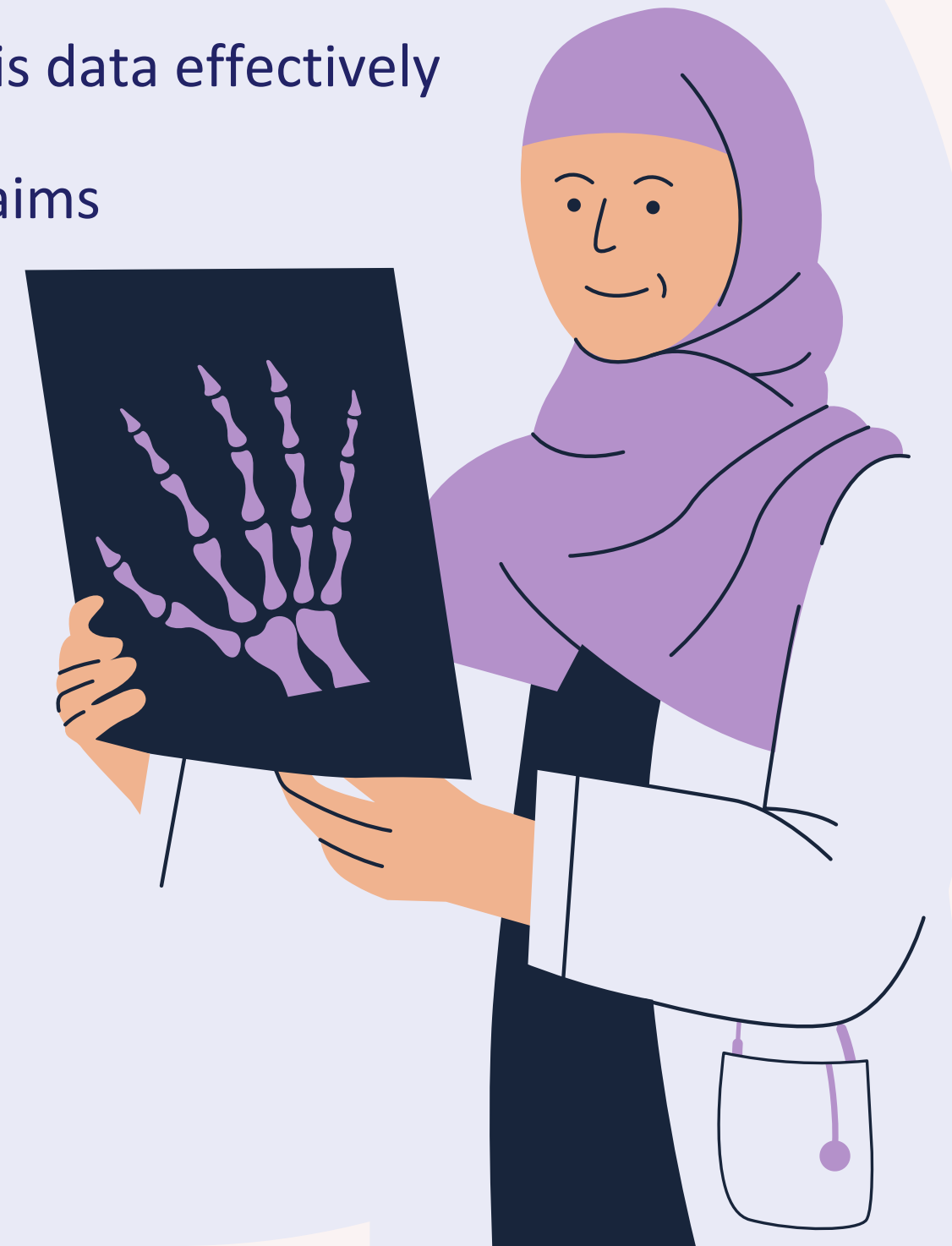
HEALTHCARE DATASET ANALYSIS AND INSIGHTS



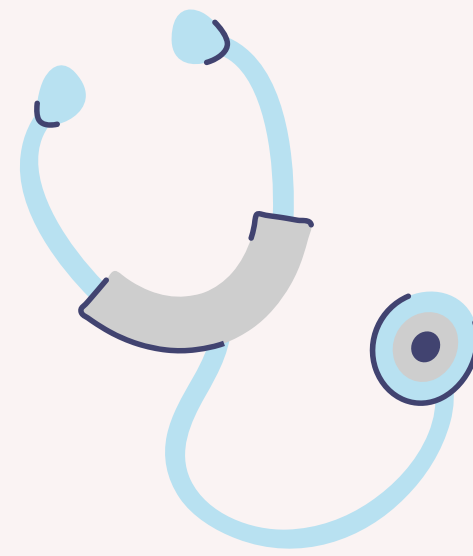


INTRODUCTION

Healthcare institutions generate massive volumes of data daily, from patient admissions and diagnoses to financial metrics and resource utilization. However, leveraging this data effectively can significantly enhance operational efficiency and patient care. This project aims to utilize Power BI to create an interactive healthcare dashboard, offering actionable insights into hospital performance. By analyzing key metrics such as bed occupancy, diagnosis patterns, financial data, and patient feedback, this report provides a data-driven approach to decision-making for healthcare administrators.



DATASET OVERVIEW



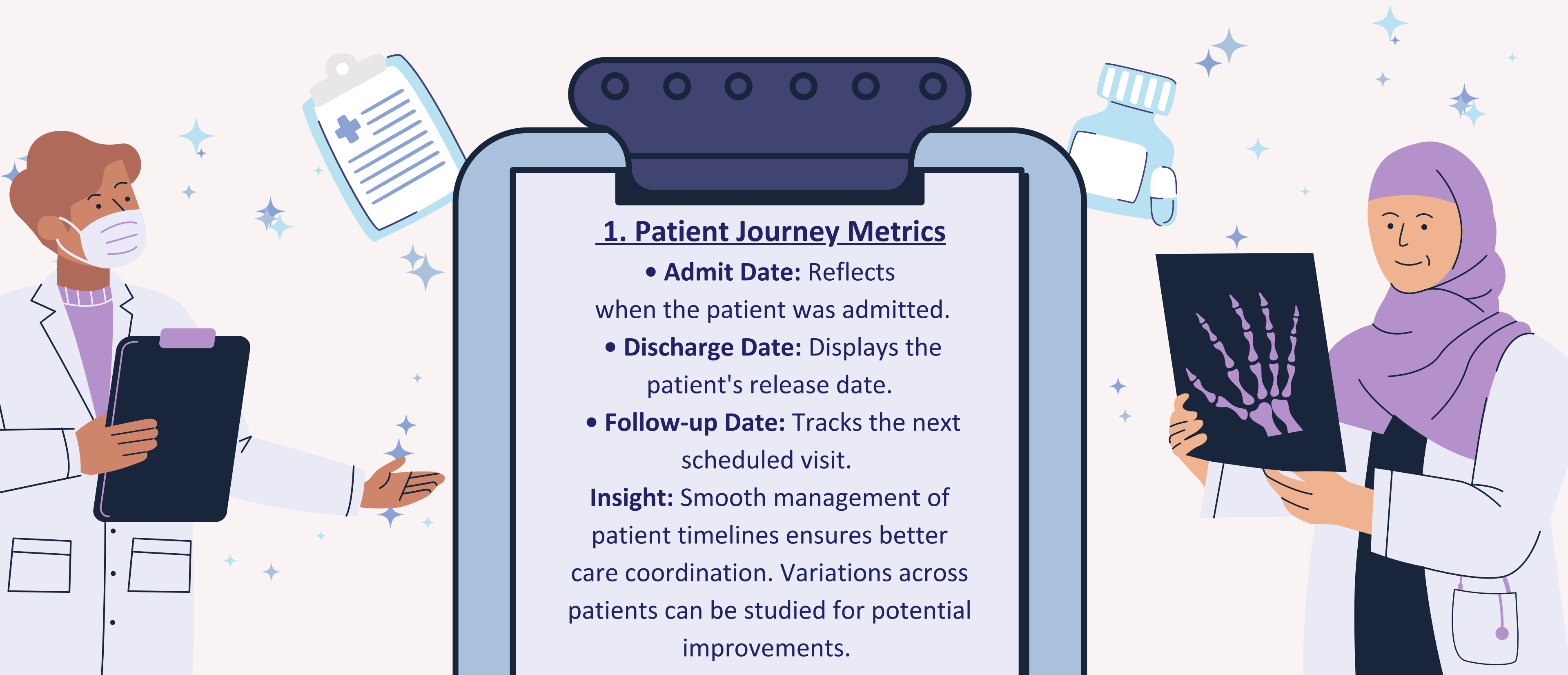
The dataset used in this project contains detailed information related to hospital operations. Key attributes include:



- Patient Information:** Includes admit date, discharge date, and follow up date.
- Financial Details:** Billing amounts and health insurance amounts.
- Healthcare Services:** Test rates for various procedures like MRI, CT scans, X-rays, and blood tests.
- Feedback and Diagnosis:** Patient feedback ratings for doctors and diagnosis types such as viral infections, flu, malaria, typhoid, pneumonia, and fractures.
- Resource Utilization:** Bed occupancy categorized as private, general, or ICU.

DYNAMIC INSIGHTS AND ANALYSIS

Page 1: Patient and Operational Metrics



1. Patient Journey Metrics

- **Admit Date:** Reflects when the patient was admitted.
 - **Discharge Date:** Displays the patient's release date.
 - **Follow-up Date:** Tracks the next scheduled visit.
- Insight:** Smooth management of patient timelines ensures better care coordination. Variations across patients can be studied for potential improvements.



2. Bed Occupancy Overview

- Beds are categorized as Private, General, and ICU.
 - Visualization shows the occupancy levels for each category based on selected data.
- Insight: Trends reveal higher demand for private rooms. ICU and General Wards have relatively fewer patients, which may guide resource allocation strategies.

3. Diagnosis Trends

- Common illnesses like Viral Infections and Flu show high case numbers.
 - Less frequent diagnoses, such as Pneumonia and Fractures, are at the lower end.
- Insight: Diagnosis data helps track seasonal illnesses and their financial and operational impacts. Preventive strategies can reduce visits for common ailments.



4. Financial Overview

- The billing amount adjusts dynamically to the services and tests provided.
- A comparison chart shows how much of the billing is covered by health insurance claims.

Insight: The balance between billing and insurance coverage indicates financial accessibility for patients. Service cost patterns for different tests can be analyzed further.



5. Doctor Feedback Analysis

- Patients rate doctors on a scale of 1–5.
 - A pie chart highlights the distribution of feedback scores.

Insight: The majority of feedback is positive, indicating high patient satisfaction. Periodic monitoring ensures consistent service quality.

Page 2: Test and Financial Insights

1 . Test Utilization Patterns

- Diagnostic tests like Blood Tests and MRIs are the most commonly used.
- X-rays and Ultrasounds show lower utilization.
Insight: Test utilization helps identify which services are in demand. Strategies to promote underutilized tests can boost operational efficiency.

2. Feedback Analysis by Score

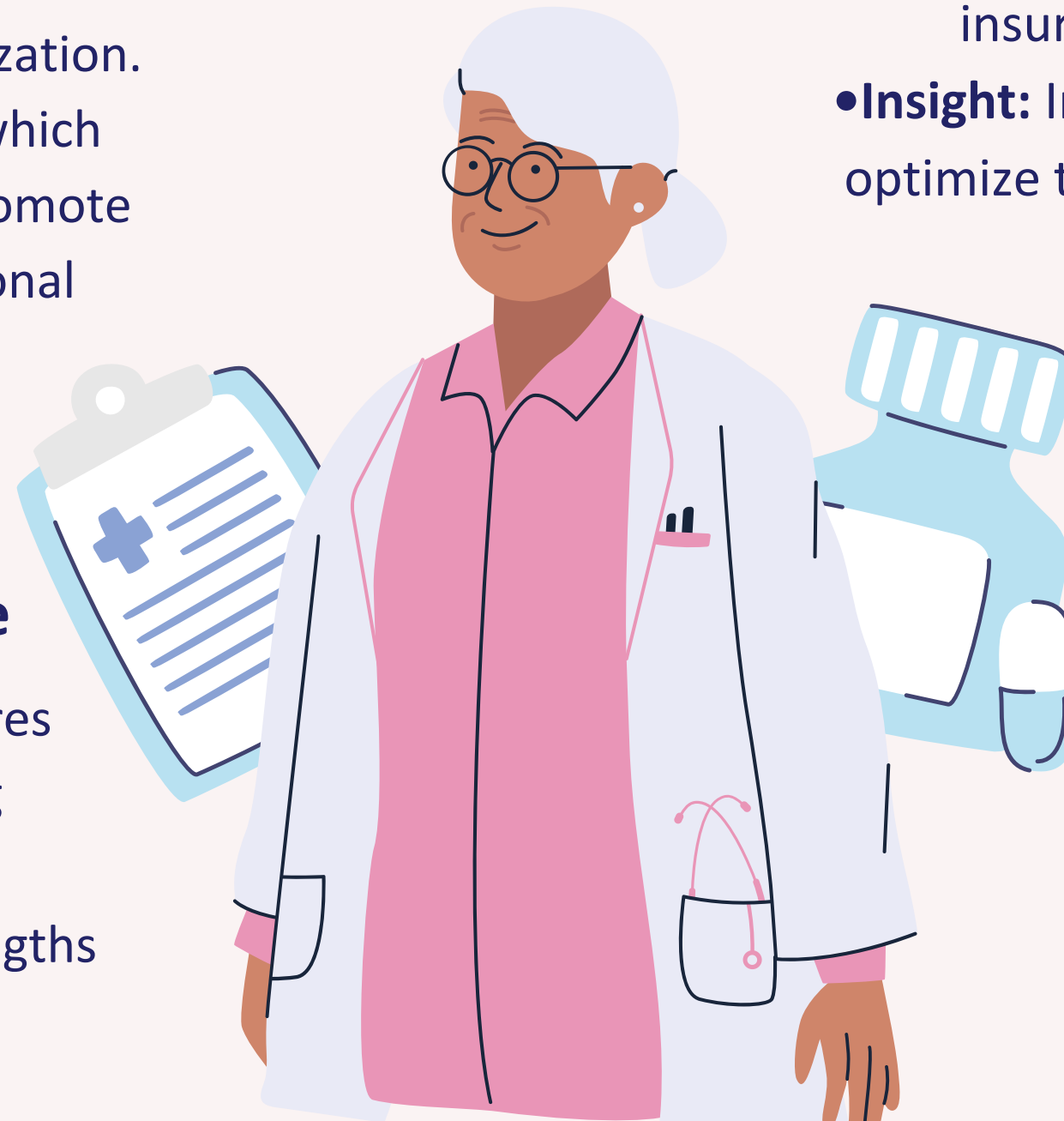
- A breakdown of patient feedback scores shows 60.33% rated 5 stars, ensuring consistent service quality.
- Insight:** This helps identify service strengths and areas requiring improvement.

3. Billing and Health Insurance by Test

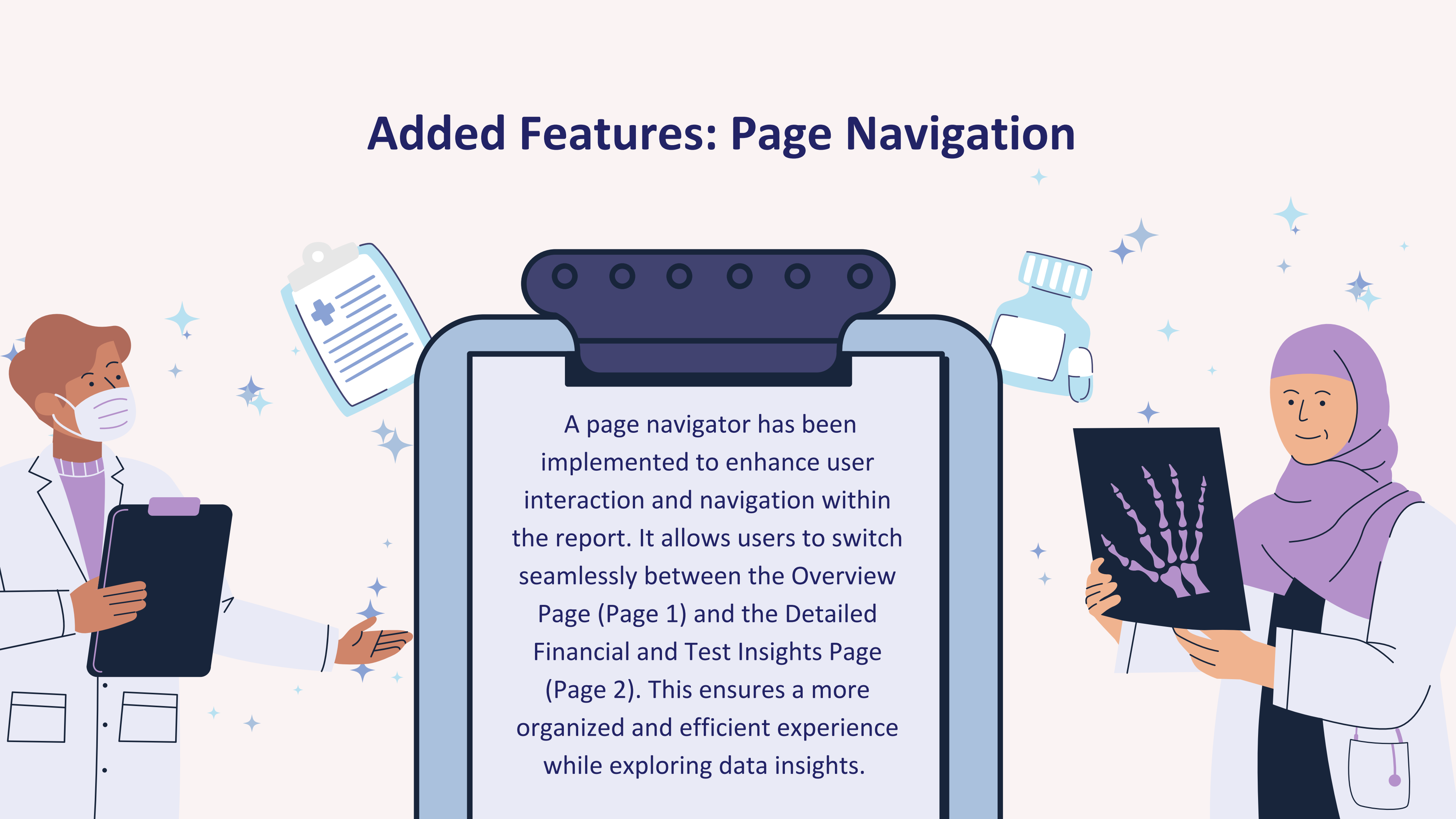
- Bar charts illustrate how much billing and health insurance claims differ for each test type.
- Insight:** Insights into the cost-to-coverage ratio help optimize test pricing and insurance negotiations for better affordability.

4. Health Insurance Contribution

- A gauge chart shows the total contribution of health insurance dynamically.
- Insight:** With insurance covering significant billing, efforts to increase coverage can enhance accessibility and reduce patient financial burdens.



Added Features: Page Navigation

The illustration features a central light blue rectangular box with a dark blue header containing six white circles. Inside this box is a paragraph of text. To the left of the box, a male doctor in a white lab coat and purple shirt holds a black clipboard and gestures with his right hand. Above him is a clipboard with a blue cross icon. To the right, a female doctor in a white lab coat and purple hijab holds a black X-ray of a hand. Above her is a blue pill bottle. The background is light pink with scattered blue and purple starburst icons.

A page navigator has been implemented to enhance user interaction and navigation within the report. It allows users to switch seamlessly between the Overview Page (Page 1) and the Detailed Financial and Test Insights Page (Page 2). This ensures a more organized and efficient experience while exploring data insights.

Key Insights & Recommendations from Healthcare Data

Page 1 (Patient & Diagnosis Overview)

Bed Occupancy Trends:

- Insight: Private rooms have the highest occupancy, while ICU utilization is relatively lower.
- Actionable Insight: Optimize Bed Allocation – Adjust private and ICU bed availability based on demand trends.

Common Diagnoses:

- Insight: Viral infections, flu, and malaria are the most frequently diagnosed illnesses.
- Actionable Insight: Improve Disease Prevention Strategies – Focus on vaccination, hygiene awareness, and seasonal illness prevention programs.

Doctor Feedback Distribution:

- Insight: All doctors have similar feedback ratings, with no major variations.
- Actionable Insight: Refine Doctor Performance Metrics – Introduce more detailed feedback mechanisms to assess individual doctor performance.

Billing vs. Insurance Coverage:

- Insight: The billing amount is high, but there is a downward trend in billing compared to health insurance claims.
- Actionable Insight: Enhance Billing & Insurance Coordination – Investigate claim inefficiencies and optimize insurance reimbursement strategies.



Page 2: Tests & Financial Overview

Test Rate Analysis:

- Insights: Blood tests, MRIs, and CT scans are the most frequently performed tests.
- Actionable Insights:
 - Strategic Pricing for Costly Tests: Reevaluate pricing strategies for expensive tests like CT scans and MRIs to maintain affordability.

Patient Satisfaction:

- Insights: 60.36% of patients rated their experience with 5 stars, indicating high overall satisfaction.
- Actionable Insights:
 - Leverage High Satisfaction Scores: Use positive patient feedback for marketing and investigate lower-rated areas for improvement.

Insurance Utilization:

- Insights: Health insurance claims cover a significant portion of costs, but not all expenses.
- Actionable Insights:
 - Improve Insurance Claim Process: Work with insurance providers to increase coverage and reduce out-of-pocket patient expenses.

Billing Amount vs. Health Insurance for Tests:

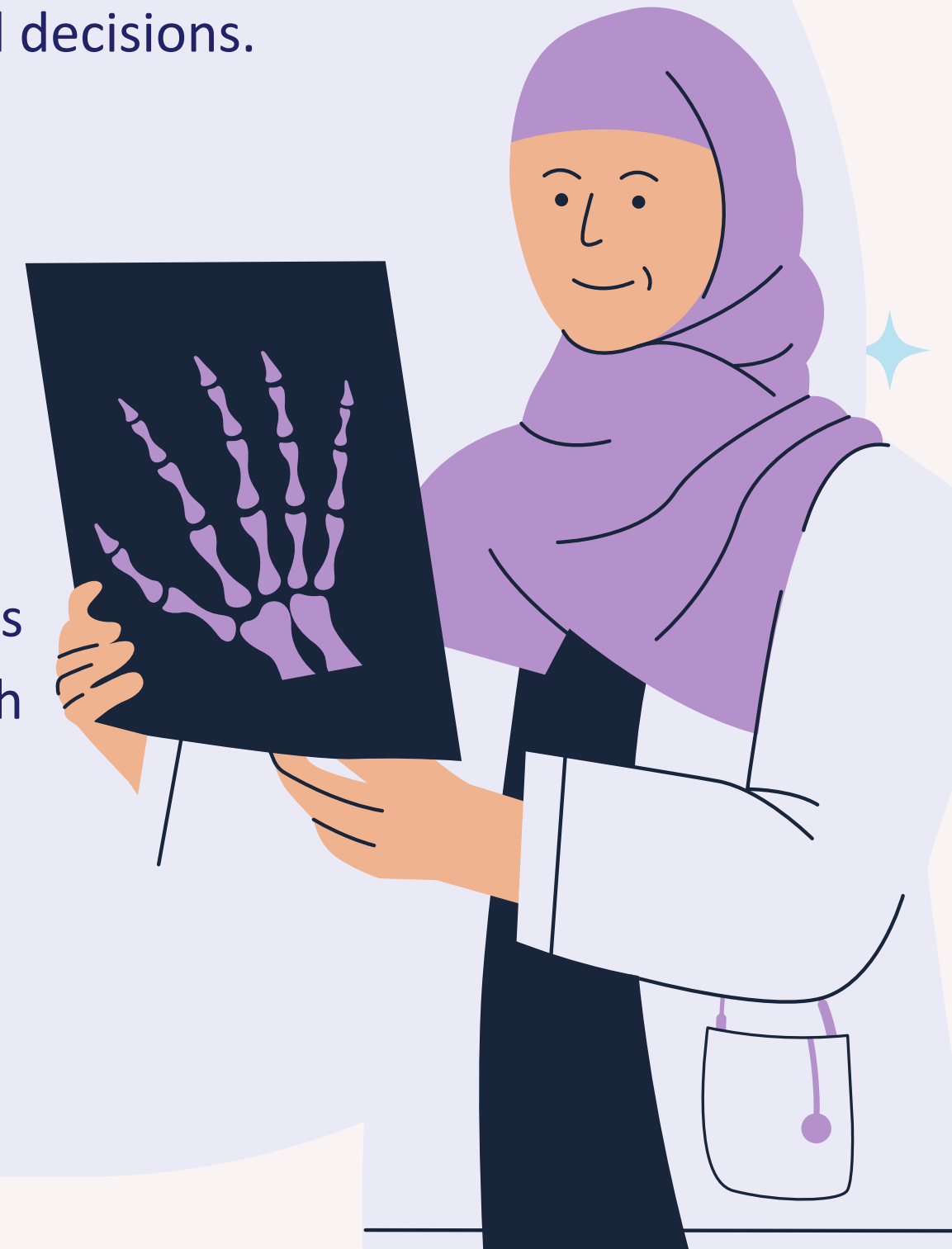
Insight: Billing amounts for tests like CT scans and MRIs are higher than insurance coverage.

Actionable Insights:

- Negotiate Insurance Coverage: Work with providers to increase coverage for expensive tests and reduce patient out-of-pocket costs.
 -

Conclusion

- This report highlights critical insights into patient care, bed occupancy, diagnostic trends, financial metrics, and feedback analysis. The dynamic visualizations provide a clear understanding of healthcare operations, enabling stakeholders to make informed decisions.
- By addressing key areas such as optimizing resource allocation, improving preventive care measures, and leveraging patient feedback, the healthcare system can enhance service quality and operational efficiency. Additionally, a focus on balancing billing and insurance coverage ensures affordability for patients while maintaining financial sustainability.
- The actionable recommendations provided aim to support continuous improvement in healthcare delivery, ensuring a patient-centered approach while achieving institutional goals.



Thank you!!!

