**Introduction**  
*"Hello everyone! Today, I will take you through our library management system project, which utilizes Databricks AI-BI dashboards to deliver actionable insights for effective library administration. We have designed three interactive dashboards: the Fines Report, Student Report, and Book Report. Each of these dashboards provides a structured and insightful view of key library operations, enabling us to optimize resource allocation, track student engagement, and efficiently manage fines. Let’s begin with the Fines Report."*

**Fines Report Dashboard (50–60 seconds)**

\*"The Fines Report dashboard offers a detailed analysis of library fines and overdue returns. It features various visualizations, including bar charts, stacked bar charts, and pie charts, providing department-wise insights such as total fines collected and outstanding payments.

Moving forward, we have the fine collection analysis, which presents monthly trends in payments and categorizes fines based on the status of the borrowed books. Additionally, this dashboard highlights the number of fines issued per month, the average fine amount, and patterns in late returns over time.

With interactive filters, library staff can easily identify trends, such as peak periods for late returns, and implement strategies to minimize delays. This ensures a fair and transparent fine management system while encouraging students to adhere to borrowing policies more effectively."\*

**Student Report Dashboard (50–60 seconds)**

\*"Next, we have the Student Report dashboard, which focuses on student engagement with library resources. This dashboard tracks various transactional activities, including books borrowed and returned, overdue book analysis, and payment statuses for top students with pending or settled fines.

Through visually compelling line charts and bar graphs, we gain insights into borrowing trends, identify the most frequent library users, and monitor students with outstanding fines. This information helps the library staff send timely reminders for overdue books and improve student compliance.

By analyzing these patterns, we can enhance student-library interactions, ensuring a more structured borrowing system while providing necessary support for better user experience."\*

**Book Report Dashboard (50–60 seconds)**

\*"Finally, the Book Report dashboard focuses on library inventory management and circulation trends. This dashboard provides transaction data on books that have been checked out, delay analysis for overdue returns, and the status of books categorized as available, lost, or damaged.

Pie charts and bar graphs visually represent book circulation patterns, helping us identify the most borrowed books and assess inventory health. The dashboard also features interactive filters, allowing users to refine data by status.

With these insights, we can make informed decisions on collection management, address issues related to missing or damaged books, and ensure that the library maintains an organized and efficient inventory system."\*

**To build these dashboards, a series of data processing workflows were implemented in the background. This involved leveraging Azure Data Factory (ADF) pipelines to perform incremental data loads on a quarterly basis, securely extracting data from the source and storing it in the bronze container while ensuring maximum data security and consistency.**

**Subsequently, Databricks notebooks played a crucial role in refining the data pipeline by cleansing and transforming the necessary datasets, making them suitable for insightful visualization. The data seamlessly progressed through the silver and gold layers, undergoing further enrichment, until it was finally structured to power these comprehensive dashboards.**

**Conclusion (15–20 seconds)**

\*"Together, these Databricks dashboards empower the library with real-time, data-driven insights to enhance operational efficiency, improve user experience, and optimize resource utilization. Designed with AI-assisted visualizations and robust governance through Unity Catalog, these dashboards ensure seamless library management.

Thank you for your time