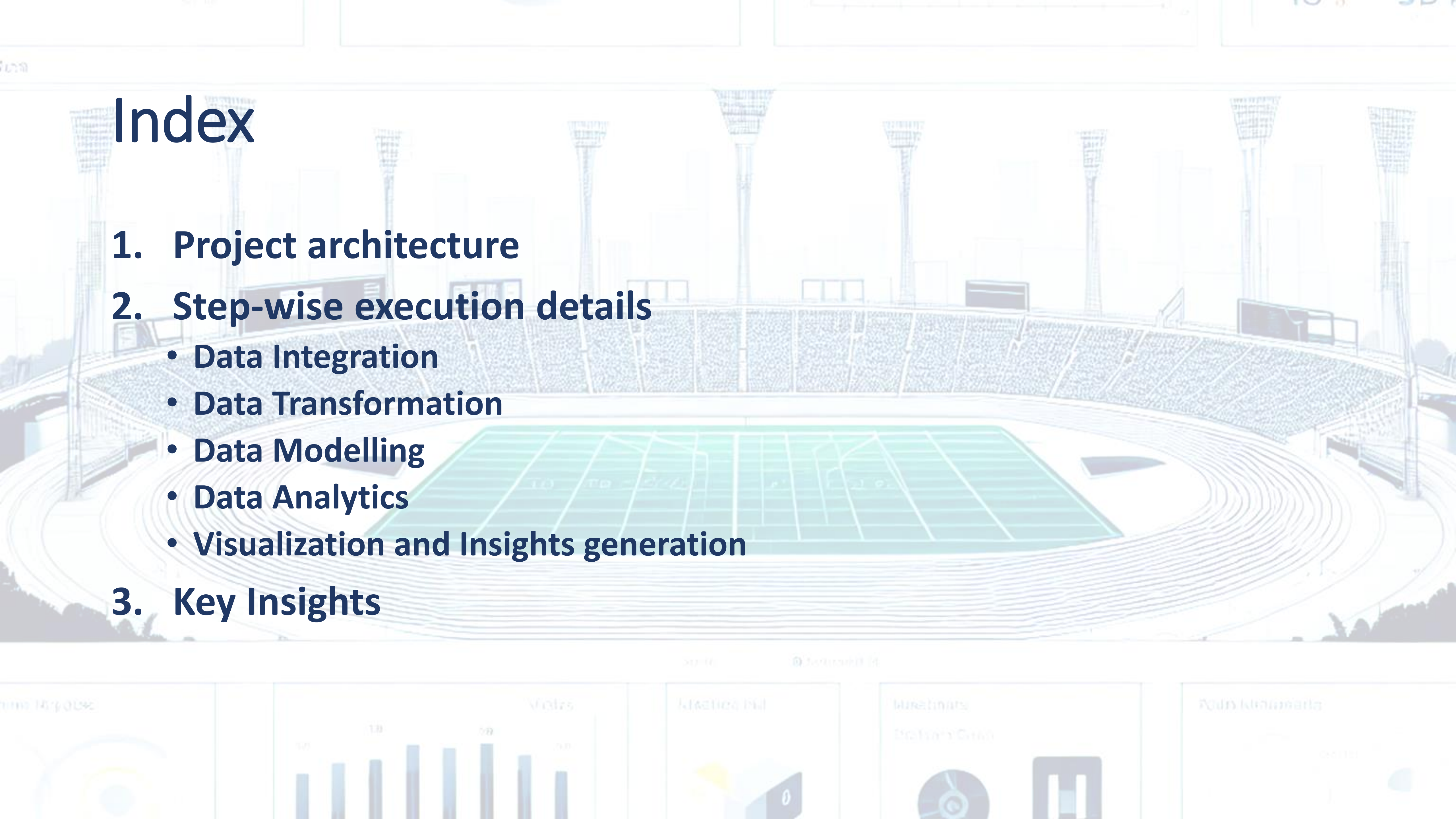
Tokyo Olympics 2020 Data Engineering & Analytics Project

End-to-End Azure Data Engineering Project

- By Abhishek Nilekar

TOKYO 2020

Microsoft Azure

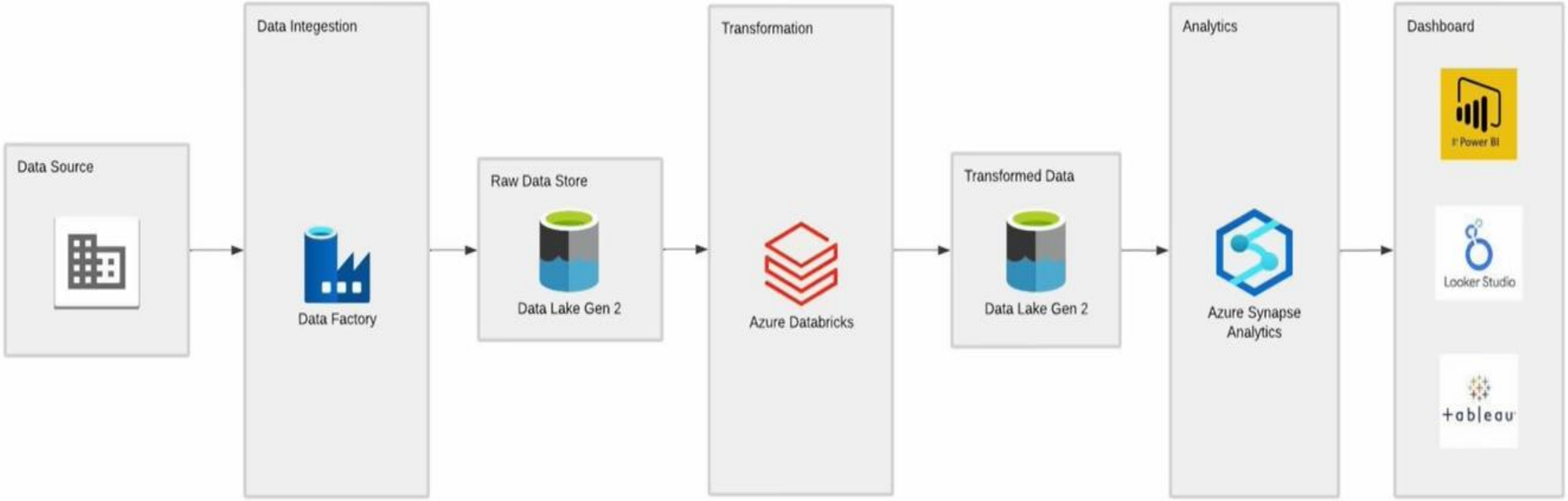


Index

1. Project architecture
2. Step-wise execution details
   - Data Integration
   - Data Transformation
   - Data Modelling
   - Data Analytics
   - Visualization and Insights generation
3. Key Insights

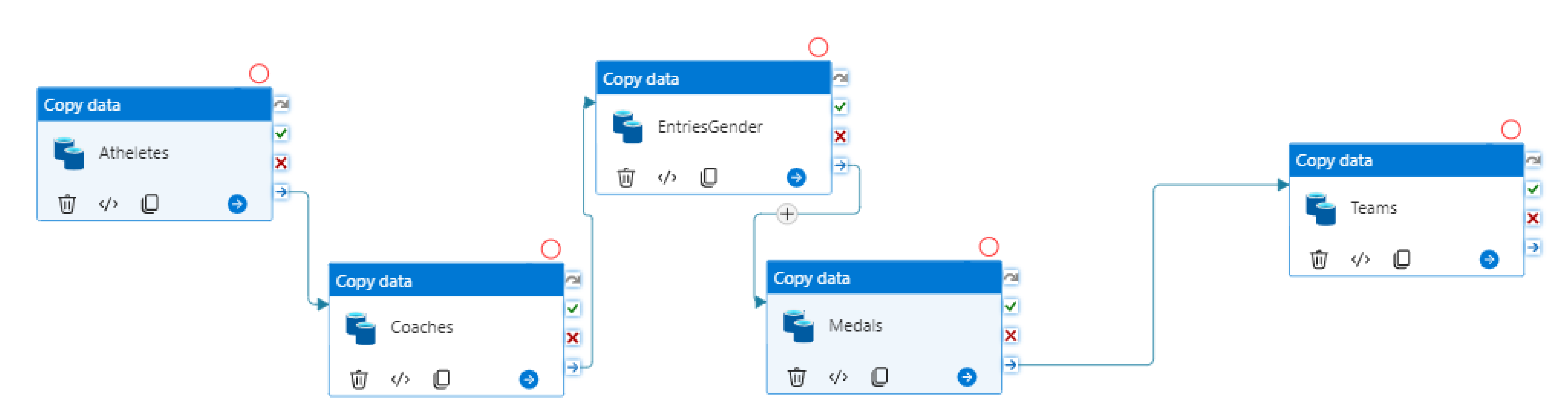
Microsoft Azure

Project Architecture



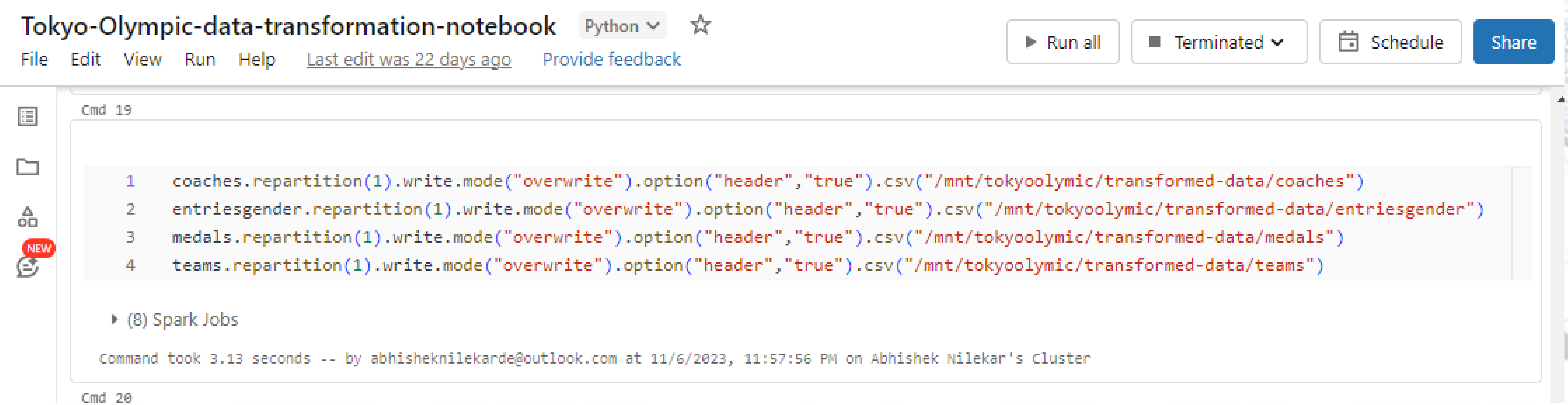
Data Integration using Azure Data Factory

- In the first stage of the project, I integrated data from various sources using Azure Data Factory. This tool allowed me to create data-driven workflows for orchestrating and automating data movement and data transformation.



Data Transformation using Azure Databricks

- The next step was to transform the data to make it suitable for analysis. I used Azure Databricks for this purpose, which is an Apache Spark-based analytics platform optimized for Azure. It allowed me to transform large volumes of data and make it ready for analysis.

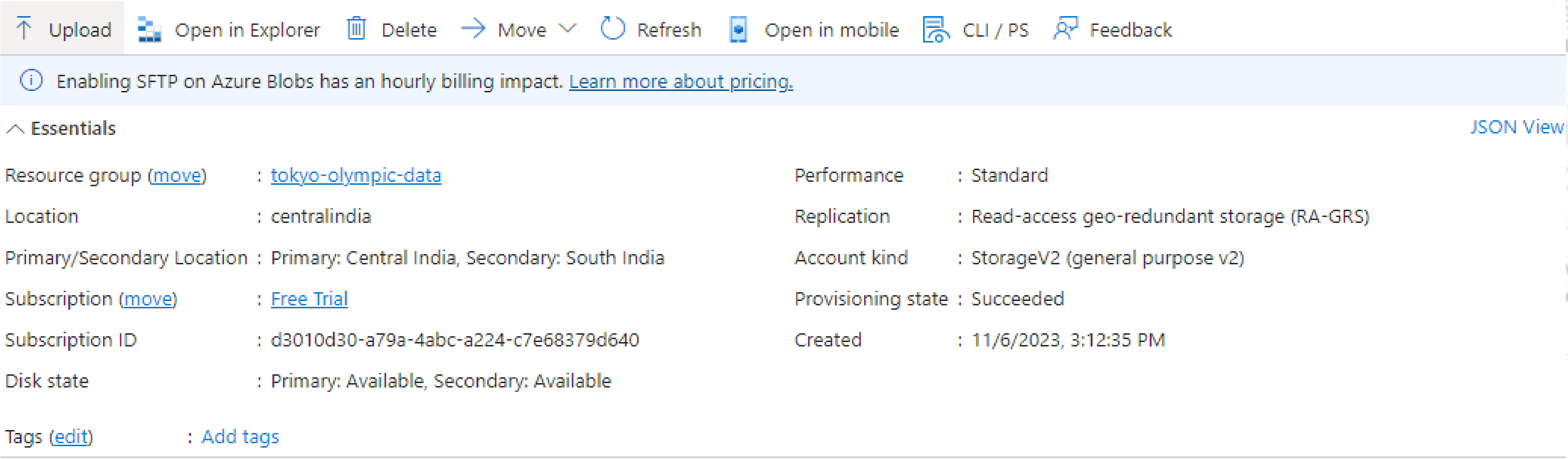


```
coaches.repartition(1).write.mode("overwrite").option("header","true").csv("/mnt/tokyoolymic/transformed-data/coaches")
entriesgender.repartition(1).write.mode("overwrite").option("header","true").csv("/mnt/tokyoolymic/transformed-data/entriesgender")
medals.repartition(1).write.mode("overwrite").option("header","true").csv("/mnt/tokyoolymic/transformed-data/medals")
teams.repartition(1).write.mode("overwrite").option("header","true").csv("/mnt/tokyoolymic/transformed-data/teams")
```

```
Command took 3.13 seconds -- by abhisheknilekarde@outlook.com at 11/6/2023, 11:57:56 PM on Abhishek Nilekar's Cluster
```

Data Storage using Azure Data Lake Gen 2

- After integrating the data, I stored it in a raw data store. For this, I used Azure Data Lake Storage Gen2 which provides secure, scalable, and cost-effective storage.
- I stored the transformed data back into Azure Data Lake Storage Gen2. Storing the transformed data separately ensures that the raw data remains untouched and can be used again if needed.



Enabling SFTP on Azure Blobs has an hourly billing impact. Learn more about pricing.

Essentials

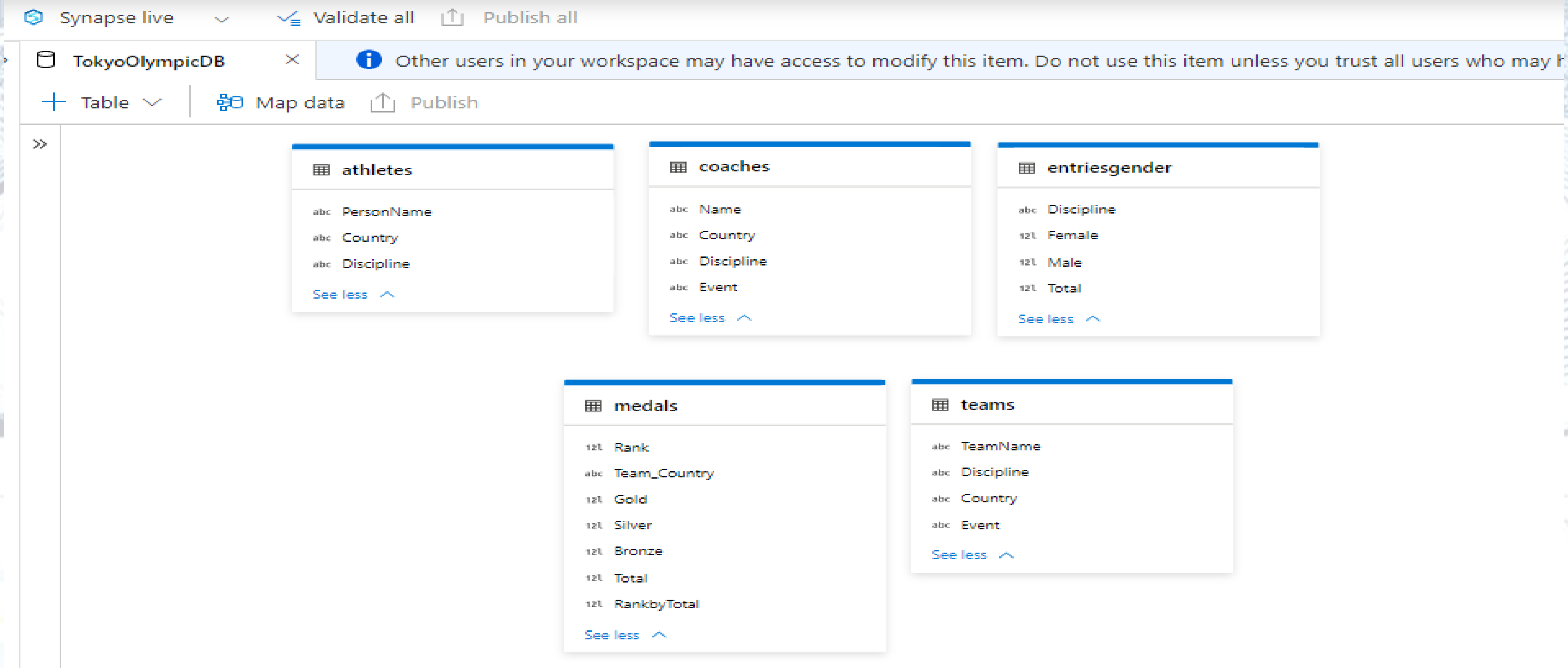
JSON View

Resource group (move)	: tokyo-olympic-data	Performance	: Standard
Location	: centralindia	Replication	: Read-access geo-redundant storage (RA-GRS)
Primary/Secondary Location	: Primary: Central India, Secondary: South India	Account kind	: StorageV2 (general purpose v2)
Subscription (move)	: Free Trial	Provisioning state	: Succeeded
Subscription ID	: d3010d30-a79a-4abc-a224-c7e68379d640	Created	: 11/6/2023, 3:12:35 PM
Disk state	: Primary: Available, Secondary: Available		

Tags (edit) : Add tags

Data Analytics using Azure Synapse Analytics

- Finally, I analyzed the data and created a dashboard to visualize it. I used Azure Synapse Analytics, an integrated analytics service, for analyzing the data. For visualization, I used Power BI which helped me create comprehensive dashboards and reports.



Other users in your workspace may have access to modify this item. Do not use this item unless you trust all users who may h

athletes
- abc PersonName
- abc Country
- abc Discipline

See less

coaches
- abc Name
- abc Country
- abc Discipline
- abc Event

See less

entriesgender
- abc Discipline
- 123 Female
- 123 Male
- 123 Total

See less

medals
- 123 Rank
- abc Team_Country
- 123 Gold
- 123 Silver
- 123 Bronze
- 123 Total
- 123 RankbyTotal

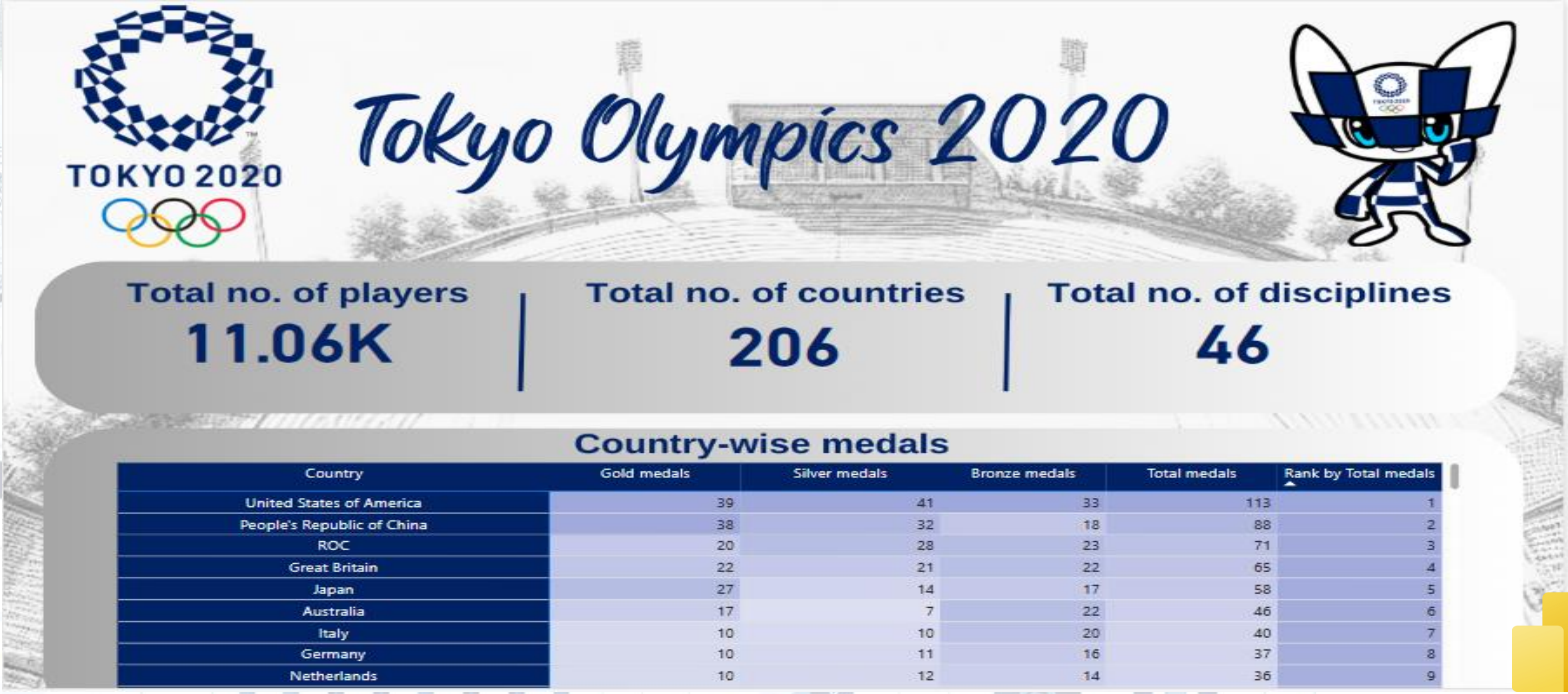
See less

teams
- abc TeamName
- abc Discipline
- abc Country
- abc Event

See less

Data Visualization using Power BI

- For visualization, I used Power BI which helped me create comprehensive dashboards and reports.



Tokyo Olympics 2020

Total no. of players
11.06K

Total no. of countries
206

Total no. of disciplines
46

Country-wise medals

Country	Gold medals	Silver medals	Bronze medals	Total medals	Rank by Total medals
United States of America	39	41	33	113	1
People's Republic of China	38	32	18	88	2
ROC	20	28	23	71	3
Great Britain	22	21	22	65	4
Japan	27	14	17	58	5
Australia	17	7	22	46	6
Italy	10	10	20	40	7
Germany	10	11	16	37	8
Netherlands	10	12	14	36	9

Key Insights generated from Power BI report

- More than 10 thousand players participated in Tokyo Olympics 2020, the exact number of participants were 11,060 plyers participated from various countries.
- More than 200 countries participated in Tokyo Olympics 2020.
- The total number of disciplines in Tokyo Olympics were 46, some of the important disciplines were:
    - Athletics
    - Swimming
    - Badminton
    - Table Tennis.
- USA topped the medal tally with 113 total medals followed by China with 88 medals followed by Great Britain with 71 total medals.
- India won total 7 medals and ranked 33 among all the countries

Thank You