Azure – AI & Big Data Tools

Azure AI Services
Azure offers a wide range of AI services that can be used in many scenarios:

- **Language/NLP**:
    - *Azure AI Language*: text analysis, sentiment, question answering
    - *Azure AI Translator*: real-time translation
    - *Azure AI Speech*: speech-to-text, text-to-speech, speaker recognition
- **Vision**:
    - *Azure AI Vision*: basic image analysis
    - *Custom Vision*: build your own image classifiers
    - *Face API*: face detection & recognition (restrictions, because of the potential risks)
    - *Document Intelligence*: extract data from invoices, forms, receipts
    - *Content Understanding*: analyze images, video, audio, documents
- **Search & Safety**:
    - *Azure AI Search*: make content searchable
    - *Azure AI Content Safety*: filter offensive/risky content
- **Generative AI**:
    - *Azure OpenAI*: access to GPT (e.g. GPT-4) and DALL·E for text/image generation

Example Architecture – Rockstar Games (Bug Detection & Player Satisfaction)

Scenario:
The goal is to detect bugs/anomalies and improve player satisfaction using game data (logs, telemetry, feedback).

Tools & Flow:

1. **Ingestion**
    - *Azure Event Hubs*: stream real-time game events, logs
    - *Azure IoT Hub* (optional): if there's hardware or sensor data from consoles
2. **Storage**
    - *Azure Data Lake Storage Gen2*: scalable storage for raw and processed data
3. **Processing & Compute**
    - *Azure Databricks*: Spark-based processing, ML pipelines
    - *Azure Synapse Analytics*: SQL-based analysis of big datasets
4. **Machine Learning / AI**
    - *Azure Machine Learning*: train & deploy models (e.g. churn prediction, anomaly detection)
    - *Azure OpenAI*: analyze player feedback using GPT models
5. **Serving & Monitoring**
    - *Azure Cosmos DB*: fast NoSQL database for session/user data
    - *Power BI*: dashboards for crashes, player feedback, system metrics
    - *Azure Monitor + Log Analytics*: error detection, alert

Resources:

https://azure.microsoft.com/en-us/resources/cloud-computing-dictionary/what-is-azure

https://medium.com/@ecfdataus/ai-translation-azure-ai-translate-everything-you-need-to-know-fd4e63b3f7b9

https://learn.microsoft.com/en-us/training/modules/prepare-azure-ai-development/3-azure-ai-services