Project Design Phase-I
Solution Architecture

Date	18-05-2023
Team ID	NM2023TMID13133
Project Name	AuditAI: A Machine Learning for Detecting Fraud in Audit Data
Maximum Marks	4 Marks

Solution Architecture:

Auditing can be transformed with machine learning leading to increased productivity and accuracy. Historically, auditing relied on sampling to identify risks. This approach does not take into account most available information and relies on manual processing. Thanks to machine learning, auditing companies can automatically process large volumes of data to identify anomalies and high risk transactions which can be further analyzed by humans.

TYPES OF AUDIT:

External Audit

External audit, also known as financial audit, is the investigation of the correctness of the financial statements of an entity by an external auditor such as an accountant, the IRS, or a tax agency. These third-party auditors follow generally accepted auditing standards (GAAS). [1] External audit aims to ensure the accuracy of accounting records. The areas where external auditors must concentrate are segregation of duties, authorizations and approvals, reviews and reconciliations.

Internal Audit

Internal audit is also referred to as operational audit. Internal auditors evaluate risks and internal controls of operational systems for departments, units, and business functions. The goal of an internal audit is broader than an external audit. It can contain any elements which can affect the achievement of organizational objectives and determines ways to improve those operations.

Compliance Audit

A compliance audit is an independent evaluation to determine if an organization is in compliance with internal or regulatory standards such as corporate bylaws, controls, and policies and procedures.

AI that impact the audit procedures:

Auditors can use machine learning to

- **automate manual tasks** of auditors such as documentation
- **analyze the complete volume of structured and unstructured data** that come from financial records by parsing data

- **identify anomalies** such as unusual payments or activities that would not be caught by manual auditing,
- **make predictions about future risks and events** by reviewing and analyzing historical transaction data

Auditors face the challenge of evaluating thousands of documents and contracts, reviewing the implementation of regulatory changes, and undertaking investigations on ambiguous transactions. Due to the large volume of data and expensive nature of manual work, auditors rely on sampling to achieve this goal. Machine learning can be harnessed to go beyond sampling, reviewing all available information automatically to bring high risk documents to human attention.

While auditors spend considerable time flipping pages and opening individual digital files to review them, auditors mostly have a checklist or follow the same procedures. Some of these checks can be automated allowing auditors to focus on tasks that are more suited to human cognition.

With these AI and machine learning capabilities, auditors do more advisory type of work such as understanding the entirety of ledgers and reporting on risk to executives and clients while enhancing their audit service.

Though AI may not be the right choice for some of the complex analysis of financial data, it can be suitable for counting items, spotting patterns, and flagging anomalies to a level that meets and exceeds the requirements of an organization.

The benefits:

- **The workload of auditors is reduced** since there is no need to go-back-forth for asking questions to the client.
- **Cost reduction:** Use of AI reduces the cost involved in manual hours of research and analysis.
- **Audit Quality:** AI systems continuously learn and adapt to datasets so that they can improve anomaly detection accuracy as more data is processed. Therefore, use of AI/machine learning increases the audit quality.

What would an AI Audit cover?

| Identify Goal of the Algorithm. | → | Get Data | → | Pre-Processing Data | → | Modelling | → | Testing |