Process Mining Virtual Internship

by

K.Likhitha

Roll No. 224G1A3342

Department of Computer Science and Engineering (AL&ML)

Srinivasa Ramanujan Institute of Technology

(Affiliated to JNTUA & Approved by AICTE) (Accredited by NAAC with 'A' Grade & Accredited by NBA (EEE, ECE & CSE)
Rotarypuram Village, B K Samudram Mandal, Ananthapuramu – 515701.

2024 - 2025

Contents

- Course Objective
- Introduction
- Technology
- Applications
- Modules
- Real Time applications
- Learning outcomes
- GitHub Link
- Queries

Course Objectives

- The course objective in process mining is to provide a comprehensive understanding of the principles, techniques, and tools used in analyzing and improving business processes.
- The course aims to equip the knowledge and skills necessary to effectively analyze and optimize business processes using process mining methodologies.

Introduction

➢Process Mining:

Process mining is a specialized area within data science and business process management that focuses on discovering, monitoring, and improving real-world business processes by analyzing event logs and data generated during these processes.

➢Process mining is a data-driven approach used to gain a deeper understanding of business processes.

Technology

1. **Event Logging Systems:** These are like digital record-keepers. They track every step people or systems take when working on tasks, like timestamps for when actions occur.

2. **Special Software:** Imagine detective software. It takes the event logs and examines them, revealing how tasks are really done. Examples include tools like "Celonis" and "Disco."

3. **Data Visualization Tools:** These are like storytellers. They take the detective's findings and turn them into easy-to-understand pictures and charts, like graphs and flowcharts.

4. **Connectors and APIs:** These are like bridges. They help to bring data from different systems together so the detective software can analyze it all.

Stages in Process Mining

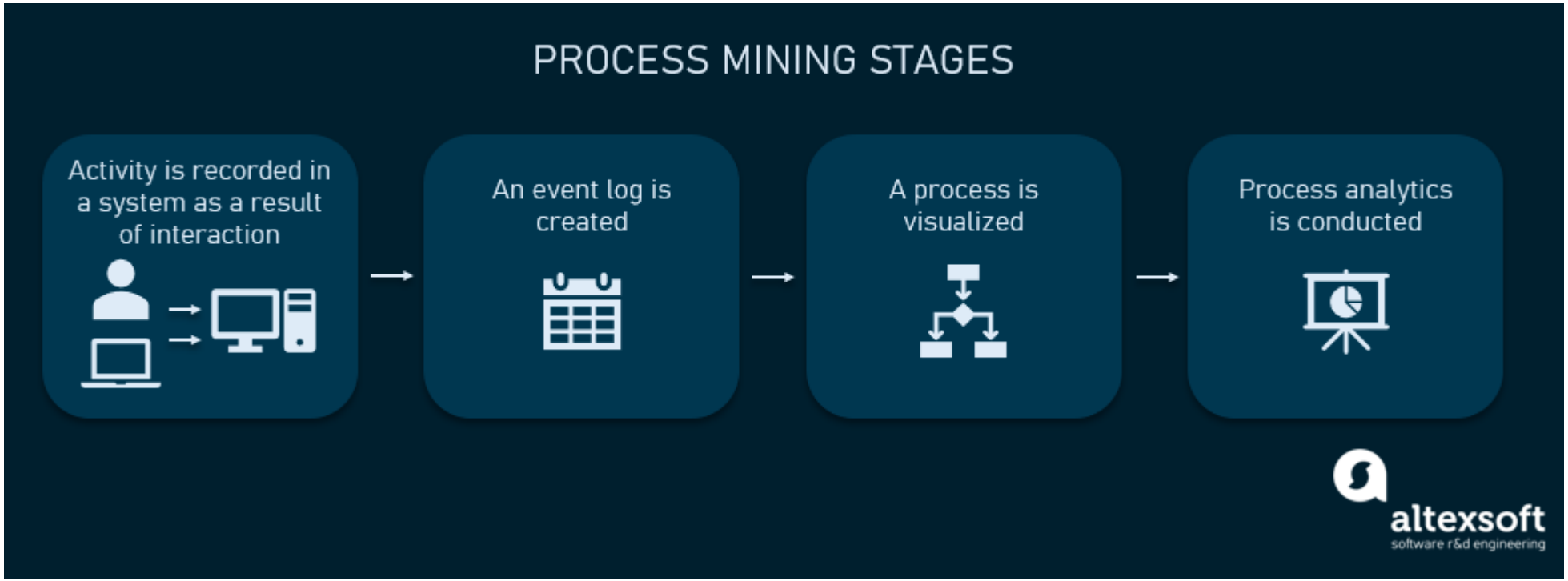

Fig.1: Process Mining Stages

Applications

- Process mining has a wide range of applications across various industries and sectors. Here are some common applications of process mining:

1. **Performance Monitoring:** Organizations use process mining to continuously monitor process performance metrics.
2. **Root Cause Analysis:** When problems or errors occur in processes, process mining can help pinpoint the root causes.
3. **Business Process Optimization:** Process mining helps organizations identify bottlenecks, inefficiencies, and deviations in their business processes.
4. **Fraud Detection:** Process mining can detect fraudulent activities by analyzing patterns and anomalies in data. It helps identify unusual behavior and potentially fraudulent transactions.

Applications

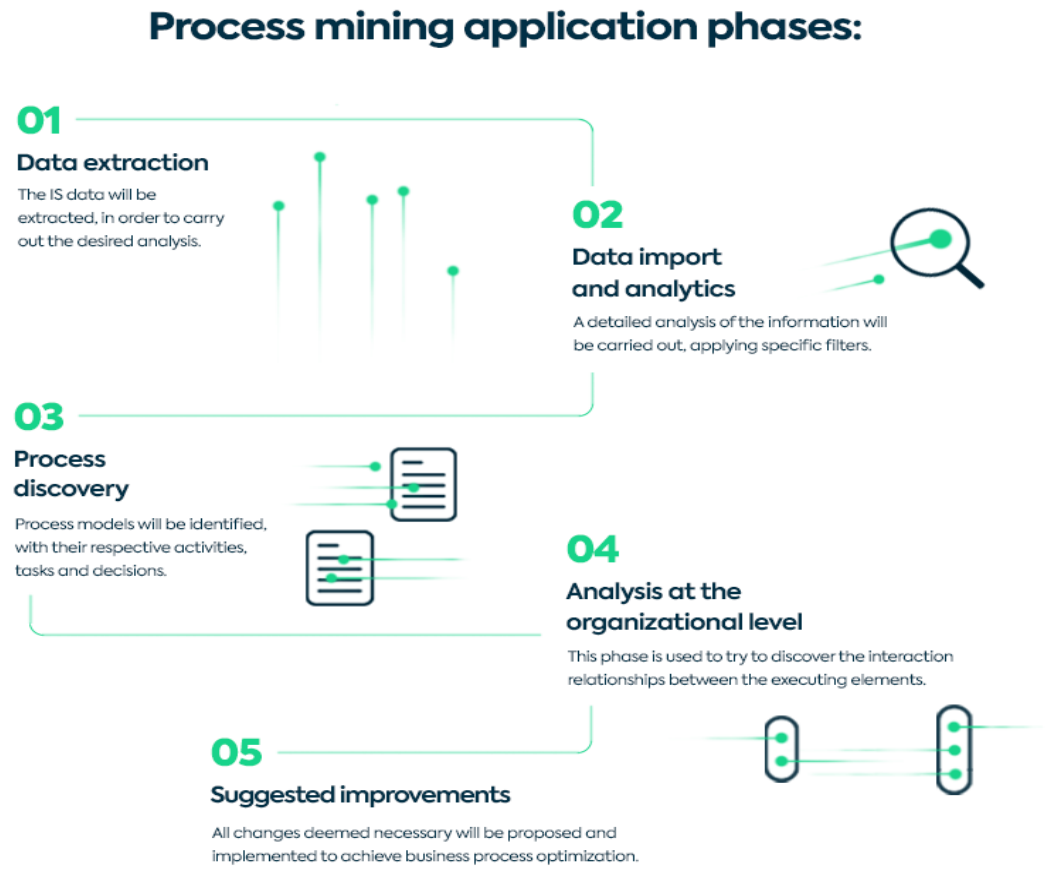

Fig.2: Process Mining Use Cases & Applications

Modules

1.Data Extraction and Integration Module:

- This module is responsible for collecting and integrating event log data from various sources, such as databases, spreadsheets, and system logs.

2.Process Discovery Module:

- The process discovery module is at the core of process mining. It uses event data to automatically generate process models that represent how activities are performed within a process.
- Common techniques include creating flowcharts, or process trees.

Contd……..

3.Data Preprocessing Module:

- Data preprocessing modules clean, filter, and transform raw event data to make it suitable for analysis.
- This can involve handling missing values, correcting errors, and aligning data from different sources.

4. Conformance Checking Module:

- This module compares the discovered process models to the actual process execution to identify deviations.
- It helps organizations understand where processes may not be following the expected or documented path.

Real time Application

➢Healthcare Patient Monitoring:

- Real-time process mining can be used to monitor patient care processes in hospitals and healthcare facilities.
- It ensures that patients receive timely care, and any delays or deviations from protocols are promptly addressed.

➢Traffic Management:

- In smart city applications, real-time process mining can monitor traffic flow, optimize traffic signals, and provide real-time traffic updates to commuters.

Contd…..

➢Customer Journey Analysis:

- Real-time process mining is used to track and analyze customer interactions across various touchpoints, such as websites, mobile apps, and call centers.
- It helps organizations provide personalized and timely customer experiences.

Learning Outcomes

In process mining, the main learning outcomes include:-

- Identifying bottlenecks, inefficiencies, and deviations in the process.
- Analyzing process performance metrics such as cycle time, throughput, and resource utilization.
- Discovering process variations and identifying root causes of process issues.- Predicting future process behavior and making data-driven process improvement decisions.

Git Hub Dashbord

Git Hub Link: https://github.com/Likhitha_42

Any Queries?

Thank You!!!