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## 1-Day Workshop Plan on KNIME with a Practical Case Study.

9:30 AM – 10:00 AM | Session 1: Introduction to KNIME

### Topics:

- What is KNIME?
- KNIME vs Python vs RapidMiner vs Orange
- Installing KNIME + Extensions
- KNIME Interface
  - Node Repository
  - Workflow Editor
  - Console, Data Views
- Types of Nodes (I/O, ETL, ML, Visualization)

### Hands-on:

- Build first workflow: **CSV Reader** → **Column Filter** → **Table View**
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10:00 AM – 11:00 AM | Session 2: Data Cleaning & Preparation

### Topics:

- Data importing (CSV, Excel, API via REST nodes)
- Data preprocessing
  - Missing value handling
  - Normalization & scaling
  - String manipulation
  - Date & time extraction
- Joining, grouping, filtering, sorting

### Hands-on:

- Workflow using:  
**Missing Value** → **String Manipulation** → **Joiner** → **GroupBy** → **Normalizer**

11:00 AM – 12:00 PM | Session 3: Data Visualization in KNIME

### Topics:

- Built-in chart nodes
- Scatter plot, bar chart, box plot
- Using KNIME Visualization extensions
- Interactive dashboard via **KNIME WebPortal**

### Hands-on:

- Bar Chart → Line Plot → Table View (Interactive Dashboard)

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12:00 PM – 1:00 PM | Lunch Break

1:00 PM – 2:30 PM | Session 4: Machine Learning in KNIME

**Topics:**

- Train–Test Split
- Classification Algorithms
  - Decision Tree
  - Random Forest
  - Logistic Regression
- Model Evaluation
  - Confusion Matrix
  - ROC Curve
  - Accuracy, Precision, Recall

**Hands-on:**

- Workflow:  
**Partitioning → Random Forest Learner → Random Forest Predictor → Scorer**

2:30 PM – 4:00 PM | Session 5: Case Study (Complete Project)

Below are **three options**—you can pick **one** based on your audience.  
(Default: Retail Customer Churn Prediction)

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**Case Study (Option 1 – Recommended)**

**Retail Customer Churn Prediction using KNIME**

**Dataset: Customer churn CSV (Telco or Retail)**

**Objective: Predict which customers will leave the company.**

**Workflow Steps:**

1. **CSV Reader** – load churn dataset
2. **Missing Value** – handle NA
3. **One Hot Encoding** – categorical features
4. **Partitioning** – 70/30 split
5. **Random Forest Learner**
6. **Random Forest Predictor**
7. **Scorer** – accuracy, confusion matrix
8. **ROC Curve** – performance
9. **Export Model** – Model Writer Node

**Deliverables to Participants:**

- Full workflow
- Model report
- Dashboard with KPIs

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**Case Study (Option 2)****Credit Card Fraud Detection (Finance / FinTech)****Workflow:**

- Read credit card dataset
- Normalize features
- Use **Logistic Regression / Decision Tree**
- Evaluate precision, recall (Fraud detection focus)

**Case Study (Option 3)****Sales Forecasting with Time Series (Retail / Energy)****Workflow:**

- Read sales/time-series data
- Resample & lag features
- Use **Autoregressive Model (ARIMA Node)**
- Forecast next 30 days
- Line plot for trend visualization

**4:00 PM – 4:30 PM | Final Session: Q&A + Certification****Includes:**

- Exporting workflows
- How to publish workflows to KNIME Hub
- Career opportunities with KNIME
- Sharing learning resources

**Included Materials**

- Workshop PDF
- KNIME sample workflows
- Dataset files (CSV)
- Certification template

**Instructor:** Mr Suresh Tripathi is a founder of Geosun Pty Ltd an Australian company registered in year 2000 to provide AI corporate training, data center solutions and data pipeline end-to-end cloud platform. He has nearly 25+ years of work experience in digital data analytics integrated with AI and tech platforms. His education qualifications include master degree in Statistics from India, master degree in Geostatistics from Australia and master degree in Geoscience from Australia. He completed his AI certificate courses from Stanford Business School from California and High Impact Leadership from Cambridge University, UK. He has worked in Australia and US focusing his career on data strategy, tech platforms, and developing in-house training. He has worked with range of industries in Australia and US that include Deloitte, Flybuys, Ambulance Victoria, CFA (Emergencies Services), Avexa, Covance, Avance Clinical (Pharmaceuticals), Intelligen, Commonwealth Bank, Hackett Group (US), Health and Safety Sphera Solutions(US), Vic Government (Environment, water and energy), Waste Management (US), Outfront Media (US), Adani Mining (Australia) and Fura Gems Industries (Dubai).

**Fee:** Rs 50,000 per participant plus GST payable to GeosunAI Tech Cloud Pvt Ltd. RTGS/Cheque/ PhonePe via below link form.

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