

Accounts Payable Automation

Introduction:

This application is a modern, cloud-based Accounts Payable (AP) automation solution designed to help organizations transform their manual, error-prone invoice processing into a streamlined, efficient, and intelligent digital workflow. It supports the full lifecycle of invoice processing from capture to approval, ERP integration, and optional payment with powerful automation and real-time visibility.

Client details:

Name: Confidential | **Industry:** Finserv | **Location:** USA

Technologies:

Java 8, Spring MVC, jQuery, JSP, HTML, CSS, MariaDB, ABBYY FlexiCapture

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Problem Statement:

Before implementing the solution, many organizations faced several persistent Accounts Payable related challenges:

1. **Manual Invoice Processing**

AP departments relied heavily on paper or email-based invoices. This led to delayed approvals, high error rates, and labor-intensive reconciliations.

2. **Lack of Visibility**

AP teams lacked real-time visibility into invoice status, making it difficult to track pending approvals or catch bottlenecks.

3. **Disconnected Systems**

Existing solutions often lacked integration with ERP systems, requiring double data entry and increasing the risk of discrepancies.

4. **Compliance and Audit Risks**

Inconsistent approval workflows and scattered documentation posed risks during audits and regulatory reviews.

5. **Cost Inefficiencies**

The average cost to manually process a single invoice ranged from \$12 to \$20, depending on complexity and workforce costs.

Solution Provided:

The application addressed these pain points with a focused, streamlined, and configurable solution:

- **Intelligent OCR and Data Capture**

Uses advanced AI to extract and validate invoice data with high accuracy, significantly reducing the need for manual entry.

- **Automated Workflow Engine**

Configurable workflows allow businesses to create multi-level approval chains based on invoice type, amount, or vendor.

- **Real-time Dashboard and Analytics**

Provides visibility into AP metrics such as cycle time, outstanding approvals, and payment readiness.

- **ERP Integration**

Seamlessly connects with major ERP systems like NetSuite, Microsoft Dynamics, SAP, and Sage to ensure real-time synchronization.

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- **Cloud-Native Architecture**

Allows rapid deployment with minimal IT dependency, ensuring quick ROI and scalability.

- **Audit Trail & Compliance Support**

Captures every action taken on an invoice, supporting compliance with SOX, GAAP, and internal policies.

Business Impact:

Key outcomes from the deployment:

- Reduced invoice processing time from 12 days to 2 days
- Lowered AP operating costs by 78%
- Achieved full audit trail compliance for the first time
- Enabled remote invoice approval via mobile access
- AP staff reallocated to vendor management and spend analysis roles

Project Description:

The automated accounts payable (AP) solution is designed to streamline and digitize the invoice management process for businesses. It integrates with ERP systems to automate invoice capture, routing, approval, and payment processes, eliminating the need for manual data entry and physical paperwork. By leveraging artificial intelligence and machine learning, the solution helps organizations reduce processing time, increase accuracy, and improve visibility into their AP operations.

The core functionality of the application begins with **invoice ingestion**, where invoices are received in various formats—email, PDF, scanned documents, or EDI. The system uses Optical Character Recognition (OCR) technology to extract key invoice data such as vendor details, invoice number, date, line items, and amounts. This extracted data is automatically validated against purchase orders (POs) and vendor master records to ensure accuracy and compliance.

Once validated, the invoices enter the **workflow and approval** phase. The solution provides customizable workflow automation that routes invoices to the appropriate approvers based on predefined rules such as department, invoice amount, or GL coding. Approvers are notified via email or within the application, and they can review, comment, or approve invoices from any device, enhancing collaboration and decision-making speed.

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After approval, invoices are queued for **payment processing**. The platform integrates with major ERP systems and financial platforms, enabling seamless payment execution while maintaining audit trails and compliance. It supports multiple payment methods, including ACH, checks, and virtual cards. The system also offers dashboards and reporting tools to monitor AP performance, track KPIs, and ensure financial controls are met.

Overall, the application delivers a highly efficient, secure, and scalable AP automation solution. It reduces operational costs, minimizes errors, and gives finance teams real-time visibility into cash flow and liabilities. Its cloud-based architecture also ensures quick deployment, easy scalability, and continuous updates to meet evolving business needs.

Modules:

Supplier (Invoice Sender)

Suppliers are the source of invoices in the AP process. They may send invoices via email, EDI, or upload them through a supplier portal. These invoices can be in PDF, scanned image, or structured digital formats. The supplier initiates the transaction, and their data is critical for accurate matching and payment processing. Proper supplier onboarding and validation are also key to avoiding fraud and duplicates.

Buyer App (Invoice Intake Interface)

The Buyer App acts as the entry point for receiving and consolidating incoming invoices. It can be configured to pull invoices from dedicated email inboxes, FTP servers, or direct uploads. The Buyer App normalizes incoming invoice formats and sends them to the OCR engine for further processing. It's also responsible for organizing metadata like sender info, received time, and document format.

ABBYY OCR & Data Capture

This module uses **ABBYY**, a powerful Optical Character Recognition (OCR) and data extraction engine, to read and digitize invoice content. It extracts key information such as:

- Vendor name and address
- Invoice number and date
- Line-item details (product, quantity, unit price)
- Tax, freight, and total amounts

ABBYY also uses machine learning and validation rules to improve accuracy over time, reducing manual corrections.

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Validation & Matching (PO/Non-PO)

Once the invoice data is captured, it undergoes **automated validation**:

- **PO Invoices:** Matched against existing purchase orders and goods receipts.
 - **Non-PO Invoices:** Validated based on business rules, cost centers, and historical behavior.
- This step ensures that only accurate, legitimate invoices proceed to the approval process. It significantly reduces duplicate, fraudulent, or overcharged invoice entries.

Approval Workflow (Role-based Routing)

Invoices that pass validation enter a **dynamic approval workflow**, tailored to your company's org chart and policies. Rules may route invoices based on:

- Amount thresholds (e.g., invoices over \$10,000 need Director approval)
- Department or cost center
- Project or account codes

Approvers are notified via email or mobile and can approve, reject, or comment directly from the platform. Audit logs ensure all actions are traceable.

Accounts Payable Core

This is the **central hub** of the AP automation process:

- Manages all business logic
- Applies exception handling
- Integrates validation, approvals, and reporting
- Manages connections with ERP systems and supplier portals

It ensures a seamless and compliant invoice lifecycle, while giving finance teams visibility and control.

Oracle ERP (Integration for Payment & GL)

The solution integrates directly with **Oracle ERP** to:

- Sync vendor master and purchase orders
- Push approved invoices for payment
- Record transactions in the general ledger

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This bi-directional sync ensures that both systems remain in sync and audit-ready. Integration can be real-time (via APIs) or batch-based, depending on ERP setup.

Payment Execution (ACH, Check, vCard)

After invoices are approved and pushed to Oracle, payments can be executed using:

- **ACH (Automated Clearing House):** Direct bank transfers
- **Checks:** Printed or outsourced
- **Virtual Cards (vCard):** Single-use digital cards for secure payments

The platform can interface with payment gateways or banks, and supports payment scheduling, approval, and reconciliation tracking.

Audit & Reporting Dashboard

Provides real-time insights into:

- Invoice cycle time
- Approval bottlenecks
- Outstanding liabilities
- Spend analytics

Dashboards are customizable and exportable. They support compliance with financial regulations and internal audit requirements by providing full traceability of every invoice action.

Supplier/Vendor Portal

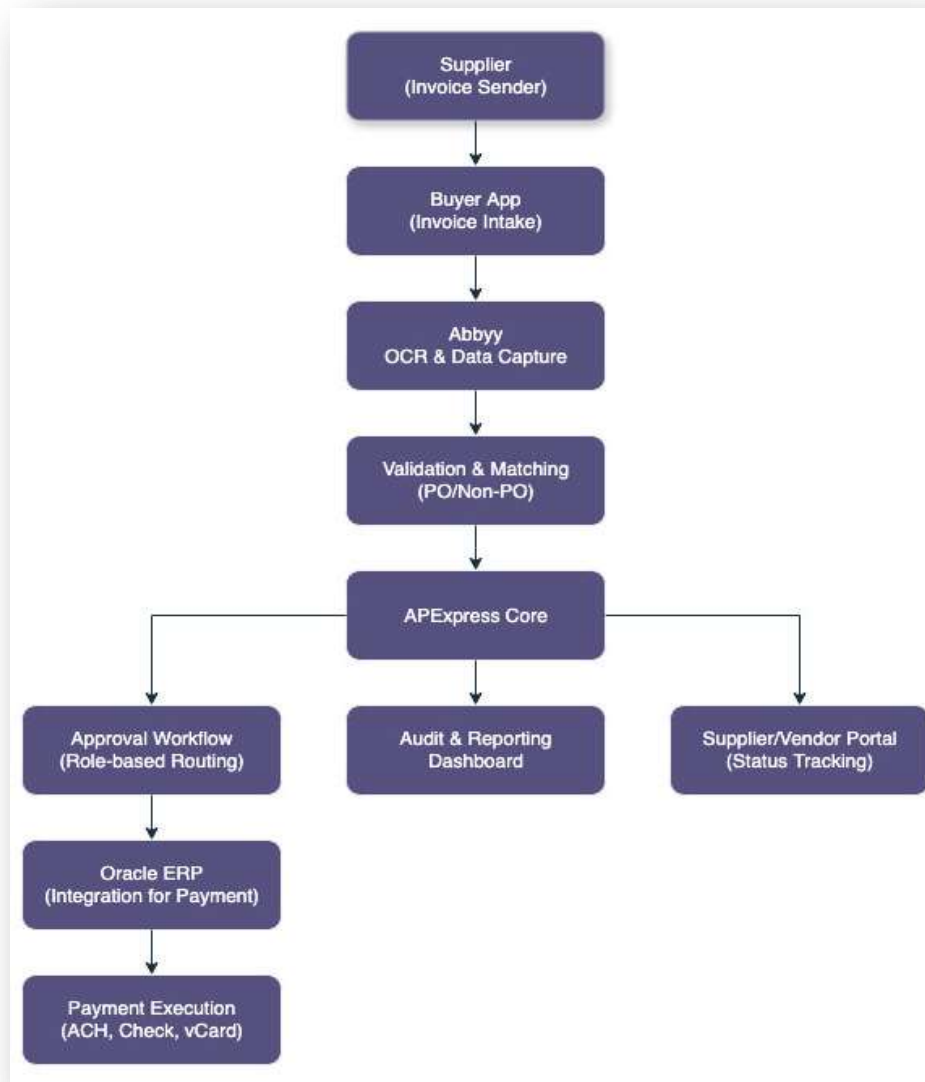
The portal gives suppliers real-time visibility into:

- Invoice status (received, approved, paid)
- Payment dates and remittance details
- Dispute resolution tools (comments, inquiries)

This improves supplier relationships, reduces inquiry emails to AP teams, and builds trust through transparency.

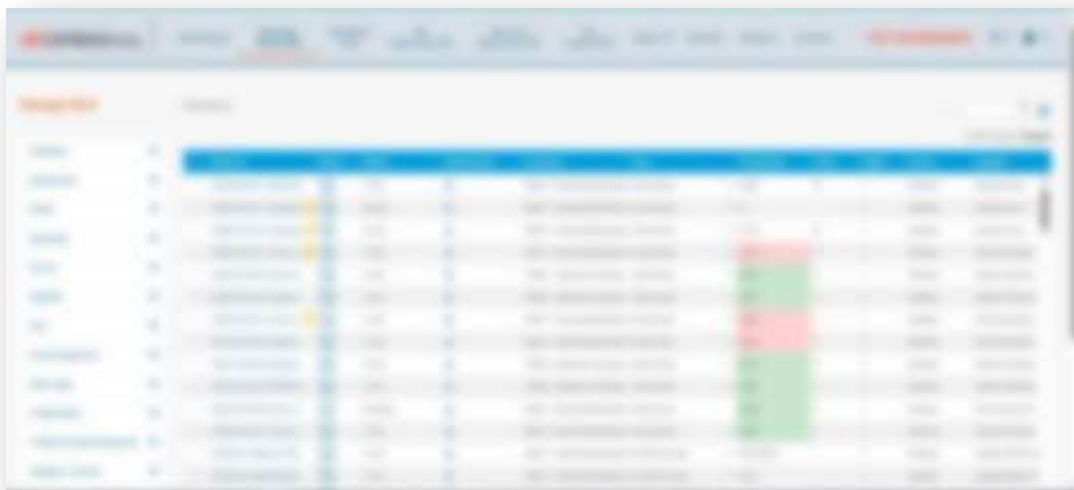
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Application Dataflow Diagram:



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Screenshots:

This screenshot shows a list of invoices in the Accounts Payable Automation system. The table has columns for Invoice ID, Invoice Date, Invoice Amount, Invoice Due Date, Invoice Status, and Invoice Type. The invoices are listed in a table with alternating row colors (blue and white). The status column uses color coding: green for 'Paid', red for 'Overdue', and yellow for 'Pending'.

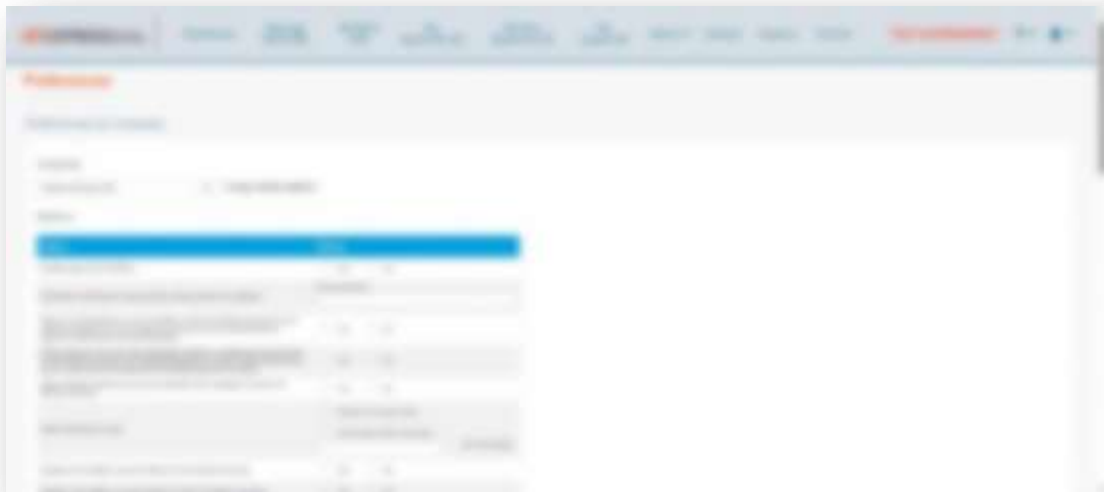
Invoice ID	Invoice Date	Invoice Amount	Invoice Due Date	Invoice Status	Invoice Type
1	2023-01-01	1000	2023-01-15	Paid	Invoice
2	2023-01-02	2000	2023-01-16	Paid	Invoice
3	2023-01-03	3000	2023-01-17	Paid	Invoice
4	2023-01-04	4000	2023-01-18	Paid	Invoice
5	2023-01-05	5000	2023-01-19	Paid	Invoice
6	2023-01-06	6000	2023-01-20	Paid	Invoice
7	2023-01-07	7000	2023-01-21	Paid	Invoice
8	2023-01-08	8000	2023-01-22	Paid	Invoice
9	2023-01-09	9000	2023-01-23	Paid	Invoice
10	2023-01-10	10000	2023-01-24	Paid	Invoice
11	2023-01-11	11000	2023-01-25	Paid	Invoice
12	2023-01-12	12000	2023-01-26	Paid	Invoice
13	2023-01-13	13000	2023-01-27	Paid	Invoice
14	2023-01-14	14000	2023-01-28	Paid	Invoice
15	2023-01-15	15000	2023-01-29	Paid	Invoice
16	2023-01-16	16000	2023-01-30	Paid	Invoice
17	2023-01-17	17000	2023-01-31	Paid	Invoice
18	2023-01-18	18000	2023-02-01	Paid	Invoice
19	2023-01-19	19000	2023-02-02	Paid	Invoice
20	2023-01-20	20000	2023-02-03	Paid	Invoice
21	2023-01-21	21000	2023-02-04	Paid	Invoice
22	2023-01-22	22000	2023-02-05	Paid	Invoice
23	2023-01-23	23000	2023-02-06	Paid	Invoice
24	2023-01-24	24000	2023-02-07	Paid	Invoice
25	2023-01-25	25000	2023-02-08	Paid	Invoice
26	2023-01-26	26000	2023-02-09	Paid	Invoice
27	2023-01-27	27000	2023-02-10	Paid	Invoice
28	2023-01-28	28000	2023-02-11	Paid	Invoice
29	2023-01-29	29000	2023-02-12	Paid	Invoice
30	2023-01-30	30000	2023-02-13	Paid	Invoice
31	2023-01-31	31000	2023-02-14	Paid	Invoice
32	2023-02-01	32000	2023-02-15	Paid	Invoice
33	2023-02-02	33000	2023-02-16	Paid	Invoice
34	2023-02-03	34000	2023-02-17	Paid	Invoice
35	2023-02-04	35000	2023-02-18	Paid	Invoice
36	2023-02-05	36000	2023-02-19	Paid	Invoice
37	2023-02-06	37000	2023-02-20	Paid	Invoice
38	2023-02-07	38000	2023-02-21	Paid	Invoice
39	2023-02-08	39000	2023-02-22	Paid	Invoice
40	2023-02-09	40000	2023-02-23	Paid	Invoice
41	2023-02-10	41000	2023-02-24	Paid	Invoice
42	2023-02-11	42000	2023-02-25	Paid	Invoice
43	2023-02-12	43000	2023-02-26	Paid	Invoice
44	2023-02-13	44000	2023-02-27	Paid	Invoice
45	2023-02-14	45000	2023-02-28	Paid	Invoice
46	2023-02-15	46000	2023-02-29	Paid	Invoice
47	2023-02-16	47000	2023-03-01	Paid	Invoice
48	2023-02-17	48000	2023-03-02	Paid	Invoice
49	2023-02-18	49000	2023-03-03	Paid	Invoice
50	2023-02-19	50000	2023-03-04	Paid	Invoice
51	2023-02-20	51000	2023-03-05	Paid	Invoice
52	2023-02-21	52000	2023-03-06	Paid	Invoice
53	2023-02-22	53000	2023-03-07	Paid	Invoice
54	2023-02-23	54000	2023-03-08	Paid	Invoice
55	2023-02-24	55000	2023-03-09	Paid	Invoice
56	2023-02-25	56000	2023-03-10	Paid	Invoice
57	2023-02-26	57000	2023-03-11	Paid	Invoice
58	2023-02-27	58000	2023-03-12	Paid	Invoice
59	2023-02-28	59000	2023-03-13	Paid	Invoice
60	2023-02-29	60000	2023-03-14	Paid	Invoice
61	2023-03-01	61000	2023-03-15	Paid	Invoice
62	2023-03-02	62000	2023-03-16	Paid	Invoice
63	2023-03-03	63000	2023-03-17	Paid	Invoice
64	2023-03-04	64000	2023-03-18	Paid	Invoice
65	2023-03-05	65000	2023-03-19	Paid	Invoice
66	2023-03-06	66000	2023-03-20	Paid	Invoice
67	2023-03-07	67000	2023-03-21	Paid	Invoice
68	2023-03-08	68000	2023-03-22	Paid	Invoice
69	2023-03-09	69000	2023-03-23	Paid	Invoice
70	2023-03-10	70000	2023-03-24	Paid	Invoice
71	2023-03-11	71000	2023-03-25	Paid	Invoice
72	2023-03-12	72000	2023-03-26	Paid	Invoice
73	2023-03-13	73000	2023-03-27	Paid	Invoice
74	2023-03-14	74000	2023-03-28	Paid	Invoice
75	2023-03-15	75000	2023-03-29	Paid	Invoice
76	2023-03-16	76000	2023-03-30	Paid	Invoice
77	2023-03-17	77000	2023-03-31	Paid	Invoice
78	2023-03-18	78000	2023-04-01	Paid	Invoice
79	2023-03-19	79000	2023-04-02	Paid	Invoice
80	2023-03-20	80000	2023-04-03	Paid	Invoice
81	2023-03-21	81000	2023-04-04	Paid	Invoice
82	2023-03-22	82000	2023-04-05	Paid	Invoice
83	2023-03-23	83000	2023-04-06	Paid	Invoice
84	2023-03-24	84000	2023-04-07	Paid	Invoice
85	2023-03-25	85000	2023-04-08	Paid	Invoice
86	2023-03-26	86000	2023-04-09	Paid	Invoice
87	2023-03-27	87000	2023-04-10	Paid	Invoice
88	2023-03-28	88000	2023-04-11	Paid	Invoice
89	2023-03-29	89000	2023-04-12	Paid	Invoice
90	2023-03-30	90000	2023-04-13	Paid	Invoice
91	2023-03-31	91000	2023-04-14	Paid	Invoice
92	2023-04-01	92000	2023-04-15	Paid	Invoice
93	2023-04-02	93000	2023-04-16	Paid	Invoice
94	2023-04-03	94000	2023-04-17	Paid	Invoice
95	2023-04-04	95000	2023-04-18	Paid	Invoice
96	2023-04-05	96000	2023-04-19	Paid	Invoice
97	2023-04-06	97000	2023-04-20	Paid	Invoice
98	2023-04-07	98000	2023-04-21	Paid	Invoice
99	2023-04-08	99000	2023-04-22	Paid	Invoice
100	2023-04-09	100000	2023-04-23	Paid	Invoice

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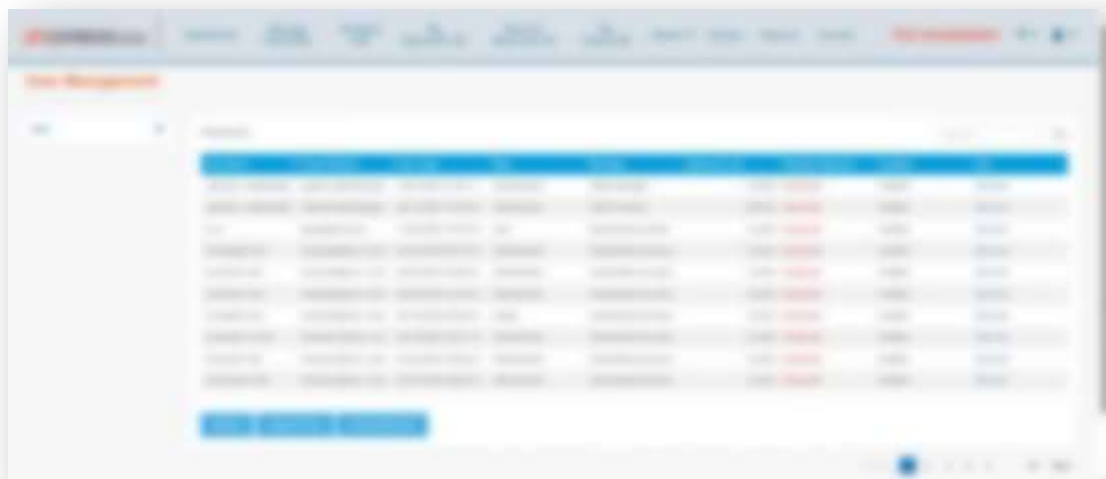
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Invoice Number	Invoice Date	Due Date	Vendor Name	Invoice Amount	Payment Status
1001	2023-01-01	2023-01-15	ABC Company	1000.00	Paid
1002	2023-01-02	2023-01-16	DEF Company	2000.00	Paid
1003	2023-01-03	2023-01-17	GHI Company	3000.00	Paid
1004	2023-01-04	2023-01-18	JKL Company	4000.00	Paid
1005	2023-01-05	2023-01-19	MNO Company	5000.00	Paid



Payment Number	Payment Date	Payment Amount	Vendor Name	Payment Status	Payment Method
2001	2023-01-15	1000.00	ABC Company	Paid	Bank Transfer
2002	2023-01-16	2000.00	DEF Company	Paid	Bank Transfer
2003	2023-01-17	3000.00	GHI Company	Paid	Bank Transfer
2004	2023-01-18	4000.00	JKL Company	Paid	Bank Transfer
2005	2023-01-19	5000.00	MNO Company	Paid	Bank Transfer



Vendor Name	Vendor Address	Vendor Contact	Vendor Email	Vendor Phone	Vendor Website	Vendor Status	Vendor Rating
ABC Company	123 Main St, New York, NY 10001	John Doe	john.doe@abc.com	212-555-1234	www.abc.com	Active	4.5
DEF Company	456 Main St, New York, NY 10002	Jane Smith	jane.smith@def.com	212-555-5678	www.def.com	Active	4.0
GHI Company	789 Main St, New York, NY 10003	Mike Johnson	mike.johnson@ghi.com	212-555-9012	www.ghi.com	Active	3.5
JKL Company	101 Main St, New York, NY 10004	Sarah Brown	sarah.brown@jkl.com	212-555-3456	www.jkl.com	Active	4.2
MNO Company	202 Main St, New York, NY 10005	David White	david.white@mno.com	212-555-7890	www.mno.com	Active	4.8

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