



## Modernize SAS to Pandas with SAS2PY

SAS2PY automates the migration of **legacy SAS environments into Pandas-based workflows**, allowing organizations to leverage the flexibility and power of Python's data processing capabilities.

- **Automated Code Conversion:** Migrate extensive **SAS codebases into Pandas scripts** swiftly and accurately.
- **Data Lineage & Flow Tracking:** Maintain **complete visibility** of data transformations and dependencies.
- **Data Matching & Validation:** Ensure **data integrity and consistency** throughout the migration process.
- **Merlin AI Developer Assistant:** Enhance **code quality and development efficiency** with AI-driven insights.

### Comprehensive Migration Capabilities

SAS2PY provides **end-to-end migration solutions**, ensuring seamless transitions from **SAS to Pandas**:

- **Automated Workflows:** Convert **SAS, SQL, and ETL processes into Pandas-based workflows** without manual intervention.
- **Data Transformation & Aggregation:** Use Pandas for **data manipulation, merging, filtering, and statistical computations**.
- **Data Lineage & Flow Tracking:** Gain **full transparency into migration processes**, tracking transformations at every stage.
- **AI/ML Integration:** Seamlessly integrate with **scikit-learn, TensorFlow, and PyTorch** for machine learning workflows.





## Automated Migration Process

### Legacy Analysis

- **Component Identification:** Automatically detects **SAS scripts, SQL queries, and structured datasets**.
- **Migration Roadmap:** Generates **actionable insights** to streamline the migration process.
- **Workload Profiling:** **Prioritizes high-impact components**, ensuring efficient migration.

### Code Conversion

- **Script Transformation:** Converts **SAS and SQL-based scripts** into **Pandas workflows**.
- **Schema Adaptation:** Aligns **legacy data structures** with **Pandas DataFrames**, ensuring seamless integration.
- **Data Optimization:** Enhances **processing efficiency** by leveraging Pandas' built-in performance features.

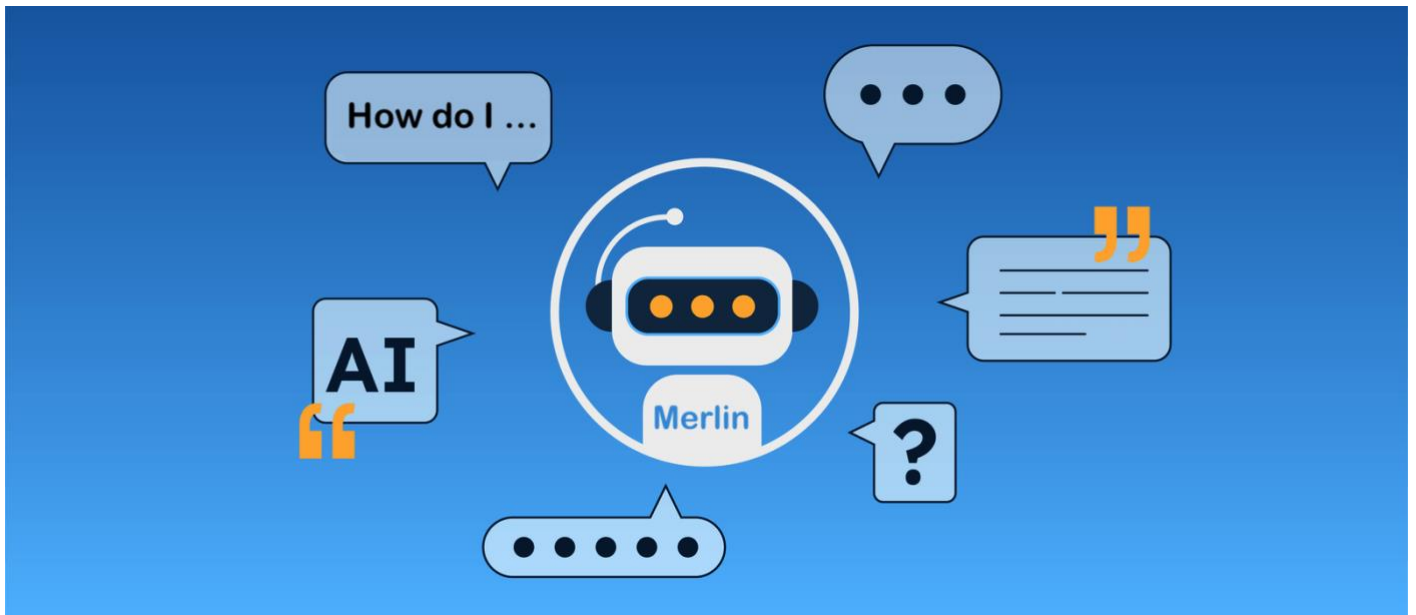
### AI-Powered Validation & Testing

- **Generative AI Validation:** Uses **AI-driven techniques** to ensure parity between SAS and Pandas outputs.
- **Automated Data Consistency Checks:** Confirms accuracy across migrated workflows.
- **Performance Optimization:** Fine-tunes workflows for **optimal memory management and processing speed**.

## Data Matching and Validation

Ensuring **data accuracy and consistency** is critical during migration. SAS2PY provides **comprehensive data validation**:

- **Schema-Level Matching:** Maps **source schemas** to **Pandas DataFrame structures**, validating column types and constraints.
- **Row-Level Validation:** Compares **individual records** using hash-based matching techniques.
- **Aggregate Data Matching:** Confirms parity between **aggregated metrics like counts, sums, and averages**.



## Merlin: AI Developer Assistant

SAS2PY's **Merlin AI Developer Assistant** enhances the migration process with **real-time insights and optimizations**:

- **Real-Time Code Insights:** Provides **instant feedback** and best practice recommendations.
- **Advanced Debugging:** Identifies errors and optimizes **Pandas-based transformations**.
- **Performance Optimization:** Suggests **code enhancements** for better memory efficiency.

## Proven Results

SAS2PY delivers **measurable benefits**, making the transition to Pandas **faster, cost-effective, and scalable**:

**Cost Reduction:** Save **up to 70%** by automating migration and eliminating SAS licensing fees.

**Faster Timelines:** Reduce migration duration **by 10x**, completing months-long projects in weeks.

**Seamless Data Integrity:** **Advanced validation tools** ensure data consistency and accuracy.



## Frequently Asked Questions

### 1How does SAS2PY handle ETL migrations to Pandas?

SAS2PY automates the transformation of **legacy ETL workflows** into Pandas-based scripts, enabling **data ingestion, cleaning, transformation, and aggregation** for analytics.

### Can SAS2PY migrate machine learning models to Pandas?

Yes, SAS2PY converts **legacy SAS models into Pandas-compatible formats**, allowing integration with **scikit-learn, TensorFlow, and PyTorch** for modern AI/ML applications.

### What advantages does SAS2PY offer over other migration tools?

SAS2PY provides:

**Automated migration with minimal manual effort.**

**10x faster timelines compared to traditional migration methods.**

**Seamless integration with Python's rich data analytics and AI ecosystem.**

### How does SAS2PY handle large datasets in Pandas?

Pandas operates **in-memory**, which may limit scalability for extremely large datasets. However, SAS2PY optimizes **data handling by chunking large data files, leveraging Pandas' efficient I/O operations**, and integrating with **Parquet and cloud storage solutions** for optimized performance.

### Can SAS2PY migrate SAS macros to Pandas?

Yes, SAS2PY translates **SAS macros into equivalent Python functions or reusable Pandas scripts**, ensuring that **complex data manipulations and transformations are preserved** while migrating to an open-source environment.

### Does SAS2PY support integration with cloud platforms?

Yes, SAS2PY enables **Pandas-based workflows to connect with AWS, Azure, and Google Cloud** for **cloud-based data storage, processing, and analysis**, making migration from **SAS to a scalable cloud analytics framework** seamless.