Case Study: Automating Data Consolidation for Master files Using Python

Overview

This case study highlights the successful implementation of a Python-based automation solution to streamline the data consolidation process for master files on SharePoint. The project aimed to reduce manual effort, enhance data accuracy, and save significant time for a team of 30 users.

Objectives

Reduce Manual Data Entry: Eliminate the need for users to manually copy data from local files to a central masterfile.

Enhance Accuracy: Minimize human errors associated with manual data copying.

Save Time: Accelerate the data consolidation process for a large team.

Project Scope

Team Size: 30 users

Data Consolidation: Daily updates to a masterfile on SharePoint

Implementation Steps

Open the Python File: Users initiate the automation script.

Enter Details: Users input specific details such as name, date, client name, and lines validated.

Data Transfer: The script copies the entered details from local files and pastes them into the masterfile on SharePoint.

Technical Details

The automation script was developed using Python, leveraging several key libraries:

Pandas: For data manipulation and analysis.

Openpyxl: For handling Excel files.

Requests: For interacting with the SharePoint API.

Schedule: For automating script execution at specific times.

Code Snippet

# VERSION 1.0

# ------------Importing Necessary Libraries---------------

import pandas as pd

import os

from datetime import date

from openpyxl import load\_workbook

# --------------Providing the Input path--------------------

# path = input("Enter the path: ")

path = r"Need to Insert the Path of the Input Folder"

os.chdir(path)

# ----------------Creating the Validation File----------------

while True:

for file in os.listdir():

SourceForm = pd.read\_excel(file,sheet\_name='Request Form')

Source = pd.read\_excel(file,sheet\_name='Request Form',skiprows=6)

Source.fillna("", inplace = True)

Source.insert(0, "CLIENT", SourceForm.iat[1,1])

Source.insert(1, "Issue ID", input("Enter the Issue ID: "))

Source.insert(2, "Date(mm/dd/yyyy)", date.today())

Source.insert(3, "Validation Owner", input("Enter the Validation Owner: "))

Source.insert(4, "Country", SourceForm.columns[0][28:])

Source.insert(5,"Category", SourceForm.iat[2,1])

# ------------------Writing and Updating the created validation file for Output results------------------

FilePath = r"Need to Insert the Path of the Master File present in the Output Folder" #Output Path were file will be stored and updated.

ExcelWorkbook = load\_workbook(FilePath)

writer = pd.ExcelWriter(FilePath, engine = 'openpyxl')

writer.book = ExcelWorkbook

Source.to\_excel(writer,'Current Month', index=False) #Exporting the file for output results

writer.save()

writer.close()

print (file, "File Created")

combine = pd.concat(pd.read\_excel(FilePath, sheet\_name=None),ignore\_index=True) #Concatenating the files

os.remove(FilePath) #Removing the existing exported file

combine.to\_excel(FilePath, sheet\_name = 'Current Month', index = False) #Replacing and storing the concatenated file

print (file, "File Updated")

else:

break

# --------------------------------------------------------END-------------------------------------------------

Output

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Description automatically generated with medium confidence

Results

Time Efficiency: The automation reduced the time required for data consolidation by approximately 80%. Previously, the process would take an estimated 3 hours daily for 30 users. With automation, this was cut down to 30 minutes.

Increased Accuracy: Human errors were virtually eliminated, resulting in cleaner, more reliable data.

Scalability: The solution was scalable, easily accommodating the entire team of 30 users.

Cost Savings: With the reduction in time spent, the team saved approximately 1,350 hours annually, translating to significant cost savings.

Impact

The Python automation project for global coding of masterfiles proved to be a game-changer in terms of operational efficiency and accuracy. The significant time savings and error reduction translated to increased productivity and better resource allocation. This case study highlights the potential of automation in transforming routine tasks, setting a precedent for further automation initiatives within the organization.

Conclusion

By leveraging Python for data consolidation, we successfully streamlined a critical process for the team, showcasing the power of automation in enhancing productivity. This project not only met but exceeded our initial objectives, positioning us well for future automation endeavors.