Industry Internship at TANGENTIA India Technologies Pvt. Ltd.

An Internship Report for

Course Code and Course Title: CSA-652 Industry Internship

Credits: 16

Submitted in partial fulfilment of Masters Degree

Masters of Computer Application

by

SHREYA SHIVANAND JHUTTI

Seat Number: 2238

ABC ID: 230405168949

PRN: 20190324

Under the Mentorship of

Dr. Payaswini. P

Goa Business School

Discipline of Computer Science & Technology

GOA UNIVERSITY

Date: June 2024

DECLARATION BY STUDENT

I hereby declare that the data presented in this Internship report entitled, **"Industry Internship at TANGENTIA India Technologies Pvt. Ltd."** is based on the results of investigations carried out by me in the Discipline of Computer Science And Technology, Goa Business School, Goa University under the mentorship of Dr. Payaswini. P and the same has not been submitted elsewhere for the award of a degree or diploma by me. Further, I understand that Goa University or its authorities/College will not be responsible for the correctness of observations / experimental or other findings given the internship report/work.

I hereby authorize the University/college authorities to upload this internship report on the University repository or anywhere else as the UGC regulations demand and make it available to any one as needed.

Ms. Shreya Shivanand Jhutti

2238

Master of Computer Application

Goa Business School

Date:

Place: Goa University

CONTENT

OFFER LETTER

Dear Shreya Jhutti,

This document describes the conditions associated with you providing services to Tangentia India Technologies (Pvt.) Ltd "Tangentia" on an internship program basis, as a **Project Intern** and is effective starting January 8th, 2024. This document is the only valid agreement between Tangentia and yourself.

General Information

Effective date of agreement: January 8th, 2024
Internship period: 6 Months

- You will be paid stipend of Rs. 5000/- per month during your internship period.
- During the internship period, you shall be liable for one leave per month.
- This internship shall be remote. However, you are expected to be available during the normal working hours of the company.

Declaration of Confidentiality

During my agreement with Tangentia, I will have access to confidential information and documents pertaining to **Tangentia** business and transactions. I agree not to reveal any **confidential information** and I commit myself to taking all appropriate measures to keep secret and confidential all information.

Confidentiality, Non-Concurrence

For the duration of my agreement with Tangentia, I will act with the best interests of Tangentia and its customers in mind. Unless authorized by Tangentia, and for a period of 36 months after the end of my agreement, I will not work, apply or make business with any Tangentia client directly or indirectly or with the help of an intermediary.

Non-Solicit / Non-Compete for Customers, Partners and Vendors

For the duration of your agreement with Tangentia, you will act with the best interests of Tangentia and its customers in mind. Unless authorized by Tangentia, during your agreement with and for a period of 36 months after the end of agreement, you cannot appeal to anybody with whom you have been in contact, either at Tangentia, at Tangentia client/prospect, Tangentia partner or Tangentia vendor while working, to leave Tangentia, the Client or the vendor. Unless authorized by Tangentia, during your agreement with and for a period of 36 months after the end of agreement You cannot work, apply or make business with any Tangentia client/prospect, Tangentia partner or Tangentia vendor directly or indirectly or with the help of an intermediary.

Intellectual Property:

All the proprietary rights title and interest in any and all intellectual properties, such as inventions, or works which are conceived, developed or prepared by you during your employment with the company, shall vest with the company absolutely.

Business Conduct Guidelines

I agree that I will perform services for Tangentia and act in such a manner to maintain Tangentia' reputation for integrity and good corporate citizenship, and abide by basic principles of ethical and lawful business conduct. I will be mindful of my dealings with the public and with customers, clients, vendors, volunteers and employees of Tangentia.

Unit No. 507, Gera's Imperium Grand Patto Centre
Pana ji North Goa 403001
Tel: +91.9580-334-334 | Email: india@tangentia.com

Tangentia India Technologies (Pvt) Ltd
tangentia.com/india

Agreement

I, the undersigned, Shreya Jhutti, hereby accept this agreement for 6 Months.

_____

Shreya Jhutti

_____

Vijay Thomas (CEO)
Tangentia India Technologies Pvt. Ltd.

Date: _____ / _____ / _____
       DD   MM   YYYY

Date: _____ / _____ / _____
       DD   MM   YYYY

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Tangentia India Technologies Pvt. Ltd.

Goa University

COMPLETION CERTIFICATE

This is to certify that the internship report **"Industry Internship at TANGENTIA India Technologies Pvt. Ltd."** is a bonafide work carried out by **Ms. Shreya S. Jhutti** under my mentorship in partial fulfilment of the requirements for the award of the degree of **Masters of Computer Application** in the Discipline Computer Science and Technology at Goa Business School, Goa University.

<div align="right">

Dr. Payaswini. P

Assistant Professor, MCA

Goa Business School

</div>

Date:

Date:

Place: Goa University

INTERNSHIP CERTIFICATE

Tangentia INDIA

28th May, 2024

TO WHOM IT MAY CONCERN

This is to certify that **Shreya Jhutti** has completed her internship as a **Project Intern** with Tangentia India Technologies Pvt. Ltd. From 8th January, 2024 to 31st May, 2024.

We wish her all the best for her future endeavours and would like to thank her for her contribution to the organization.

For Tangentia India Technologies Pvt. Ltd.

Jyothi Shet

Jyothi Shet
HR- Director

<u>ACKNOWLEDGEMENT</u>

EXECUTIVE SUMMARY

Tangentia India Technologies Pvt. Ltd., renowned for its global leadership in digital transformation solutions, offers a diverse array of services designed to empower businesses in navigating the ever-evolving digital landscape. As a Support Intern within the RPA department, my role involved contributing to the company's mission by assisting in the maintenance of robotic process automation solutions.

My internship journey commenced with an immersive training program tailored to equip me with the necessary skills and knowledge to excel in my role. Through hands-on training sessions and mentorship from experienced team members, I developed a deep understanding of the various processes and workflows involved in RPA implementations.

During my tenure, I actively participated in tasks such as bot execution, troubleshooting, and client interaction. These experiences provided me with invaluable insights into the practical application of RPA technologies and honed my abilities in problem-solving, communication, and teamwork.

Encountering challenges was inevitable, but each obstacle presented a chance for growth. Through proactive problem-solving and collaboration with my team members, I was able to overcome these challenges and contribute to the successful delivery of projects.

In conclusion, my internship at Tangentia not only enhanced my technical proficiency but also sharpened my problem-solving abilities and strengthened my communication skills. As I continue my journey in the field of technology, the skills and experiences gained during my internship will undoubtedly serve as a solid foundation for my future endeavors.

Chapter 1 : ORGANIZATION

1.1 Birds-eye-view

Tangentia is a globally recognized leader in digital transformation solutions, with a mission to empower businesses to thrive in the rapidly evolving digital landscape. Founded in 2003, Tangentia has been dedicated to simplifying the relationship between businesses and technology for over two decades. The company's core philosophy revolves around leveraging innovative technologies to help businesses transform, grow, or bounce back in competitive markets.

Tangentia's reputation as a boutique consulting, technology, and outsourcing firm is built on its ability to bridge the most challenging technology gaps. The company provides a comprehensive suite of services, including automation, B2B connectivity, and digital integration solutions. These services are designed to equip businesses with the tools they need to perform at their best, driving efficiency and scalability.

Over the years, Tangentia has forged strong partnerships with industry-leading companies, providing them with customized solutions that address their unique needs. The company's expertise spans various sectors, including ecommerce, supply chain management, and digital transformation, making it a trusted partner for businesses seeking to enhance their technological capabilities.

Tangentia's team of experts is dedicated to delivering purpose-built solutions that address the specific challenges faced by their clients. This client-centric approach has earned Tangentia a reputation for going above and beyond, consistently delivering high-quality results that drive business success.

With offices and operations spanning across North America, Europe, and Asia, Tangentia is well-positioned to serve a diverse and global clientele. The company's global reach, combined with its deep industry knowledge and technical expertise, enables it to provide innovative solutions that are tailored to the needs of businesses around the world.

1.2 Products/Services

Tangentia offers a diverse range of products and services designed to empower businesses through advanced technology solutions:

1. Tangentia Intelligent Automation (TiA) - TiA is Tangentia's autonomous enterprise platform to empower business operations

- TiA Digital Worker: A state-of-the-art digital workforce pre-programmed with a wide variety of industry-standard processes.
- TiA Core AI: The heart of the TiA platform, featuring an extensive suite of capabilities built on machine learning, natural language processing, computer vision, deep learning, and RPA.
- TiA Chatbot: A conversational AI chatbot powered by IBM Watson, optimized in-house by Tangentia's AI consultants.
- TiA247.com: Advanced digital workers designed to accelerate business practices, capable of working 24/7 with zero sick days for maximum productivity.

2. TiA Supply Chain

- TiA EDI (Electronic Data Interchange): Streamlines the way businesses connect and integrate with global trading partners through a robust EDI platform.
- TiA OMS (Order Management System): OMS consolidates information across multiple channels to automate and streamline order processing.
- TiA Commerce: Assists businesses in navigating the complex digital world providing support in build, hosting, management, and support of ecommerce implementations.
- TiA e-Invoicing: An integrated solution for meeting e-Invoicing Goods and Services Tax (GST) compliance requirements set by the Government of India.

3. TiA Business Apps

- TiA for IoT
- TiA for Process Mining
- TiA for Oil and Gas
- TiA for Education
- TiA for P2P (Procure to Pay)
- TiA for O2C (Order to Cash)

These products and services highlight Tangentia's commitment to leveraging technology as a catalyst for business success, providing clients with the tools they need to navigate and excel in the digital age.

1.3 Sections within the organization

Tangentia is a world-leading provider of digital transformation solutions, helping companies leverage cutting-edge technology to transform, grow, and thrive in today's competitive digital landscape. The organization operates with a strategic focus on Automation, B2B Connectivity, and Digital, providing integrated solutions and strategies to scale businesses effectively.

At the helm of Tangentia is CEO Vijay Thomas, guiding the company's vision and strategic direction. Ajinkya Birwadkar serves as the Director for India, overseeing the PMO and B2B Connectivity, while Abhijit Chakravarthy leads the Regional Sales in North America. Additionally, Ivan Marquez handles sales for Latam and the Southwestern USA, and Mahendra Naik offers insights as the Senior Strategic Advisor. The Regional Sales efforts are further supported by managers Rajhans Gupta, Sonia Kuncalienker, and Nikhil Kawale.

The Human Resources team is led by Jyothi Shet, the Director, supported by HR Manager Mamatha Manu and HR & Talent Acquisition Manager Reshma Azeez. In charge of Support and Managed Services is Karen Briones, ensuring seamless service delivery and client satisfaction. The Digital Innovation Team is spearheaded by Practice Head Vaishali Amonkar, with Jayesh Kamat as the Technical Lead and Anantha Krishna as the Business Lead, driving digital transformation initiatives.

The Intelligent Automation Team is led by Practice Head Ashwini Hegde, with Prashant Chougule and Akshay Shirodkar as Technical Leads, and Aniket Nevrekar as the Business Lead. Financial management is overseen by Finance Manager Raghuvir Lotlikar, ensuring the company's financial health and strategic fiscal planning.

Tangentia's organizational structure is composed of various departments that drive its multifaceted operations. These include HR, HR & Finance, QA and Infrastructure, Sales, Supply Chain, Tangentia AI & RPA, Tangentia B2B Connectivity, Tangentia CEO Office, Tangentia Cognitive, Tangentia Consulting, Tangentia Customer Success, Tangentia Digital Innovation, Tangentia Infrastructure and Network, Tangentia Intelligent Automation, Tangentia Marketing, Tangentia PMO, Tangentia Project Management Office, Tangentia QA, Tangentia Sales, Tangentia Security, Tangentia Shared Services, Tangentia Support, Tangentia TIA, and Tangentia Tstaff. These departments collectively support the organization's mission to deliver top-tier digital transformation solutions globally.

Chapter 2: TASK(S) HANDLED

Role: Support Intern under RPA

Joining Date: 8th January 2024

Shift Timing: 10:00 am to 7:00 pm (9 hours)

2.1 Induction Program

Date: 8th Jan 2024

Upon joining Tangentia as a Support Intern under the Robotic Process Automation (RPA) department, I underwent a comprehensive onboarding and training process that laid the foundation for my role.

Initially, I participated in an induction program organized by the HR department. During this phase, I was introduced to the company's culture, policies, and overall organizational structure. This program was essential in helping me understand Tangentia's mission and values.

The induction program was designed to help new employees integrate smoothly into the company. The activities on my first day included:

- New Employee Joining Form: I filled out the new employee joining form, providing essential personal and professional details.
- Uploading Picture: I uploaded my picture for the Tangentia display account, which is used for internal identification and communication.
- Creating E-Signature: I created an e-signature for official documents and communication.
- Activating Company Accounts: I activated my accounts on GreytHR and Aceproject, which are the company's internal communication and project management platforms.
- Signing the Employee Handbook: I reviewed and signed the employee handbook, acknowledging the company's policies and guidelines.

Assignment of Reporting Manager:

After completing the initial formalities, a reporting manager was assigned to me. The reporting manager provided a detailed explanation of my role and the specific projects I would be working on. This briefing was crucial for setting clear expectations and understanding the scope of my responsibilities. Additionally, I was introduced to my team members, which helped me start building professional relationships within the organization.

2.2 Training Program:

Date: 9th January 2024 – 19th January 2024

Post-Induction, I underwent a two-week training program tailored to the projects I would be handling. Key components of the training included:

- Understanding Project Requirements: I gained a comprehensive understanding of the specific requirements and objectives of the projects assigned to me.
- Tools Training: I learned to use essential tools for my role, particularly Automation Anywhere, a leading RPA tool.

As part of the training, I completed a certification course in Automation Anywhere, which provided me with a solid foundation in RPA technologies and practices. The course I completed was the **Technical Support Specialist (Automation 360),** which covered:

1. Automation 360 Deployment Model Overview:

RPA: Increases efficiency for repetitive tasks, minimizing manual labor. Automation 360: Offers a graphical interface with flexible deployment options:

- On-premises: provides enterprise-grade privacy and security
- Cloud: allows to instantly deploy bots from the web.
- Cloud-Enabled: delivers cloud benefits and ensures data security and privacy.

2. Installing Automation 360:

Control Room: A central interface to manage and monitor all RPA processes, including bot management, user roles, and audit logs. It allows to Manage your bots, Monitor activities, Manage users and roles, Monitor connected and disconnected devices, View audit logs, Schedule when to rule bots, and much more.

3. Managing Automation 360 Logs:

Logs contain diagnostic information for troubleshooting across the Control Room, bot launcher, and universal recorder.

4. Setting up the Automation 360 Control Room:
- Bot Creator License: For creating, triggering, and editing bots.
- Bot Runner License: For executing bots, with attended and unattended options.
- Role-based Access Control: Increases security by assigning roles based on business functions.

5. Deploying Bots Using the Automation 360 Control Room:

Mechanism of invoking task execution on Bot Runner machines.

6. Managing Credential Vault in Automation 360:

A centralized repository for sensitive data with encryption and decryption capabilities.

7. Managing Activities in Automation 360:

Real-time monitoring of bots, scheduling unattended bots, event triggers, and historical activities.

8. Managing Bots Using the Automation 360 Control Room:

Activity Console: Provides information on bot execution activities, allowing for efficient bot management.

Bot Execution

- Login to Control Room using Bot Runner credentials
- Under Automation select the folder under which the required bot is present.
- Trigger the Task bot be selecting all necessary dependencies and device pool.

Project Specific Training:

Project - Delmonte PO-SO Creation Process:

The PO-SO bot is responsible for reading Purchase Orders from vendors and entering the extracted information into SAP after validation. The bot sends a success email and a consolidated report at the end of the day once the process is complete. The bot interacts with MS Outlook, SAP, and MS Excel (.xlsx, .csv formats).

Standard Operating Procedures for Del Monte:

1) Login to RDP: Check if everything is fine. If the bot is stuck, stop the run and re-trigger it without saving the Excel sheet; just discard it.
2) Inventory and Shelf Life Files: Ensure the day's inventory and shelf life files are downloaded in the respective folders; trigger the bot if they are missing.
3) Tracker Update: Note down all Sales Orders (SO) created in the tracker.
4) Email Folders Check: Check "Others" and "New PO" folders for missed emails and manually process any unprocessed emails.
5) Daily Report: Send a daily report to the client at the end of the day.
6) Email Bot: Run the email bot as soon as Purchase Orders (PO) arrive in the inbox.
7) Productivity Sheet: Update the Bot productivity sheet.

8) Customer Code Files: Update Customer code files, Master files, and Dual code files in RDP whenever sent by the client.

Project - SO Release Bot:

Update Regional Files: Update files for North, East, West, and South regions as received from clients, ensuring correct file names and formats:

- North and East Files: Check the file names.
- West Files: Verify file names and formats (column names and sheet names).
- South Files: Check file names and formats (column names and sheet names).

2.3 Nesting Period:

Date: 22nd Jan 2024 – 2nd Feb 2024

Following the training, I entered a two-week nesting where I was assigned to shadow experienced support team members. This period was designed to help me familiarize myself with the day-to-day operations of the support team. Key activities during this period included:

- Observing Workflow and Processes: I observed and understood the workflow and processes followed by the support team. This included daily routines, task prioritization, and time management practices.

- Troubleshooting and Resolution: I learned how to troubleshoot and resolve common issues encountered in RPA implementations. This involved diagnosing problems, finding root causes, and applying effective solutions.

- Handling Client Queries: I gained practical insights into handling client queries and providing effective solutions. This included understanding client requirements, responding to queries promptly, and ensuring client satisfaction.

2.4 Active Participation:

Once the nesting period was completed, I started actively participating in various tasks and projects, including:

Project - Delmonte PO-SO Creation Process:

- Bot Execution: Ran the email bot as soon as Purchase Orders arrived in the inbox, ensuring timely processing of orders.
- Bot Operations: Monitored and managed the PO-SO bot responsible for reading Purchase Orders from vendors and entering the extracted information into SAP after validation. Ensured the bot sent success emails and a consolidated report at the end of the day.
- Manual Interventions: Checked for any emails missed by the bot and processed them manually, ensuring accuracy and completeness.
- Daily Reports: Sent daily reports to the client at the end of the day, summarizing the bot's activities and any manual interventions performed.
- Productivity Tracking: Updated the Bot productivity sheet and ensured all metrics were accurately recorded.
- System Maintenance: Updated Customer code files, Master files, and Dual code files in RDP whenever sent by the client.

Project - SO Release Bot:

- Regional File Updates: Managed and updated files for North, East, West, and South regions based on client emails. Ensured file names and formats (column names and sheet names) were correct and consistent.

Chapter 3: LEARNINGS

Technical Skills and Knowledge:

1) Robotic Process Automation (RPA) Proficiency:

Automation Anywhere (AA) 360 Cloud: Gained familiarity with Automation Anywhere, specifically in accessing the Control Room to monitor and trigger bots. I learned to manage bot activities, logs, and schedules, ensuring smooth operation and timely execution of automated processes.

2) Bot Monitoring and Management:

Bot Monitoring: Developed skills in monitoring various bots such as the Email Download Bot, PO-SO Main/Manual, and Repost Sender. I learned to check bot status, troubleshoot common issues, and ensure that bots completed their tasks as scheduled.

Process and Workflow Understanding:

1) End-to-End Automation Process:

Delmonte PO-SO Process: Gained a comprehensive understanding of the automated process for PO-SO creation for Delmonte Food Private Ltd. This included email processing and validation, downloading inventory and aging data, classifying and validating POs, and ensuring data was correctly entered into SAP by the bots.

2) Data Validation and Management:

Master Sheet Validation: Observed how data extracted by the bots was validated against master sheets provided by the business unit, ensuring accuracy and consistency in data entry.

3) Reporting and Documentation:

Report Consolidation: Learned to generate and manage detailed reports for tracking bot activities, POs processed, SOs created, and any exceptions. This involved consolidating data and presenting it in a structured format for business review.

Soft Skills:

1) Team Collaboration and Communication:

Shadowing Experienced Team Members: Improved my ability to work collaboratively by shadowing experienced support team members, observing their workflow, and understanding the importance of effective communication in resolving issues and improving processes.

2) Client Interaction:

Handling Client Queries: Developed skills in managing client queries, understanding their requirements, and providing timely and effective solutions, which is crucial for maintaining client satisfaction and building long-term relationships.

3) Problem-Solving and Troubleshooting:

Real-time Issue Resolution: Enhanced my problem-solving abilities by troubleshooting and resolving common issues encountered in RPA implementations. This included identifying root causes, applying appropriate fixes, and ensuring minimal disruption to the automated processes.

Practical Insights:

1. Real-world Application of RPA:

Automation Efficiency: Gained insights into how RPA can significantly increase operational efficiency by automating repetitive tasks, thus minimizing manual labor and reducing the likelihood of human errors.

2. Process Optimization:

Improving Operational Efficiency: Learned to identify areas for process improvement and optimization within the automation framework, ensuring the bots operate at peak efficiency and deliver the desired outcomes.

Chapter 4: CHALLENGES

During my internship at Tangentia, I faced various challenges while handling the Del Monte PO-SO Creation Process. These challenges were primarily related to issues raised by clients, bot exceptions, and business exceptions. Here is a detailed breakdown of these challenges and the steps taken to resolve them:

4.1 Issues

Problems that typically arise due to discrepancies or errors in the automated process, which hinder the bot from performing its intended tasks effectively.

1. **PO Missed by Bot**

   Cause: The bot missed POs when the email ID was not mapped in the PO email mapping file or when the email subject did not match the subject in the mapping file.
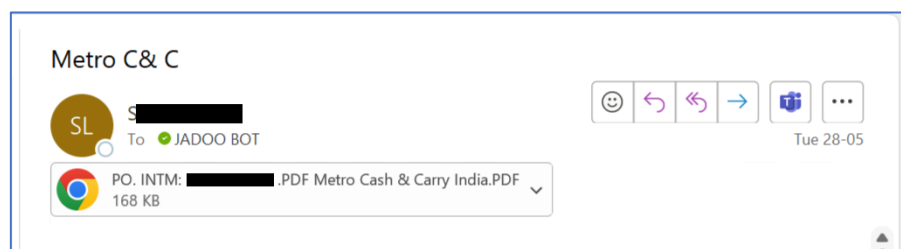
   Solution: To address this, I temporarily updated the PO mapping file with the correct email ID or subject. After processing the PO, I reverted the changes. Alternatively, I resent the PO to the bot with the correct subject name to ensure proper processing.

2. **Embedded POs**

   Cause: When multiple POs were embedded in an email, the bot processed only the first PO and skipped the others.
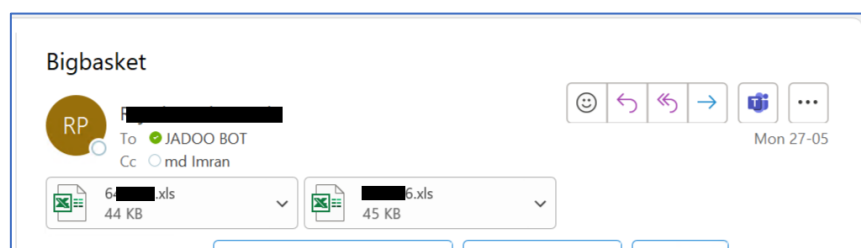
   Solution: I manually processed these POs using the PO-SO Manual bot by saving the PO under the respective vendor folder for the present date. This ensured all POs were accurately processed.

3. **Line Items Missed**

   Cause: The bot occasionally missed several line items in a PO, for instance, processing only 2 out of 7 line items.

   Solution: I reprocessed the PO by pausing the bot before the SAP entry stage. I then manually added the missed line items from the PO to ensure completeness before resuming the bot.

4. **Incorrect Data Extracted**

   Cause: The bot sometimes extracted incorrect data, such as wrong MRP, quantity, or unit price.

_o	quantity	unit_price	mrp	t
) K	300	580.31	150	
5 G	90	220.98	330	
OR	120	77.01	115	
AN	120	73.66	110	
PPI	96	2,491.07	155	
5 G	60	220.98	330	
FIE	24	110.49	165	
KR	100	63.63	95	
TO	120	70.31	105	
5 4: Number		77.01	5.1E+09	
ESS	180	1,526.82	149	
CC	120	180.8	270	
N C	120	34.82	60	

   Solution: To resolve this, I reprocessed the PO by pausing the bot before SAP entry and manually correcting the erroneous data. This ensured that all data fields were accurate before the bot resumed.

5. **Bot Unable to Extract Any Data**

   Cause: This issue arose due to bot malfunctions or changes in the PO format, such as additional columns or different titles.

   Solution: For bot issues, I manually entered all necessary data from the PO, using a processed PO's CSV file for reference. For format changes, I informed both the development team and the client about the issue for further action.

6. **SAP Issues**

   Cause: These included expired SAP passwords and slow SAP loading times.

   Solution: I regularly changed SAP passwords before they expired, as they had a 45-day expiration period. If SAP loading was slow, I restarted the bot to resolve the issue.

4.2 Business Exceptions

Business exceptions are errors or unexpected conditions encountered during the bot's processing that are identified by the business teams. These exceptions occur due to business logic or rules not being met. They are categorized into valid and invalid exceptions:

Valid Business Exceptions

These are legitimate exceptions based on business rules, such as GSTIN mismatches, SKU/Net Price differences, or POs that are expired or about to expire. These exceptions are acknowledged and usually do not require immediate corrective action unless they impact operations significantly.

1. GSTIN Mismatch for Vendor Name
    - GSTIN in PO: (gstin_in_po) vs. GSTIN in Customer Code: (gstin_in_cc) for PO Number ABC123

2. SKU/Net Price/Price Difference for Vendor Name
    - Net Price value needs updating in SAP for PO: ABC123 (Material Code: ###000).
    - Price Difference in SAP for PO: ABC123 (Material Code: ###000) - Net Price in SAP: 114.41 vs. Net Price in PO: 132.25.
    - Case Configuration Exception (Case Units Calculated 0.83333) in PO: ABC123 for SKU Code: $$$$0001.
    - Material Code for SKU Code $$$$0001 not found in Master File for PO: ABC123.
    - MRP missing in master sheet in PO: ABC123 for SKU Code: $$$$0001

3. SAP Issues
    - Ship-to party 0000200672 cannot be used (log) in SAP for PO: ABC123 (Material Code: ###000).

4. Order Block Issues
    - Customer 103439 has been assigned order block: Overall block in SAP for PO: ABC123 (Material Code: ###000).

5. PO Expiry Issues
    - PO Expired for PO: ABC123, PO Date: 01.05.2024, PO Expiry Date: 05.04.2024.
    - PO About to Expire (Tomorrow) for PO: ABC123, PO Date: 25-03-2024, PO Expiry Date: 26-03-2024.

6. Customer Code File Issues
    - Could not find a match in customer code file for PO: ABC123; please check vendor code (vc**) or town (ddress).

Invalid Business Exceptions

These occur due to incorrect data extraction or other bot processing issues that can and should be resolved. Examples include mismatches in customer codes due to bot extraction errors or duplicate line items erroneously identified by the bot.

1. **Cannot Find a Match in Customer Code File**

"Could not find a match in customer code file for the PO (ABC123); please check vendor code() or town(address)."

Cause: This issue typically occurs when the bot extracts an address that does not match the existing address in the customer code file. This is common with vendors like DMart, Vmart, Swiggy, and Flipkart.

Resolution: For such cases, I checked the correct address using the pincode. Then, I reprocessed the PO by pausing the bot before SAP entry, manually entered the correct address from the customer code, and resumed the bot.

2. **Duplicate Line Items in PO**

"Business Exception: Duplicate Code in PO: ABC123 for Code: 491099437."

"Business Exception: Duplicate Code in PO: ABC123 for Code: 100000000."

Cause: This issue arises when the PO contains duplicate line items or when the bot extracts duplicate fields like EAN number or SKU code, even though the PO does not contain duplicates.

Resolution: I reprocessed the PO by removing the duplicate line item and keeping only one instance of it. In cases of extraction issues, I corrected the duplicate fields in the CSV file and reprocessed the PO.

4.3 Bot Exceptions

Bot exceptions are errors related to the bot's functionality and processing capabilities. These exceptions arise from technical issues within the bot's operation, such as incorrect field paths, corrupt data, or issues with file formats. Bot exceptions need to be addressed by either reprocessing the data, correcting the bot's configuration, or involving the development team for fixes. Here's a detailed breakdown of the common bot exceptions and the steps taken to resolve them:

1. **PO Already Exists (Amended Scenario)**

> Del Monte Foods PO SO Bot has Encountered an Exception during Process for the date: .
> Err Message:The PO Already exists(Amended Scenario) and cannot find SO in database at 40 at 94 at Line: 34

   - Cause: This occurs when a PO has already been processed and an SO has been created, but the vendor wants to make changes to the PO.
   - Resolution: Typically, this scenario does not require immediate action unless further intervention is necessary.

2. **PO Format Change**

> Del Monte Foods PO SO Bot has Encountered an Exception during Process for the date: .
> Err Message:The excel worksheet contains any/all of the following:
> - Empty header(s)
> - Duplicate header name(s)
> - Invalid cell ranges. at 22 at Line: 37

   - Cause: Occurs when bot is unable to extract data from a different PO format which is not declared by the vendor.
   - Resolution: Such issues are reported to the development team and the client for resolution. The client either processes the PO from their end or request the bot to be trained under this format as well. This is a Change Request and needs to be approved by the higher authorities of both Delmonte and Tangentia.

3. **Corrupt Data**

> Del Monte Foods PO SO Bot has Encountered an Exception during Process for the date: .
> Err Message:No value given for one or more required parameters. at 16 at 358 at 153 at Line: 34

   - Cause: This error occurs due to corrupt data, often when the inventory file is not downloaded correctly.
   - Resolution: This can be resolved by triggering the Inventory Bot again and downloading the file. After which we need to reprocess the failed PO.

4. Data Type Mismatch

> Del Monte Foods PO SO Bot has Encountered an Exception during Process for the date: .
> Err Message:Data type mismatch in criteria expression. at 11 at 81 at Line: 37

- Cause: This can occur due to two main reasons: corrupt data or incorrect file updates.
- Resolution: For corrupt data - triggered the PO again, paused the bot before SAP entry, and checked if everything was extracted properly. If not, I corrected the data by comparing it with the PO, saved the file, and resumed the bot.
  For Incorrect File Updation - Ensured proper updating of the customer code file according to the data type of the columns. Then, I reprocessed the PO after updating the file correctly.

5. Incorrect Field Path

> Del Monte Foods PO SO Bot has Encountered an Exception during Process for the date: .
> Err Message:Incorrect field path entered. Verify correct field path and try again. at 13 at 42 at 94 at Line: 37

- Cause: This error indicates issues with the field paths, which can happen if the PO is already processed but the bot attempts to reprocess it.
- Resolution: Updated the database with the correct PO and SO numbers, saved the file, and then reprocessed the PO to avoid the error.

6. Incorrect Data Extraction

> Del Monte Foods PO SO Bot has Encountered an Exception during Process for the date: .
> Err Message:The input entered in 'sourceString' is incorrect. at 107 at Line: 34

- Cause: This error occurs due to invalid data extracted in the CSV file.
- Resolution: I checked the logs to identify which field caused the error. I then reprocessed the PO by pausing the bot before SAP entry, checked and corrected the data in the CSV file, saved the file, and resumed the bot.

APPENDIX I

SAMPLES OF WORK DONE

The Delmonte file structure contains PO folder & PROD folder within which has all the necessary folders and essential documents about PO-SO Automation.

The PROD folder contains 8 sub folders named Ageing, Bot Files, Customer Code Files, Dual Code, Inventory, Master File, Payment Terms and Shelf Life. **Ageing folder** contains Ageing Report file. **Customer Code** File folder contains the Customer code files for EC as well as DM vendors respectively. The **Dual Code** folder contains the dual codes sheet which is used to identify old and latest dual codes. The **Inventory** Folder contains Inventory Data file. The **Master File** folder contains master files for each vendor which the bot uses to validate material codes. The **Payment Terms** folder contains data of the payment terms associated with each vendor and the **Shelf Life** folder contains data regarding the shelf life acceptable percentage.

Bot Files contains 6 excel folders within. 'Archive' folder contains backup data of the past runs. 'Config' folder contains a config file which has user defined data for PO-SO Process bot. These contains configurable values such as paths to all the files, Threshold values, Email Id's, Environment. The Folders Input, Reports, Resources are associated with bot process and is used by the bot during its functioning. The Logs folder contains bot logs used by the developer to track the bot health and process logs.

Name	Status	Date modified	Type
Archive	☁ ዳ	02-06-2024 15:30	File folder
Backup	♻ ዳ	02-06-2024 15:30	File folder
Config	♻ ዳ	28-08-2023 11:44	File folder
Input	⊘ ዳ	28-08-2023 11:44	File folder
Logs	♻ ዳ	03-06-2024 00:00	File folder
Reports	♻ ዳ	03-06-2024 00:00	File folder
Resources	♻ ዳ	02-06-2024 07:01	File folder

The PO folder under Del Monte folder contains subfolders for each vendor inside which will be a folder with dd-mm-yyyy format the business user can place a po in that specific day's date folder for the bot to process it.

Name	Status	Date modified	Type	Size
Amazon	☁ ዳ	24-02-2024 13:56	File folder	
Big Basket	⊘ ዳ	13-05-2024 10:57	File folder	
Big Basket Auto	♻ ዳ	27-05-2024 17:51	File folder	
Big Basket Manual	⊘ ዳ	26-10-2023 17:26	File folder	
Dmart	♻ ዳ	01-06-2024 13:45	File folder	
Dunzo	☁ ዳ	28-08-2023 11:44	File folder	
Flipkart	⊘ ዳ	15-05-2024 17:29	File folder	
Grofers	⊘ ዳ	16-04-2024 22:05	File folder	
Lots	⊘ ዳ	30-04-2024 20:32	File folder	
Metro CNC	♻ ዳ	01-06-2024 13:44	File folder	
Milk Basket	⊘ ዳ	28-12-2023 14:59	File folder	
More Retail	⊘ ዳ	27-03-2024 19:50	File folder	
Reliance Retail	♻ ዳ	24-05-2024 11:13	File folder	
Spencers	♻ ዳ	31-05-2024 17:11	File folder	
Swiggy	♻ ዳ	29-05-2024 11:53	File folder	
TrendyBiz	☁ ዳ	28-08-2023 11:44	File folder	
VMart	♻ ዳ	29-05-2024 11:53	File folder	
Walmart	⊘ ዳ	19-02-2024 08:53	File folder	
Zepto	⊘ ዳ	30-04-2024 17:38	File folder	

Bot Logs are stored in log files.

Name	Status	Date modified	Type	Size
Log-03-06-2024.html	♻ ዳ	03-06-2024 00:00	Chrome HTML Do...	1 KB
Log-02-06-2024.html	♻ ዳ	02-06-2024 23:00	Chrome HTML Do...	217 KB
Log-01-06-2024.html	♻ ዳ	01-06-2024 23:03	Chrome HTML Do...	1,976 KB
Log-31-05-2024.html	♻ ዳ	31-05-2024 23:28	Chrome HTML Do...	2,555 KB
Log-30-05-2024.html	♻ ዳ	30-05-2024 23:00	Chrome HTML Do...	3,520 KB
Log-29-05-2024.html	♻ ዳ	29-05-2024 23:00	Chrome HTML Do...	4,288 KB
Log-28-05-2024.html	♻ ዳ	28-05-2024 23:00	Chrome HTML Do...	3,921 KB
Log-27-05-2024.html	♻ ዳ	27-05-2024 23:00	Chrome HTML Do...	5,848 KB
Log-26-05-2024.html	♻ ዳ	26-05-2024 23:00	Chrome HTML Do...	326 KB
Log-25-05-2024.html	♻ ዳ	25-05-2024 23:00	Chrome HTML Do...	1,451 KB
Log-24-05-2024.html	♻ ዳ	24-05-2024 23:02	Chrome HTML Do...	1,118 KB
Log-23-05-2024.html	♻ ዳ	23-05-2024 23:00	Chrome HTML Do...	2,948 KB
Log-22-05-2024.html	♻ ዳ	22-05-2024 23:00	Chrome HTML Do...	4,557 KB
Log-21-05-2024.html	⊘ ዳ	21-05-2024 23:04	Chrome HTML Do...	2,985 KB
Log-20-05-2024.html	⊘ ዳ	20-05-2024 23:00	Chrome HTML Do...	5,110 KB
Log-19-05-2024.html	⊘ ዳ	19-05-2024 23:00	Chrome HTML Do...	249 KB
Log-18-05-2024.html	⊘ ዳ	18-05-2024 23:00	Chrome HTML Do...	1,363 KB
Log-17-05-2024.html	⊘ ዳ	17-05-2024 23:01	Chrome HTML Do...	4,067 KB
Log-16-05-2024.html	⊘ ዳ	16-05-2024 23:00	Chrome HTML Do...	5,459 KB
Log-15-05-2024.html	⊘ ዳ	15-05-2024 23:00	Chrome HTML Do...	3,797 KB
Log-14-05-2024.html	⊘ ዳ	14-05-2024 23:00	Chrome HTML Do...	2,651 KB
Log-13-05-2024.html	⊘ ዳ	13-05-2024 23:00	Chrome HTML Do...	5,035 KB
Log-12-05-2024.html	⊘ ዳ	12-05-2024 23:00	Chrome HTML Do...	271 KB
Log-11-05-2024.html	⊘ ዳ	11-05-2024 23:00	Chrome HTML Do...	1,165 KB
Log-10-05-2024.html	⊘ ዳ	10-05-2024 23:00	Chrome HTML Do...	3,478 KB

Purchase Order are received in excel/PDF format through mails in Outlook application.
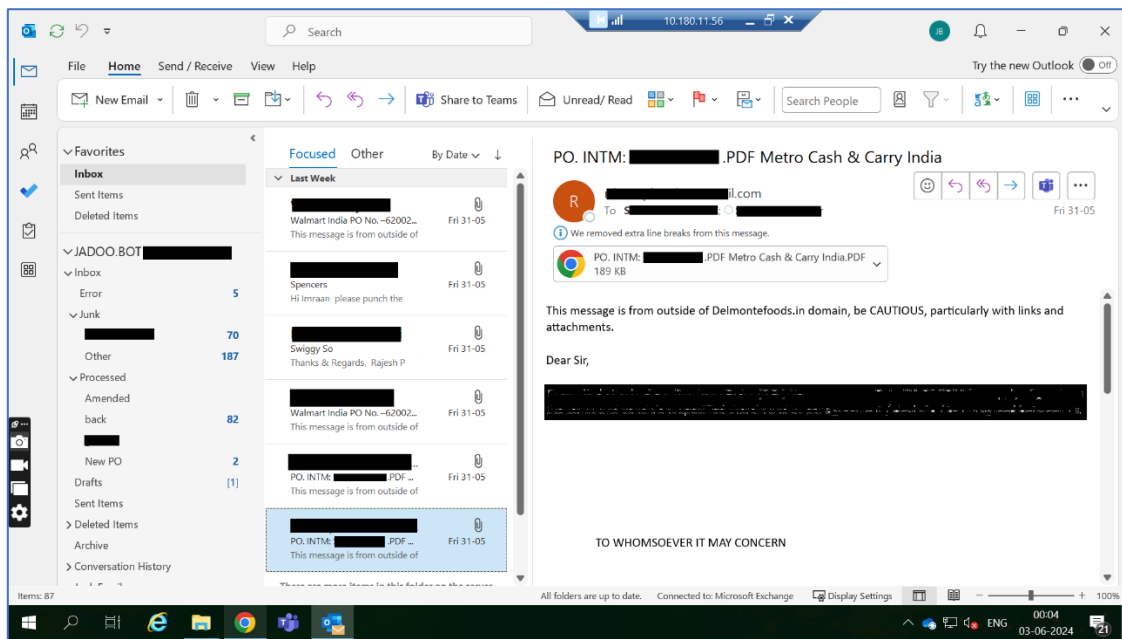
Upon receiving an email, the email downloader bot is triggered from the control room.
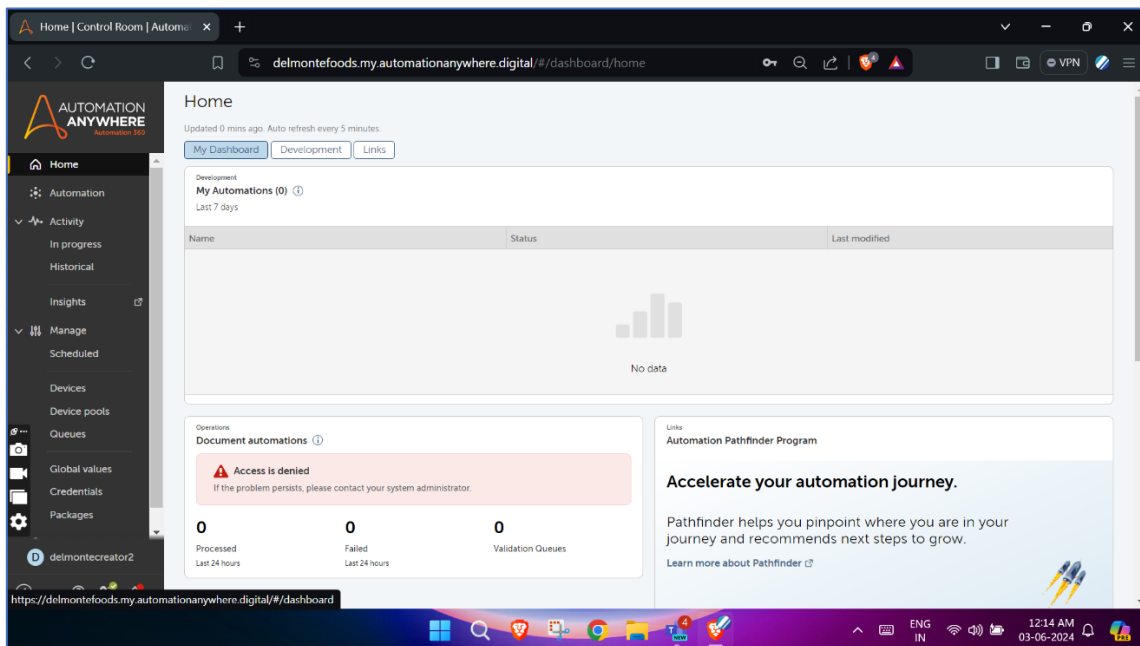
Bots are configured to run on a schedule or can be manually triggered whenever POs are received.

Bots can also be initiated from the historical section, which maintains a record of all previously executed bots.

To trigger a bot, all necessary dependencies are selected.

Once triggered, the bot's status is displayed as "in progress."

The email downloader bot begins its execution.
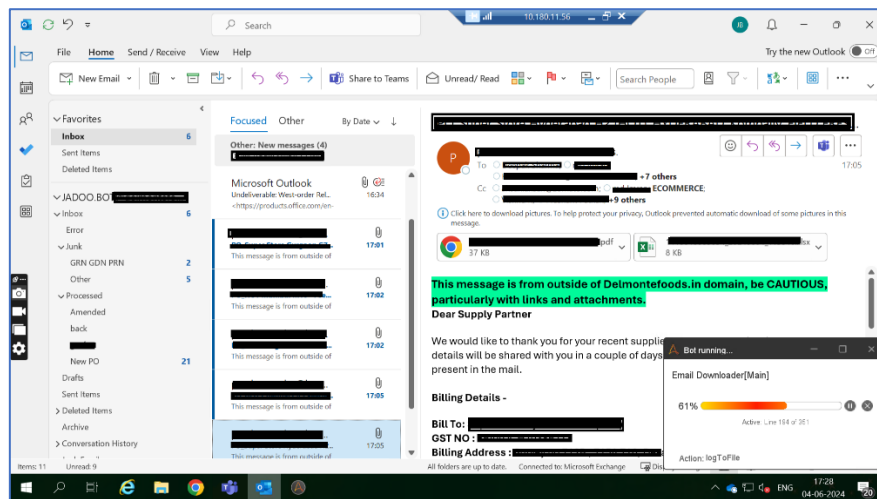
The bot first verifies the email subject and email ID. Every PO for each vendor has its own format.

The received PO file is saved in the download folder under the respective vendor's name.

The bot extracts data from the PO and stores it in a CSV file.

-   For refence, this is an empty csv file, the data extracted from the PO is stored under respective columns.
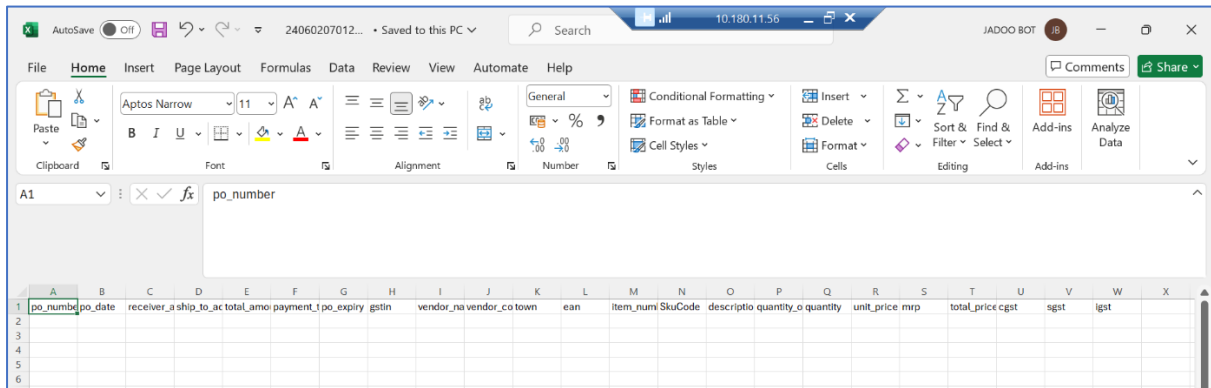

The bot logs into SAP to validate and enter the data. There are multiple validation and mandatory fields that needs to be checked before punching details for creating SO order - Company's Name, Vendor Code, GSTIN, GST, Price Difference, Net Price Difference, etc. For this, the bot refers to the files in PROD.

Upon successfully entering the data, it is saved in SAP. A success email is sent out once the process is completed.
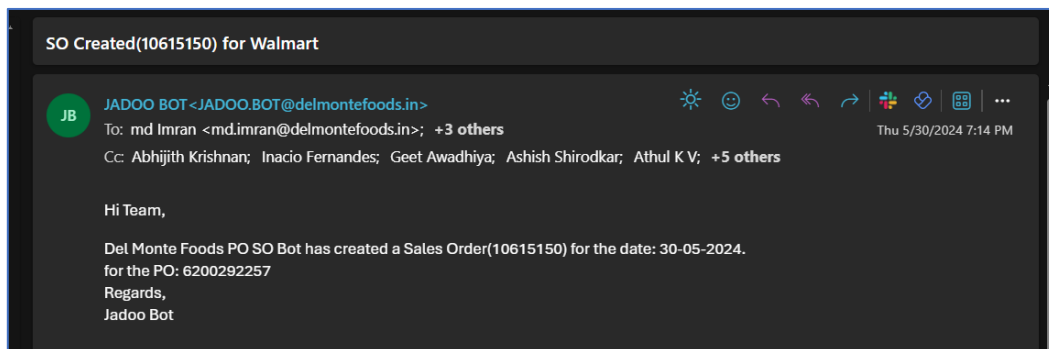
If there are any data validation mismatches or other exceptions, the bot sends out a business exception email.
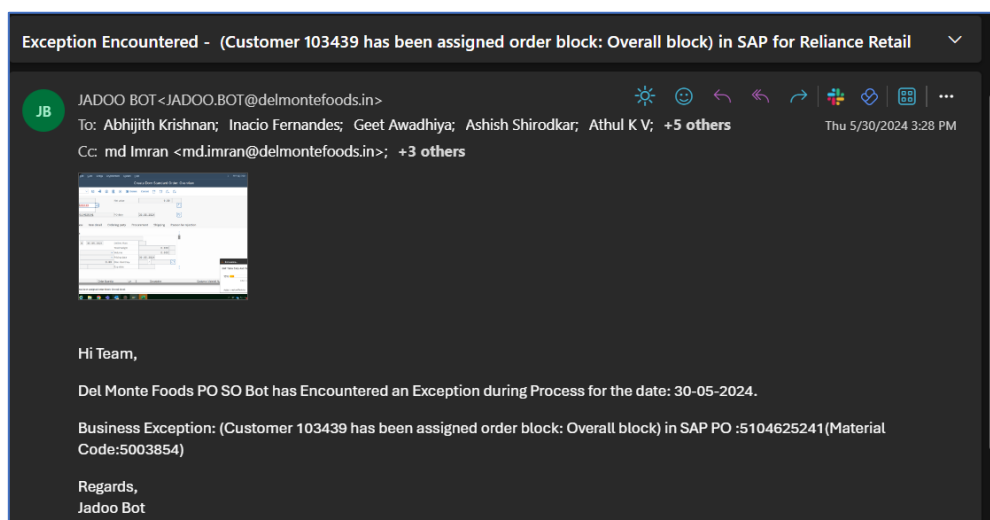
APPENDIX II

PHOTOS WHILE AT WORK

<u>References</u>

- https://www.tangentia.com/