

Internship at Jaipur Rugs Pvt. Ltd.

PREPARED BY

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NAAC 'A' Grade Accredited

**Department of Mechanical Engineering
Institute of Engineering and Technology
(IET)JK Lakshmipat University, Jaipur**

July 2022

Internship at Jaipur Rugs Pvt. Ltd.

Practice School-2

Submitted in partial fulfillment of the requirements for the degree of

Bachelor of Technology in Mechanical Engineering

By:

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Faculty Guide:

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Department of Mechanical Engineering Institute of

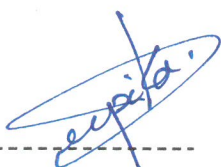
Engineering and Technology (IET)

JK Lakshmipat University, Jaipur

July, 2022

CERTIFICATE

This is to certify that the Practice School-2 project work entitled “**Internship at Jaipur Rugs Pvt. Ltd.**” submitted by **Mayank Soni (2018BTECHIME008)**, towards the partial fulfillment of the requirements for the degree of **Bachelor of Technology in Mechanical Engineering** of JK Lakshmipat University, Jaipur is the record of work carried out by them under my supervision and guidance. In my opinion, the submitted work has reached a level required for being accepted for Practice School- II examination.

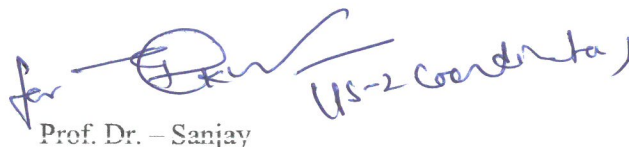


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Sincerely yours,

Mayank Soni (2018BtechME008)

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List of Acronyms

- RPA -Robotic Process Automation.
- D&D- Design and Development.
- SCM- Supply Chain Management.

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CHAPTER 1: INTRODUCTION

1.1 About RPA:

Robotic Process Automation (RPA) is a technology that is used to automate the manual and repeated tasks done by humans on digital systems. RPA utilizes user interface to do tasks just like humans do. Unlike humans, an RPA robot never sleeps and make zero mistakes.

RPA is an automation technology based on software tools that could imitate human behavior for repetitive and on-value-added tasks such as tipping, coping, pasting, extracting, merging and moving data from one system to another. The main benefits of RPA are cost reduction, increasing process speed, error reduction and productivity improvement. It works very well in every field of business process and is an emerging technology which can help humans to minimize the repeated software tasks as a result they can give their precious time to other tasks which needs more attention like customer interaction and other development lifecycle processes [1-2]. RPA is used to configure software robots that capture existing applications for automating transactions, etc. According to the institution for RPA and artificial intelligence (AI), this technology can be used for processing software, data manipulation, and other software systems to communicate with.

RPA uses software package and methodologies that can work with most recent technologies like AI, machine learning (ML), voice recognition, and linguistic communication process to require automation to future level. Also, it becomes a basic requirement for corporations of all industries that wish to convey their business right along the digital transformation journey. Technologies like AI and ML can also be used to make the results better and error free [3]. RPA is easy to configure, and no programming skills are needed to develop a robot. RPA software is non-invasive. RPA software accesses the computer system the way a human does. It accesses other systems through presentation layer. RPA is a robust platform and designed to meet security, scalability, audibility and change management of an enterprise [4]. The industrialization process has led to progressive task automation which aim at economic efficiencies and better product quality. Firms started to mix advance automation technologies with analytics and cognitive technologies [5].

Process automation is broadly categorized into two parts- hard automation and soft automation. Hard automation or fixed automation refers to a robot which is designed to perform a specific yet repetitive task. Soft automation or flexible automation refers to a programming of different tasks as per the need of the product. RPA is a part of soft automation [6]. Humans are working with side by side with robots is not a science fiction anymore. Organizations now started with a proof of concept (poc) for validating the concept used in building a robot. After some time, organizations realized to setup a team for handling the robots as well as to do additional process required for the advancement of the robots [7]. Changes in work place can take place when organizations opt RPA as a tool which replaces human with robots. This can create a fear in individuals about their jobs because employees are frightened and hard to learn about new technologies. On the other side almost, every job will be reworked not replaced [8]. RPA can also be used for creating intelligent systems in data extracted from real time system considering time as an object for data abstraction [9]. The front office jobs like support, selling, requirement handling and back-office jobs like finance and human resource can be converted into RPA tasks. Back-office processes like travel, billing, expenses, accounts payable, accounts receivable are best suited for the RPA processes which results in cost and error reduction [10]. To make robots intelligent, AI plays a major role. Robots challenge AI to deal with real objects in real world. A robot is a combination of sensors, mechanical effectors and computers and AI is applicable in all the mentioned components. Robotics and AI should be move simultaneously [11].

1.2 About the Company:

Jaipur Rugs is one of India's largest manufacturers of hand knotted rugs. Headquartered in Jaipur, India, the company's operations encompass more than branches, operating in six states and 600 villages in India with distribution to over 40 countries with its independent base of over 40,000 artisans. The company also has a large distribution base in Atlanta, Georgia, United States.

The ecosystem of Jaipur Rugs comprises three branches that work with their network of artisans:

1. Jaipur Rugs Company is the parent company that conducts the businesses of the artisan network. It manages the production, export and sale of the rugs from weaver to customer. It is headquartered in Jaipur, Rajasthan.
2. Jaipur Rugs Foundation is the service arm of Jaipur Rugs Group. It was registered in 2004 under the Rajasthan Public Trust Act with the aim of integrating rural people into its value chain by training them to become home-based artisans and giving them a market for their products.
3. Jaipur Living is the branch of Jaipur Rugs that caters to business in Atlanta, United States. It is headed by Nand Kishore Chaudhary's eldest daughter, Asha Chaudhary.



Fig 1: Company Logos

PixxelDigital is an I.T Company with its target fields in Website Development, Mobile app development, Graphic designing, and Internet marketing services. We are the only destination for those who are looking forward for a range of services that are unique and peruse high quality development efforts.

PixxelDigital shows global presence with their wide range of services as website designing, software development, open-source technology as WordPress, PHP, ASP.Net, Joomla, Magento, mobile application, content management system with our innovative and skilled expertise developer. Our expertise can work with diversified web technology window as well as Linux platform. In the competitive market we have a wide scope for the newcomers in the technical market.



Fig 2: Department Logo

1.3 Objective of the training:

- Build, test and configure robotic applications
- Provide technical support for robotic systems
- Participate in the team who determines which process should be automated
- Document robotic application development, maintenance, or changes
- Work cross-functionally with different departments to create and optimize workflow processes
- Gain valuable experience in applying process automation to real world settings within a large organization

1.4 Problem Statement:

While creating Image Colour Swapping, Production Order Swapping, Job Card PDF Creation, Automatic Data finishing Process, Weaving Invoice Generation, Color Contribution Details through Graph Print Software and doing these all-tasks people had to spend too much extra time individually which can be used in doing other important tasks. It was very difficult to spend time in such a hectic and long process. So, RPA is used to automate that task.

1.5 Project Objectives:

OBJECTIVE 1: To reduce the time of doing manual job.

OBJECTIVE 2: To reduce human intervention while doing the process.

OBJECTIVE 3: To create results exactly like humans are doing (same logics and steps).

OBJECTIVE 4: To execute the process with Higher Efficiency.

1.6 Methodology Adopted:

To fulfill the above-mentioned objectives, the methodology adopted consists the use of UiPath software which consists of UiPath Studio, UiPath Orchestrator, UiPath Robot.

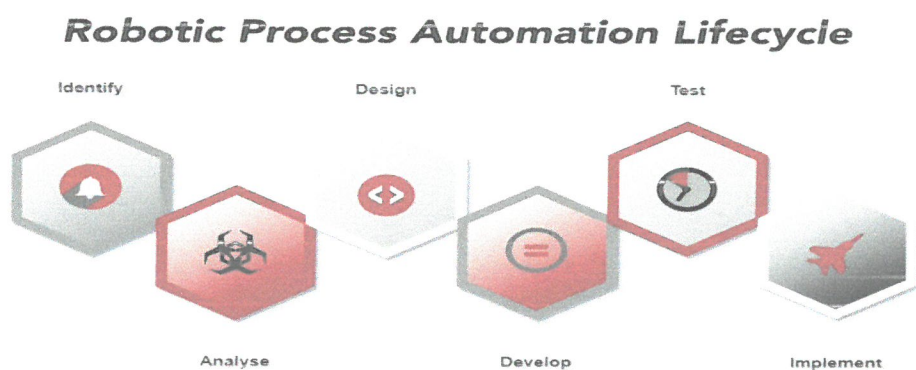


Fig3: Robotic Process Automation Lifecycle

CHAPTER 2 : PROJECT DESCRIPTION

UiPath tool has the following platforms which are given below:

- UiPath Studio- This software is used to design the workflows and debug it by run file option to check for errors.
- UiPath Orchestrator – It is a cloud platform provided by UiPath academy to run the workflow on cloud. It is done by publishing the workflow as a package on the orchestrator platform and running it on cloud by deploying the robot.
- UiPath Robot – It is used to connect the local machine to cloud (UiPath Orchestrator). The robot can be run either manually or timing can be scheduled. The output given by robot not only shows the resultant of the final work but also the time duration robot takes to complete a task and other log information's like type of error (if occurs).

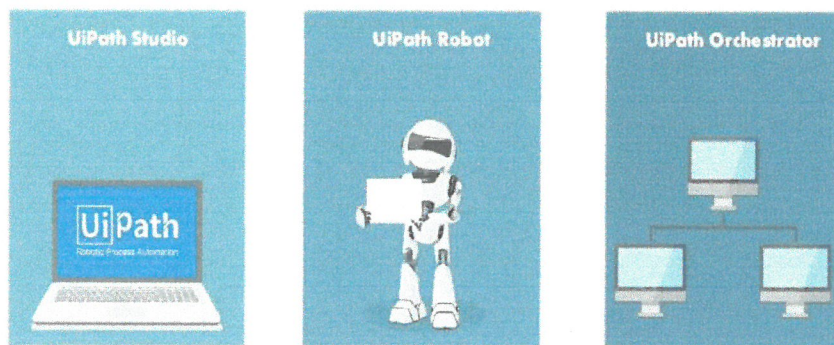


Fig4: UiPath Platforms

The steps are divided into a number of sequences which finally linked to each other in form of a flowchart. The project thus added as a service in UiPath Orchestrator and a robot is assigned for the same.

Now the user has to just run the robot and rest is done by it.

Projects: -

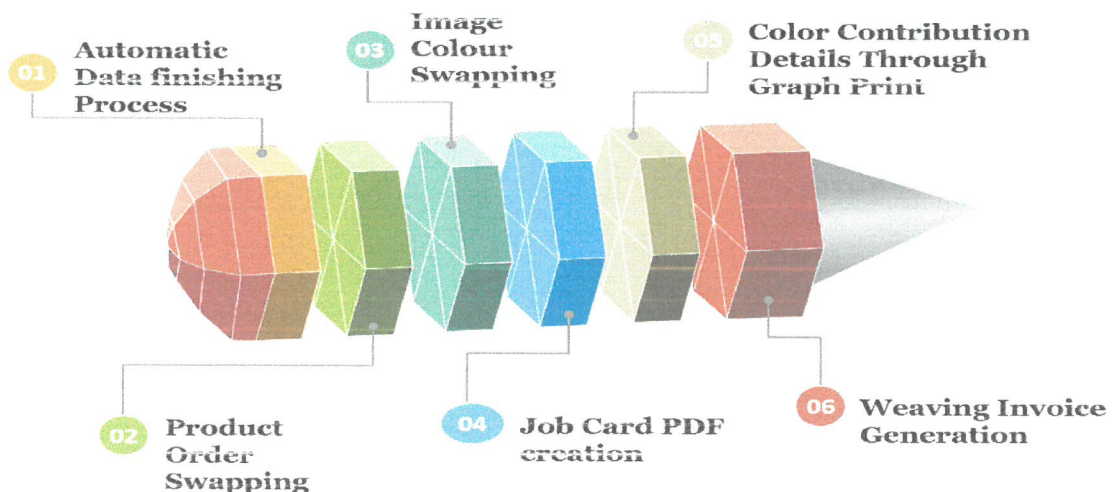


Fig5: Projects Chart

2.1 Automatic Data Finishing Process: -

In this project I have built an RPA process to automatically finish the Map RPO data.

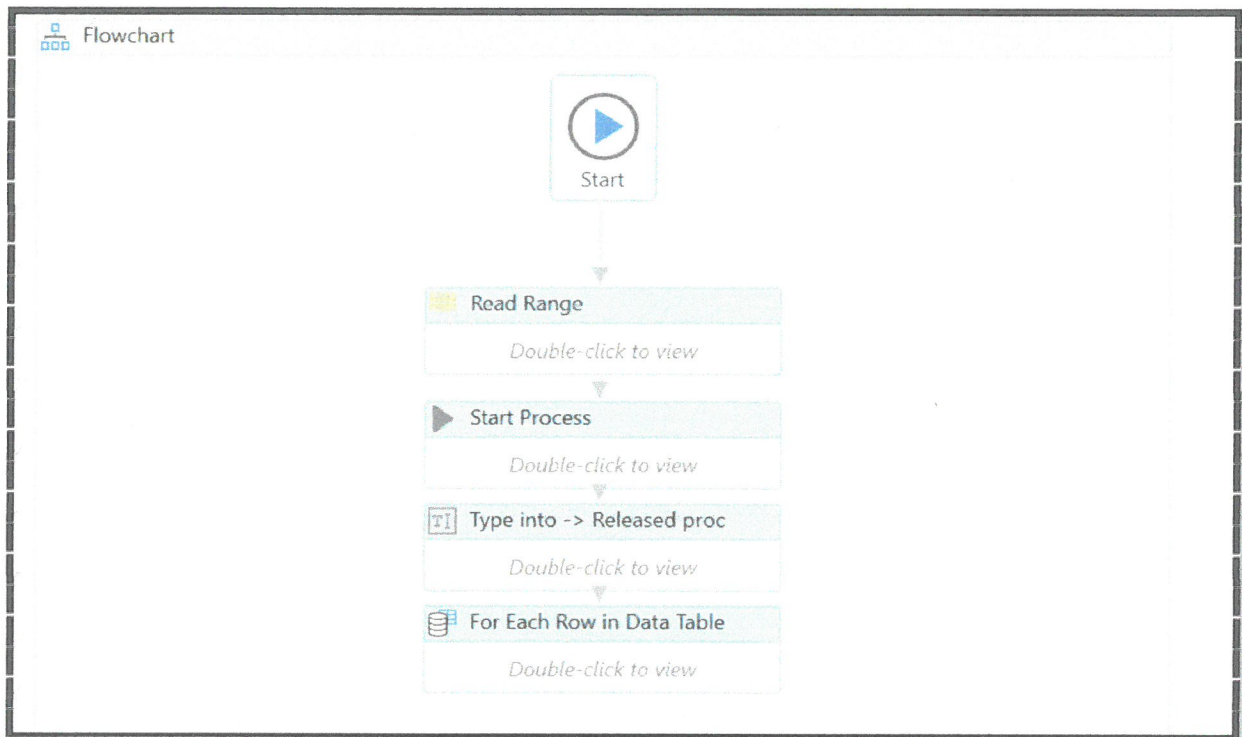


Fig6: Automatic Data Finishing Process Flowchart

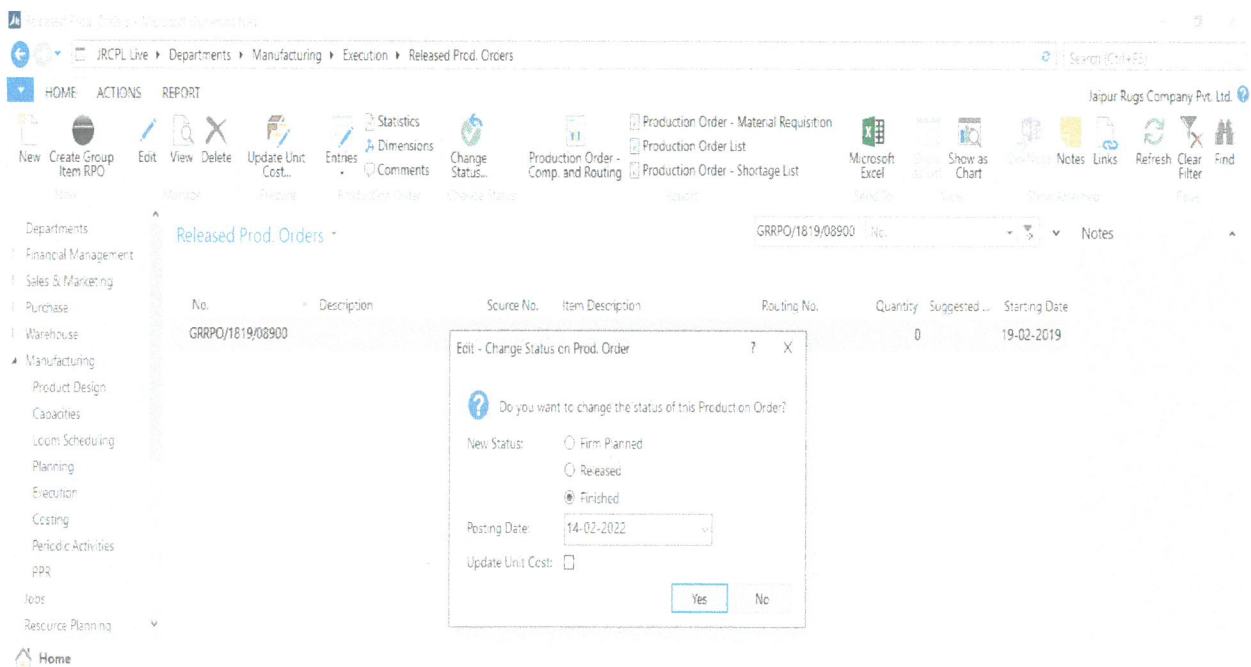


Fig7: Microsoft Dynamics NAV

Here are the steps which explains the working of project according to the flowchart:

Step1: Robot will speak “Process started” as a sign indicating that robot has started working.

Step2: The Map RPO Data is taken from “Map RPO Finish” excel file.

Step3: Then Robot Open up the Microsoft NAV Software and Go to the Released Production Order.

Step4: After Retrieving the MAP Production Order No. it changes the Current Status of the Order No.

Step5: Process applied to finish the MAP Production Order No. and after that it repeats for the remaining Released order No.

IMPACT

- Fully automated now
- Reduced the load on Navision server as a result fasten other D&D processes
- Reduced the report refresh times as data got finished.
- Currently Finished **Approx. 1 lac Map RPO Orders.**

2.2 Production Order Swapping: -

In this project right now, I have Built the logic to build an automatic process to swap data with considering different parameters which is like:

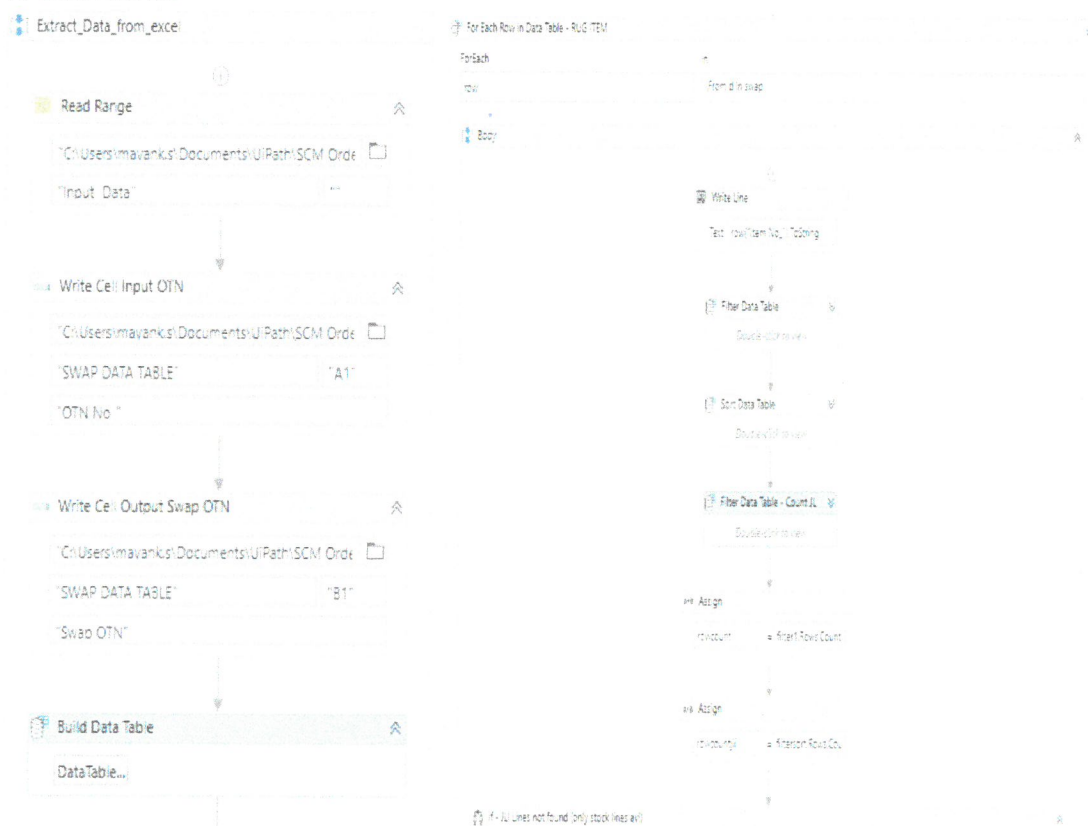
Top Priority	Type of Order	Group Stage	Rev_Ex Factory	Remaining Work
JLI	Back Order	1.Design	Date	0 - 100
Stock	OOS (Out of Stoke)	2.Store		
		3.Branch		
		4.Loom		
		5.Carpet At Branch		
		6.Finishing		
		7.Ready		

Fig8: Priority Parameters

Fig9: Excel Sheet of Input Data

10: Excel Sheet of Output Data

Work Flow:



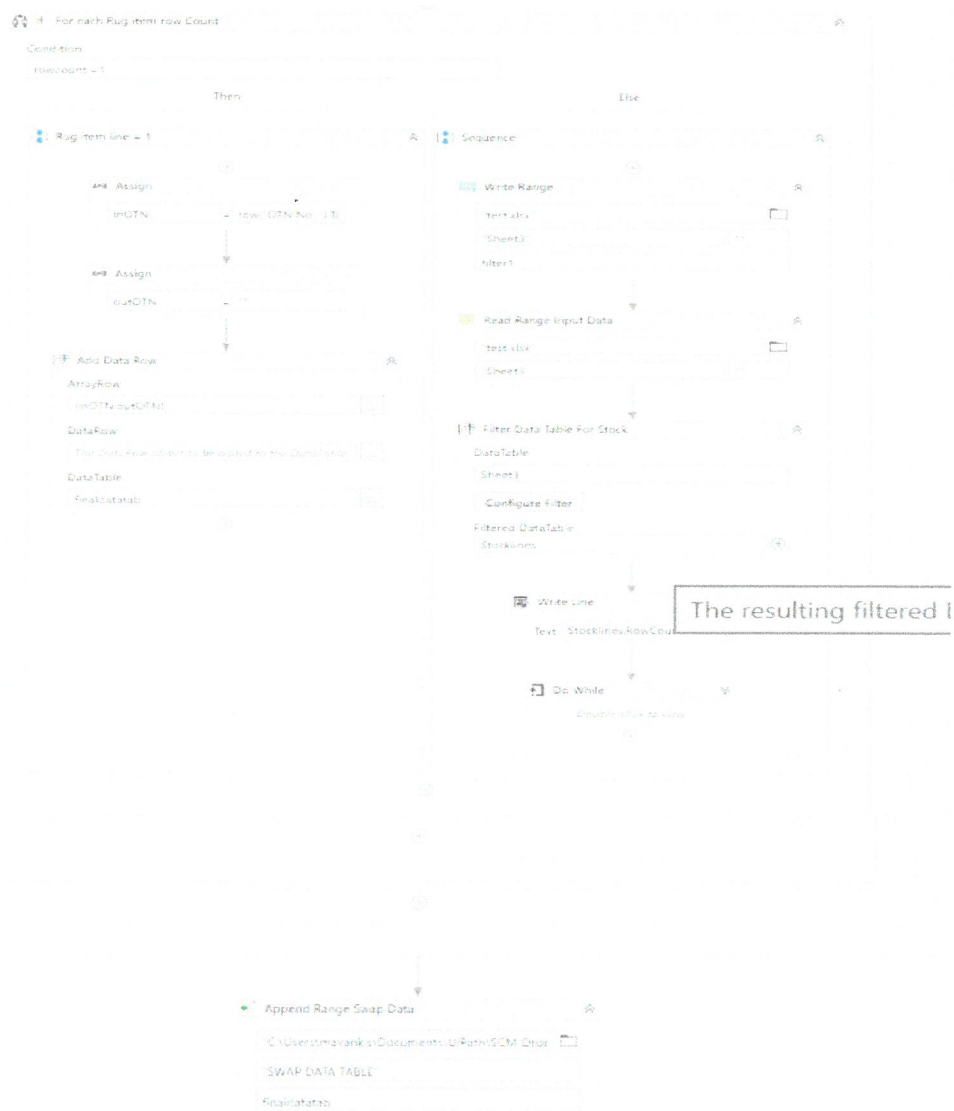


Fig11: Workflow for Production Order Swapping

Impact:

- **Fully Automated Now.**
- **Manual Process used to take 1 days to swap 500 – 600 lines But through RPA It hardly takes 30 minutes to Swap 8000 lines.**

2.3 Image Color Swapping: -

In this project right now, I have Built the Logic to create a Master Color File from Matching File on the basis of RGB Combinations of the Input Image we need to create the master Color Image through Ned Graphics Texcelle Software.





Fig14: Workflow for Image Color Swapping

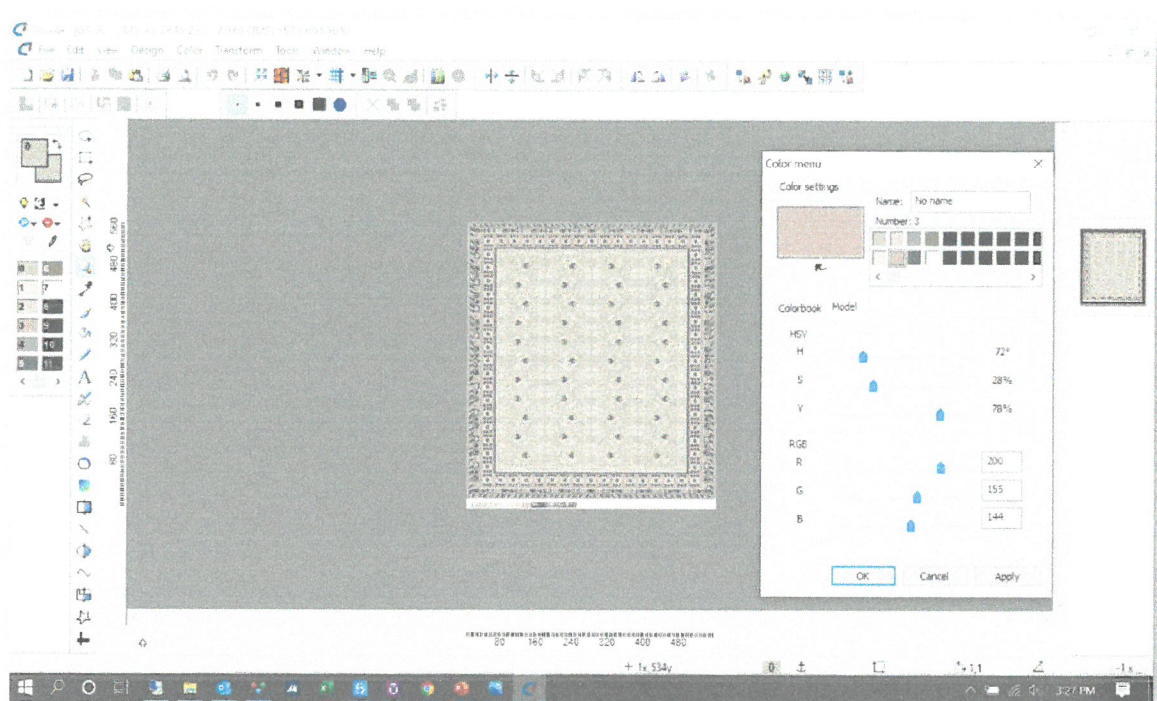


Fig13: Image Color Swapping in Texcelle Software



Fig14: Input Image

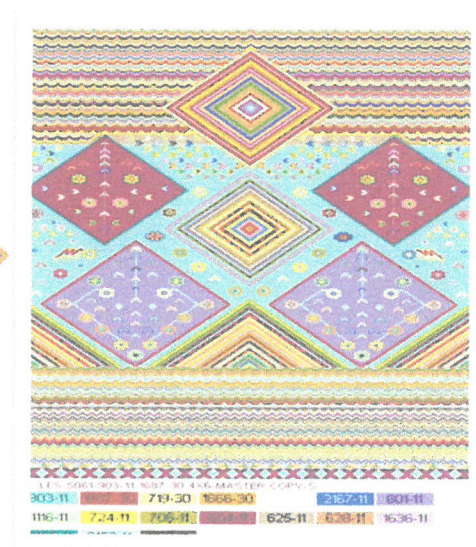


Fig15: Output Image

2.4 Job Card PDF Creation: -

In this project right now, I have Built the automatic process to create Job Card PDF on the Basis product group Stage.

1. Production Order Scheduling
2. Released Prod. Orders

1	Production Order No
2	JR/PRD-WV-359788
3	JR/PRD-WV-359789
4	JR/PRD-WV-360198
5	JR/PRD-WV-360200
6	JR/PRD-WV-360201
7	JR/PRD-WV-360203
8	JR/PRD-WV-360344
9	JR/PRD-WV-360345
10	JR/PRD-WV-360346
11	JR/PRD-WV-360347

Input Data

JOB CARD PDF			
Name	Date modified	Type	Size
JRPRDWV359342	10-05-2022 15:11	Microsoft Edge...	7 KB

Output

- Created 500 PDFs For Released and Production Orders.

Manual Time : 4 – 5
Mins per PDF

Through RPA : 20 -25
mins for 100 -150 Lines

Fig16: Input Output Data with project Impact

Workflow:

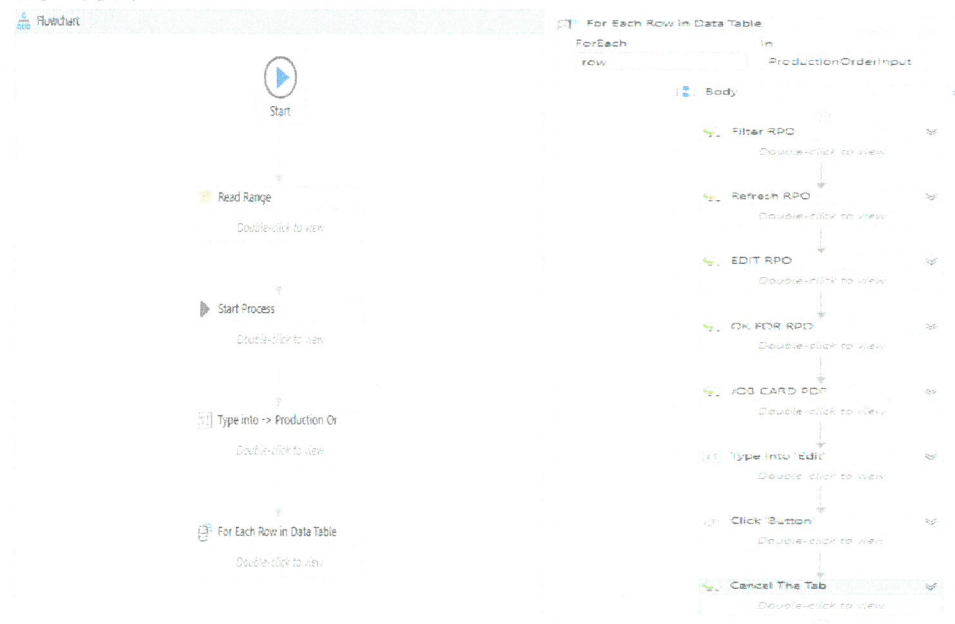
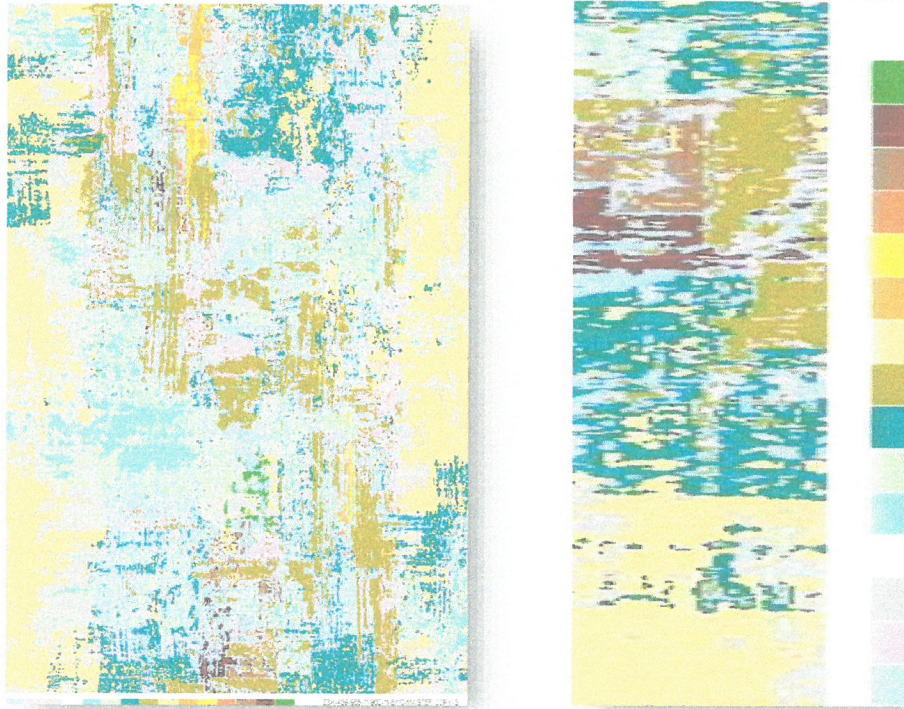


Fig17: Workflow for Job Card PDF Creation

2.5 Color contribution Details through Graph Print Software: -

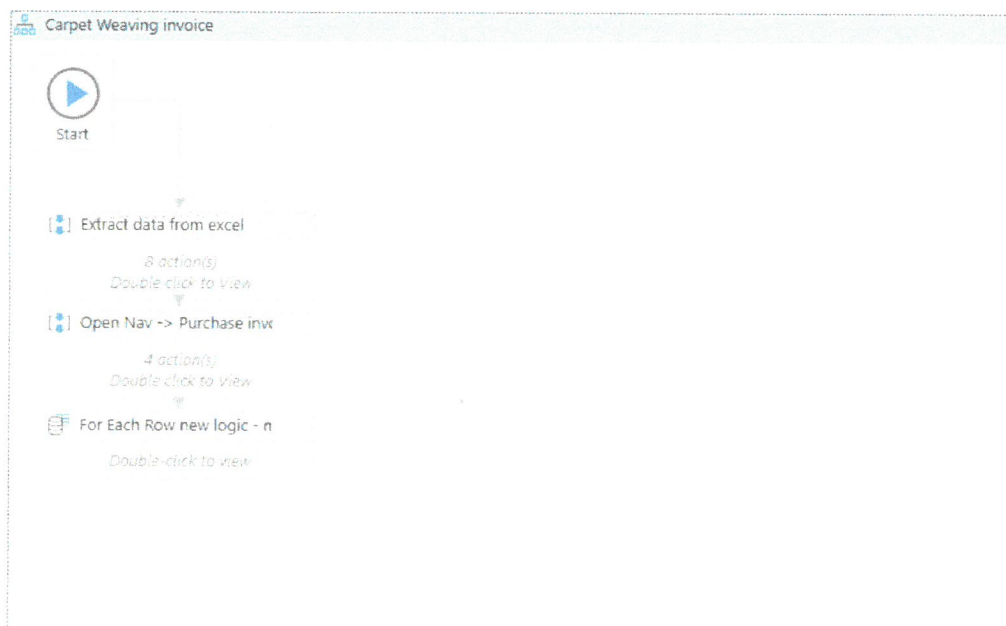
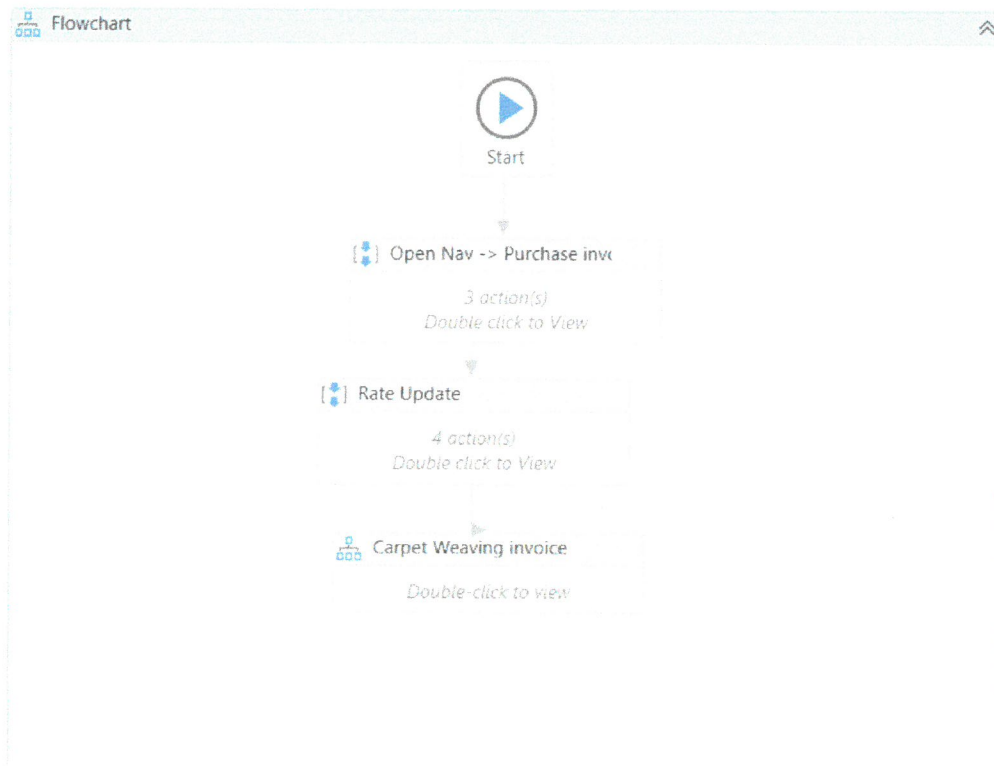
In D&D Department team manually find the Color contribution Details through Graph Print Software for the Master Color Image So for that I have built the RPA process to do the same work automatically without any human intervention.



These Small Color Palates are Called "TIKNI" and while calculating The Color Contribution through graph print a person needs to cut down the "TIKNI" Part from the image then need to calculate the color contribution % through software.

2.6 Weaving Invoice Generation: -

For Mirzapur Branch of Jaipur Rugs Accounts team manually creates the weaving invoice for shipped carpets for that purpose I have built the RPA process to generate the Weaving Invoice Automatically and Update the rate and Tax in the invoices.



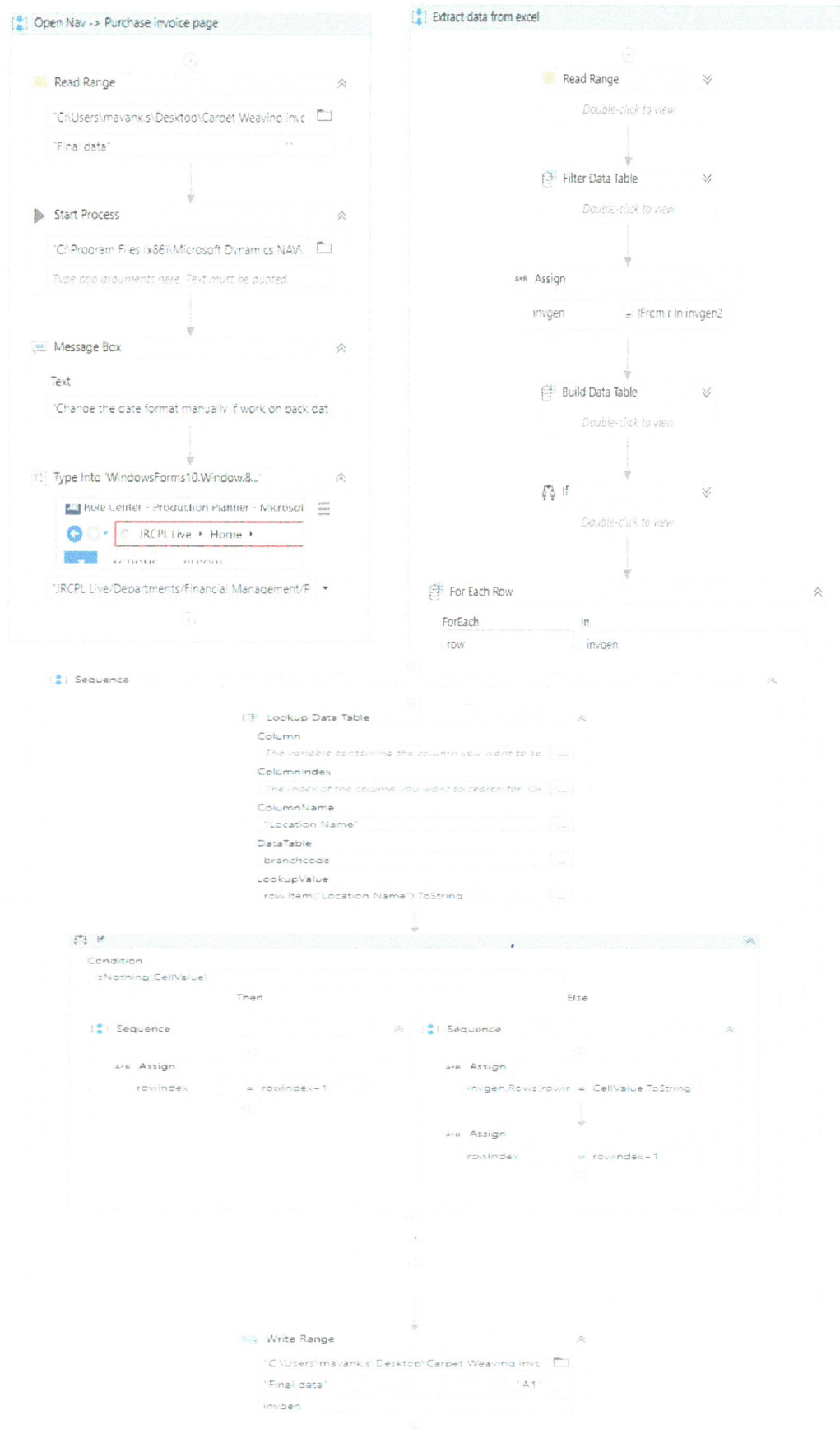


Fig18: Workflow for Weaving Invoice Generation

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Workflow Invoice Creation: -



CHAPTER 3 : CONCLUSION

Robotic Process Automation is the need of the hour and to do the business tasks efficiently and with less efforts or human intervention robots are made. Robotic Process Automation helps human beings not only to make the task easy but also to complete the task with 100% accuracy. So, to make less human intervention within business works an unattended robot is made which will complete the task in minimal time.

In these projects six robots are created which will give the Master Images, Weaving Invoices, Job Card PDF's and finishes the production Order Numbers without any human intervention works more efficiently with 100% Accuracy.

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CHAPTER 4: PS-2 CERTIFICATE

JAIPUR RUGS

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Date: 27th June 2022

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr. Mayank Soni** student of **JK Lakshmipat University, Jaipur**, was associated with Jaipur Rugs Company Pvt. Ltd. He has successfully completed his internship in **Pixxel Digital Department** from **27th Dec 2021 to 27th June 2022**.

During the time of his tenure, he performed exceptionally well & was extremely resourceful to the company. His demeanor was competent throughout his internship period.

We wish him all the success in his future endeavors.

For Jaipur Rugs Company Pvt. Ltd.



Authorized Signatory



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