A report on

SUMMER INTERNSHIP-1

Robotic Process Automation Developer Virtual Internship

Submitted in partial fulfillment of the requirements

for the award of the degree of

BACHELOR OF TECHNOLOGY

in

Computer Science and Engineering

(Artificial Intelligence & Machine Learning)

by

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Certificate

This is to certify that the internship report entitled Robotic Process Automation Developer Virtual Internship is the bonafide work carried out by **V SARVAGNA** bearing Roll Number **224G1A3397** in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology** in **Computer Science and Engineering (AI & ML)** for three months from **April 2024 to June 2024**.

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Date:

Place: Ananthapuramu

EXTERNAL EXAMINER

PREFACE

Brief overview of the company's history:

UiPath has a vision to deliver a robot for every person, one where companies enable every employee to use, create, and benefit from the transformative power of automation to liberate the boundless potential of people.

Only UiPath offers an end-to-end platform for hyper automation, combining theleading Robotic Process Automation (RPA) solution with a full site of capabilities that enable every organization to scale digital business operations at unprecedented speed. The company has already automated millions of repetitive tasks for over 65% of the fortune 500 and 8 of the fortune 10.

UiPath is an RPA Tool which holds the capability of virtual workforce poweredby software robots. This helps the enterprises to automate the business operations in anagile and cost-effective manner.

Company's Mission Statement:

- Making work smarter and more productive so the people are free to do great Things.

Business Activities:

- Incrementally automate the support processes & reduce the manual effort dependency for Customer support.
- Reduce the Cost ($) of support by automating repetitive activities and hence supporting more products/customer with the same / reduced cost.
- Improve the Quality of Support by increasing the Test / Monitoring coverage for key activities such as Node Monitoring, Proactive Health Check etc.
- Respond to Customers' requests / issues in a timely fashion thus improving Customer Service.
- Provide an implementation road map for RPA covering the Implementation, Licensing cost as well as projected reduction in the existing support costs.

ACKNOWLEDGEMENT

The satisfaction and euphoria that accompany the successful completion of anytask would be incomplete without the mention of the people who made it possible, whose constant guidance and encouragement crowned our efforts with success. It is a pleasant aspect that I have now the opportunity to express my gratitude to all of them.

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CONTENTS **PAGENO.**

LIST OF FIGURES

LIST OF ABBREVIATIONS

CHAPTER 1
INTRODUCTION 1-3
1.1 Robotic Process Automation 1
1.2 Importance of Robotic Process Automation 1
1.3 Brief introduction about modules 2

CHAPTER 2
TECHNOLOGIES USED FOR RPA 4-5
2.1 Machine Learning 4
2.2 Screen Scraping 4
2.3 Artificial Intelligence 4

CHAPTER 3
APPLICATIONS 6-14
3.1 Common Business Process and Activities 6
3.2 Activities in Commercial Functions 9
3.3 Industry -Specific Process 9
3.4 RPA Applications For Personal Use 14

CHAPTER 4
MODULES 15-18
4.1 Basic Awareness on RPA 15
4.2 Foundation Training on UiPath 15
4.3 UiPath Process Templates 16
4.4 Credentials and Credential Manager 16
4.5 Advanced Data items 17
4.6 Advanced Attributes Matching 17
4.7 Associate Developer Next Steps 17
4.8 Associate Developer Certification Guidelines 17

CHAPTER 5
REAL TIME EXAMPLES OF RPA 19-25
5.1 Examples of RPA 19
5.2 Usage of RPA 24

CHAPTER 6
LEARNING OUTCOMES OF RPA 26

CHAPTER 7
CONCLUSION 27
INTERNSHIP CERTIFICATE 28
REFERENCES 29

LIST OF FIGURES

Fig.No.	Description	Page No
1.1	Robotic Process Automation Definition	1
1.2	Robotic Process Automation	2
2.1	Artificial Intelligence	4
3.1	Common Business Processes and Activities	6
3.2	Activities in Commercial Functions	9

LIST OF ABBREVIATIONS

RPA	Robotics Process Automation
HTML	Hyper Text Markup Language
SAP	System, Applications Products
DB	Data Base
IA	Intelligence Automation
GUI	Graphical User Interface
ROC	Robotic Operations Center
RBAC	Role-based Access Control
CV	Computer Vision
APIs	Application Programming Interfaces
DM	Data Migration
CCO	Call Centre Operations
NLP	Natural Language Processor
ML	Machine Learning
AI	Artificial Intelligence
OCR	Optical Character Recognition

CHAPTER 1

INTRODUCTION

1.1 Robotic Process Automation (RPA)

RPA stands for **Robotic Process Automation.** It is the technology used for software tools that automate human tasks, which are manual, rule-based, or repetitive. Typically, it is like a bot that performs such tasks at a much higher rate than a human alone. These RPA software bots never sleep and make zero mistakes, and can interact with in-house applications, websites, user portals, etc. They can log into applications, enter data, open emails and attachments, calculate and complete tasks, and then log out.

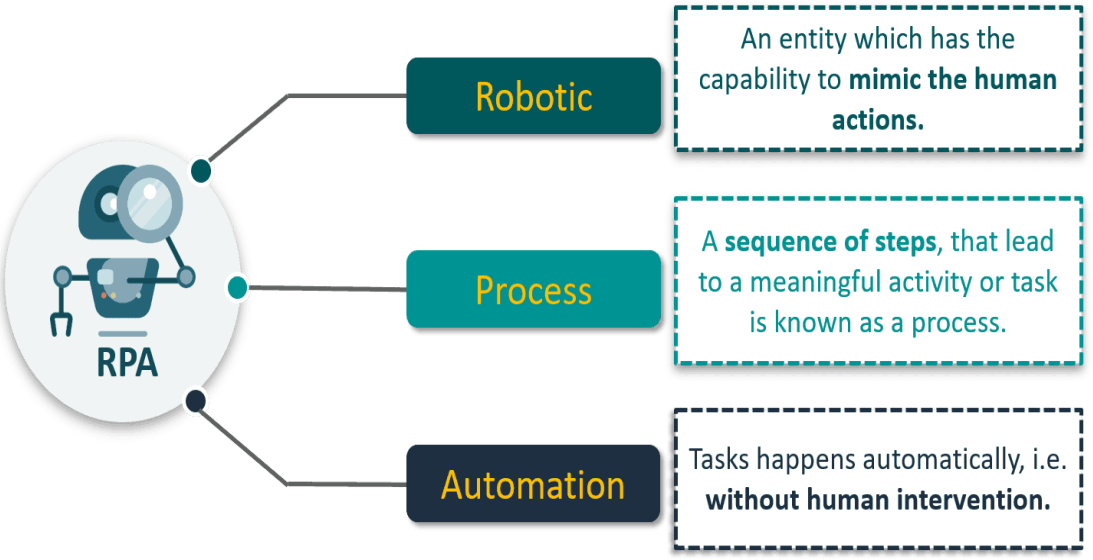


Fig 1.1 Robotic Process Automation Definition

The term Robotic Process Automation creates a picture of physical robots doing some labor-intensive human physical tasks such as uploading or unloading heavy goods from a vehicle or cleaning the house etc. However, in reality, the picture is completely different. The word 'Robot' in 'RPA' is not a physical robot but a virtual system that helps in automating the repetitive manual computing or business process tasks.

1.2 Importance of Robotic Process Automation

- **Improve speed, quality, and productivity**– RPA bots can be trained to undertake un-intelligent and repetitive tasks faster and more accurately than humans ever could.

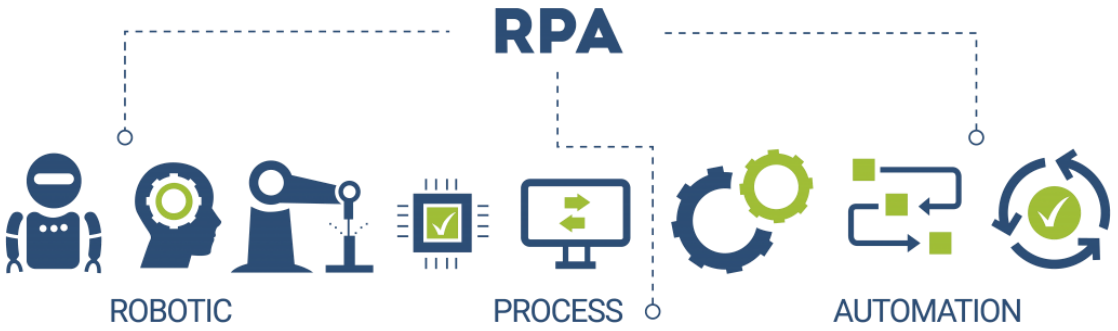


Fig 1.2 Robotic Process Automation

- **Get more value from big data**– many organizations are generating so much data that they can't process all of it. There are many opportunities to gain insights from this data and drive greater efficiencies. RPA is ideally suited to help parse through large datasets, both structured and unstructured, helping organizations make sense of the data they are collecting.
- **Free up employees for more valuable tasks**– RPA offers the opportunity to free employees up to work on more valuable tasks. Leaving tedious and repetitive work behind, employees can take up the jobs of the future, perhaps upskilling to implement automation and AI to achieve greater outcomes.
- **Become more adaptable to change**– Recovering from the disruption caused by COVID-19 involves organizations becoming more agile and nimble in dealing with change. Resilience and adaptability are central to overcoming current and future challenges. RPA helps organizations speed up processes while reducing costs, ensuring organizations are ready to deal with disruption and change.

1.3 Brief Introduction about Modules

1.3.1 Foundation Training

- Section 1: Introduction to Foundation Training
- Section 2: Detailed Explanation of Process Studio
- Section 3: Introduction to Process Studio
- Section 4: Introduction to inputs and outputs
- Section 5: Business Objects
- Section 6: Object Studio
- Section 7: Exception Management of Overview
- Section 8: Management Overview
- Section 9: Work Queues
- Section 10: Additional Features

1.3.2 Associate Developer

- Section 1: Basic awareness of RPA
- Section 2: Foundation Training
- Section 3: Process Templates
- Section 4: Credentials and Credential Manager
- Section 5: Advanced Data Items
- Section 6: Advanced Attribute Matching
- Section 7: Associative Developer Next Steps
- Section 8: Associative Developer Certification

CHAPTER 2

TECHNOLOGIES

2. Technologies Used For RPA

RPA is the combination of several technologies, brought together under one toolkit for different automation purposes. Though the term **'RPA'** emerged in the early 2000s, the initial development was started after the 1990s.

2.1 Machine Learning (ML)

Machine Learning (ML) is one of those technologies that helped towards innovation, which eventually lead to the creation of RPA. In 1959, **Arthur Samuel** developed Machine Learning. Machine Learning allowed computers to perform several critical tasks, such as translation and text summarization, etc. However, there were limits on how computers could process language. It led to the development of **Natural Language Processing (NLP),** which Screen Scraping technology is considered as a significant step towards the creation of RPA. This technology is used to extract data from web, programs, and documents, which is further displayed by another application.

This helped computers to understand and process human language more accurately. In 1960, NLP combined **AI (Artificial Intelligence**) for establishing the interactions between computers and human languages. Then, the technology progressed further towards the establishment of RPA, and there were few more developments in the 1990s.

2.2 Screen Scraping

Screen scraping technology is considered as a significant step towards the creation of RPA. This technology is used to extract data from web, programs, and documents, which is further displayed by another application.

2.3 Artificial Intelligence (AI)

Fig 2.1 Artificial Intelligence

Artificial intelligence is the ability of computer machines or robots to perform tasks that typically require human intelligence. AI programming is based on three techniques: learning, reasoning, and self-correction. The applications for artificial intelligence are endless and can be applied to many different sectors and industries. Some of the commonly used technologies of AI are:

- **Image Recognition -** It is the technology that identifies and detects objects or attributes in images or videos.
- **Speech Recognition -** It is the technology that identifies words and phrases in spoken language and converts them into a machine-readable format.
- **Natural Language Generation -** It is the technology that transforms structured data into natural language.
- **Sentiment Analysis -** It is the technology that uses natural language processing, text analysis, and biometrics to identify, extract, quantify, and study subjective information.

All these technologies together made RPA such an impactful technological platform and added more benefits for the business users.

CHAPTER 3

APPLICATIONS

3. Applications of RPA

RPA can be used to automate repetitive tasks both in the front office and back office that require human intervention.

Some common RPA use cases are for:

- Automation of data entry and data extraction
- Invoice processing automation
- Sales
- HR
- Banking
- Retail
- Manufacturing, and more.

In this, we will explore the most common use cases of RPA, which we have divided into 5 buckets of:

- Common business processes.
- Activities in commercial functions.
- Activities in support functions Industry-specific processes
- RPA applications for personal use.

3.1 Common Business Processes and Activities

Fig 3.1 Common Business Processes and Activities

1. Customer onboarding

Most B2C businesses have a customer onboarding process that is critical to reduce churn and getting customers to start using the product.

By using OCR and RPA, companies can deliver intelligent automation in customer onboarding. Most customer onboarding processes, such as contract generation, can be completed instantaneously even in companies that rely on legacy systems, thus greatly improving customer experience.

2. Data updates

Most departments including HR, customer service, and marketing routinely need to update their ever-changing customer/personnel data. Setting up bots for auto-updating relevant data from forms or emails can ensure that departments always have access to the most recent and correct data.

3. Data validation

Most data validation controls can be embedded in databases. However, there are data validation tasks, such as cross-checking data against publicly available data, for which RPA automation is more suitable than other tools because of its easy programmability, scalability, and integration into different systems.

4. Extracting data from PDFs, scanned documents, and other formats

Screen scraping, OCR (Optical Character Recognition), and basic pattern recognition technologies enable data extraction from almost any format, reducing the need for extracting and inputting data manually. We have a data-driven list of the top document-capturing applications. These can be easily integrated into RPA solutions to extract data and process documents.

5. Periodic report preparation and dissemination

Every business requires regular reports to inform managers and to inform teams of their progress. Periodically preparing and sending out these reports is time-consuming.

RPA solutions can auto-generate reports, analyze their contents, and based on the contents, email them to relevant stakeholders. This automates periodic reporting.

For example, a telecom operator needs to send each report about connectivity issues to the correct person in charge. For instance, a CTO should be copied in reports with critical issues and the head of the network should be copied in reports with major issues.

6. Data migration and entry

Legacy systems still perform critical functions at companies. For example, legacy billing systems need to interface with other systems, which may not have the capability to pull relevant data from APIs. In such cases, employees manually migrate data using formats like CSV.

Data migration between new systems can also be complicated when these systems don't offer APIs. Even marketing has ~10,000 applications to choose from and some of those solutions do not provide flexible API access.

7. Generating mass emails

Personalizing emails (e.g. marketing outreach) can lead to more successful campaigns. However, personalization relies on data coming from different systems (e.g. CRM or ERP systems), which can be time-consuming to generate manually.

8. Quote-to-cash

Every business needs to sell to survive. Issues in the operations side of selling can result in late receivables, delayed invoice generation, selling at reduced prices (due to clerical errors), etc.

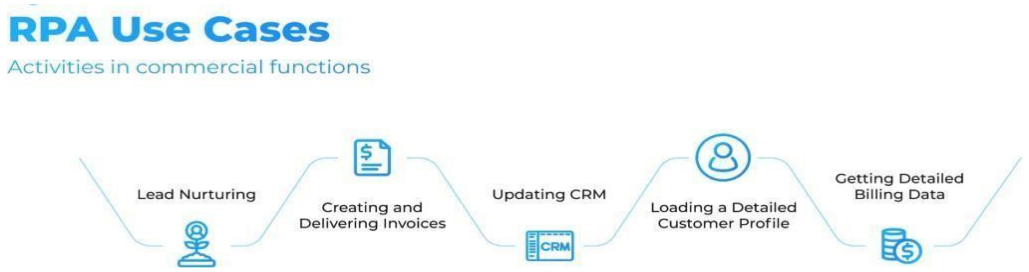
9. Procure-to-pay (p2p)/Source-to-pay (s2p)

The procure-to-pay process involves creating a purchase order, extracting invoice and payment data from multiple systems like:

Supplier emails, Enterprise resource planning (ERP), Customer relationship management (CRM), Banks, Vendors and logistics companies.

But not all these systems provide easy integrations and require manual labor. RPA bots can fill integration gaps: Since they work on the front end, they can provide an easy way to automate integrations.

3.2 Activities in commercial functions



1. Lead nurturing

Leads arrive through a myriad of channels such as LinkedIn, lead collection forms and vendors.

2. Price monitoring

RPA bots can monitor competitors' prices on their own and on e-commerce retail websites to track and implement real-time price changes.

3. Product/service monitoring

The R&D department can use RPA bots to the track competitors' products/services on their own websites and on online retail platforms. The gained insights can shape company's then be used to shape the way company offers.

4. Review monitoring

Companies can track what users are saying about competitors' products/services for sentiment analysis. RPA bots can extract users' review and structure them.

3.3 Industry-Specific Processes

According to our experience and research, financial services including insurance and BPO (business process outsourcing) seem to be the top users of RPA technologies.

Robotic Process Automation allows industries to automate tasks across various systems. An industry that implements RPA can automate its entire workflow, infrastructure, which are mostly labor-intensive and time consuming. Industries of all sizes can automate theirtasks with robotic process automation that completely eliminates the risks of human errors.

RPA automates this entire process and credits the amount automatically to the vendor's account. RPA also sends automated notifications to customers promoting them to furnish necessary documents and processes account closure functions with 100% accuracy.

Financial Services

1. Know Your Customer (KYC)

While dedicated KYC solutions are emerging, if your company does not prefer to use one, it can leverage RPA bots to partially automate the KYC process. For edge cases that require human intervention, they can be forwarded to an employee.

2. Loan processing

As with most rules-based, document-processing tasks, this process is suitable for RPA automation as complex business logic can be embedded in bots.

This can partially automate the loan processing steps, such as extracting the applicant's information, validating them, assessing their business plan, and making a preliminary evaluation.

3. Trade execution

In cases where legacy systems are not capable of storing complex limit orders, RPA bots can help.

Utilities

1. Billing

RPA bots can automatically fill out the billing information on each user's bill and send it to them.

2. Meter reading

RPA can extract each meter's usage amount from the meter's cloud database, put it on the bill, and automatically calculate its cost per watt.

Retail

Retail includes labor-intensive and constant operational and analytics activities, such as launching new promotions.

RPA bots can help retail companies, without the need for APIs in their systems, to automate the following processes:

1. Product categorization

Global retail companies need to harmonize SKU (stock keeping unit) data from multiple markets to be able to look beyond numbers to insights such as, "What is our toothpaste market share in Eastern Europe?"

Traditionally, these tasks required employees to manually match SKUs to categories in complex spreadsheets. Since this is a task that does not directly impact customers, fault tolerance is not very high and RPA bots can be used to automate the process, saving thousands of hours of work.

2. Automated returns

Automating returns can both improve customer satisfaction and reduce manual labor.

RPA bots can be used to automate manual aspects of the returns process such as checking customer purchase records from the system, the reason for the return, and more.

3. Trade promotions

Shop floor trade promotions require a significant amount of back-end admin work. Key tasks include creating and allocating funds for promotions generating reports that give visibility of promotion performance.

RPA bots can automate these tasks to make it easier and faster for retailers to launch trade promotions.

4. Inventory/supply chain management

Some retailers rely on legacy systems for stock keeping. RPA bots can perform constant checks on these systems providing data on key metrics like items with low stock levels or rapidly changing stock levels.

Restaurants

1. Floor management

RPA bots in restaurant POS systems can automatically:

- Split a table's tab amongst diners
- Allow the simultaneous monitoring of multiple tables' orders and tabs
- It can automate the creation and delivery of bills, invoices, and receipts to customers.

- Send waiters notifications whenever a table's food is ready to serve

Keep records of the number of diners throughout the day, on each table, the highest/lowest ordered food

2. Meal price updates

RPA bots can be configured to keep track of small changes in the pricing of the ingredients and to automatically increase/decrease the cost of the meal accordingly.

This means whenever a vendor changes a produce's price, the manager doesn't have to manually adjust the price of the meal that has that ingredient. RPA bots will do that in real-time. Especially in inflationary times, where prices changes are more frequent and drastic, automating meal price updates allows restaurants to maintain their purchasing power and economic health.

Manufacturing

1. Bill of Material (BOM) processing

Bill of material is the document that contains each raw material, component, and instruction required to manufacture or repair a product.

It is the core document of manufacturing and varying personnel use BOM throughout the lifecycle of products manufacturing.

Any errors in BOM can lead to an adverse chain impact on the remaining production cycle and result in a loss. RPA can automate Bill of Material processing with the support of OCR and deep learning-based data extraction technologies.

2. Inventory Control

Same as inventory management in retail, RPA bots can facilitate inventory controls by alerting you when the stock level is lower than demand. For instance, an automotive manufacturer is claimed to have used RPA software to automate inventory control processes. The bot follows these steps:

- Reading the emails and notifications received from demand planners. Emails would need to follow certain style guidelines to ensure that the bot picks up data correctly from emails
- Extracting the data from emails and updating the safety stock details in the ERP automatically.

- Notifying stakeholders in the process after updating stock levels.

3. Proof of Delivery (POD)

PODs are important documents for the customer service department of manufacturers.

The document is highly labor-intensive and contains a high risk for human errors. RPA bots can track logistics systems and once the delivery occurs, link the shipping data into the warehouse management system.

This frees time from customer service employees along with improving response time.

Agriculture

1. Soil preparation

RPA-IoT integration allows IOT agricultural sensors to extract soil data, such as:
Soil type,
Nutrient levels,
And moisture levels.
RPA bots can structure the data and present the information for data-driven soil preparation.

2. Irrigation

RPA can be one of the technologies to start the smart irrigators whenever IoT sensors indicate a drop in soil moisture level. Moreover, by accessing weather data thanks to agriculture APIs, RPAs can plan the irrigation schedule with respect to predicted precipitation levels.

3. Yield prediction

RPA bots can extract soil and crops' data from the IoT sensors, the weather report from databases, among with other variables to feed into ML algorithms to predict yield amount.

Hospitality

1. Room reservation

RPA bots can reconcile users' online payments, extract their information from the website's database, and reserve their rooms automatically.

2. Automated check-ins & check-outs

RPA bots can send periodic notifications or emails to guests to remind them of their check-in and check-out times so misunderstandings about this matter are minimized.

3. Automated room pricing

RPA bots can scrape competitors' websites for the prices they charge for similar rooms. The data can be put into spreadsheets and sent to the hotel manager for analysis.

The bot can also automatically adjust the hotel's room prices, based pre-determined rules, to match the competitors with minimal human intervention.

Healthcare

1. Patient Appointment Scheduling

The RPA bot schedules patient' appointments based on diagnosis, doctor availability, location, and other variables including financial statements and insurance information.

2. Enhancing patient care by supporting analytics

RPA bots can collect various medical data. For example, RPA bots can transfer patient data to third-party healthcare analytics services to deliver accurate diagnoses and improved patient care without restricting any confidentiality regulations.

3. COVID-19 health tracking & alerting automation

Like all tech companies, RPA companies also aim to help public authorities manage the pandemic. A vendor claims that its bots help a health agency by picking up the records of symptomatic people and sending alerts to the appropriate healthcare teams7. This system reduces manual work and eases the process of tracking symptomatic people

3.4 RPA Applications For Personal Use

1. Hobbyists use free editions of RPA solutions to build bots for personal use for applications liketransferring business cards to Salesforce or pulling data from multiple websites to identify the best deals on auction websites.
2. Another app from a hackathon was built for P&G: An automated receptionist for welcoming visitors to enterprise campuses.

CHAPTER 4

MODULES

4. Modules in Associate Developer

4.1 Basic Awareness on RPA

This is an online training module consisting of a number of informative videos, which provides an introduction to Robotic Process Automation (RPA), and the role of RPA Developers is to build, design, develop, and implement RPA systems.

Objective

At the end of this module, you will be able to:

- Explain what RPA means and understand the need for Intelligent Automation.
- Use the set criteria to evaluate if a process is fit for automation.
- Explain what a process is and differentiate it from a procedure.
- To enable automation across all knowledge work to accelerate human achievement.

4.2 Foundation Training on UiPath

4.2.1 Introduction

In this section we learnt about basic concepts on Robotic Process Automation. It also introduces you to the UiPath Platform and its core components. The course provides a detailed explanation of UiPath studio user interface and its features.

4.2.2 Process Studio

In this section we learnt about the introduction to process Studio, Process Studio Interface, Decision Stages, Calculation of Decision Stages, Basics of Data items, when and why it should be performed.

4.2.3 Introduction to Process Flow

In this section we learnt Flowcharts in UiPath and how to control the application flow. We will create a simple number of guessing game application with flowchart.

4.2.4 Introduction to Inputs and Outputs

In this section we learnt about the capability Method, Hardware events, Overview of input and Output parameters, Data item Visibility and Types and an overview of output parameters and an overview of Control Room and Review of Process Outputs.

4.2.5 Business Studio

In this Section summarizes what a business object is and how it is used by a process and how action stages within a process Diagram work with action stages.

4.2.6 Object Studio

This Section outlines how Navigate Stages can be used within Business Diagrams to launch and close applications.

- Explains how Application Modeler can be used to create unique Attributes for the Elements that are used by the Actions within Business Objects
- why Wait Stages are important when creating Actions that interact with applications and how they work.
- Explains the basics of Timeouts, including how Global Data Items can be used to determine the values used.
- What a Write Stage is and how it can be used to input values into an application via an Object Diagram.
- How Business Objects can be configured to Attach to and Detach from application windows, as required.
- How to use a Read Stage to take data from an application and store it within a Data Item, via an Action within a Business Object.

4.2.7 Exception Management

In this section we learnt the definition of Exceptions and Exception Handling.

4.2.8 Exception Management

In this section we learnt how Exception information is passed up through a Process.

- Concept of Exception Bubbling and how to control it.
- Explains how the information relating to an Exception can be preserved and passed up through the Process, to be viewed in the Session Log.
- Explains the concept of Exception Bubbling and how to control it.

4.2.9 Work Queues

In this section we learnt how Processes can be configured to populate a Work Queue with Items

- How a Circular Path can be used to ensure a Process can work all Items within the Work Queue.
- How Items within a Work Queue can be configured with Key Name and Name details.
- How Items within a Work Queue can be deferred until a specified date.
- How Items that are marked as 'Exception' by a Work Queue, can be retried by the Work Queue.

4.2.10 Additional Features

The UiPath platform delivers a host of new features including AI-powered automation. AI is embedded throughout the UiPath platform, expanding the possibilities for building both simple and advanced automations.

4.3 UiPath Process Templates

This module will introduce the concept of UiPath Process Templates, how to use these templates, and why it is important to use these templates when starting to build a new automated Process in RPA developer.

4.4 Credentials and Credential Manager

UiPath Developers need to be aware that information security protocols would notallow users names and passwords to be stored in process data items.

Credential Manager allows you to encrypt and store login information so that it can only be accessed by authorized users.

This is important because Credential Manager prevents unauthorized users from accessing Credential information.

4.5 Advanced Data items

Advanced Data Items in UiPath Platform will enable the learner to use some of additional Data Item features

Introducing more advanced features relating to Data Items will improve a BP Developer's knowledge efficiency and working practices. This course introduces some of the more advanced concepts relating to Data items such as why undefined Collect are created, why DataItem initialization and exposure are important and how and why Data Casting is carried out.

4.6 Advanced Attributes Matching

This module will take deeper look in to RPA developer Attribute Matching through Application Modeler and is Mandatory for Developers.

4.7 Associate Developer Next Steps

Visit the Associate Developer Certification page to find all the information you'll need to know regarding the exam, including scope & preparation**.**

4.8 Associate Developer Certification Guidelines

This course offers guidance on how to plan and prepare for the Associate Developer Certification.

After completing this course you will be able to:

- Understand the certification options for Associate Developer
- Recognize the topics to focus
- Verify your understanding of topics and readiness
- Use the tips for preparation

CHAPTER 5

REAL TIME EXAMPLES OF RPA

5.1 Examples of RPA

Automation is the requirement of several organizations to reduce the working time of repetitive manual tasks. Robotic Automation Process helps them to make use of RPA tools to complete all such repetitive, time-consuming work for improving customer satisfaction.

Robotic Automation is well suited for rule-based processes that are clearly defined and well documented. There are many examples of Robotic Process Automation in our day-to-day tasks. Here, we are listing some common examples below:

1. Web Site Scraping

Web scraping is the process that is used to extract vast amounts of data from websites. All the scraping tasks are performed by a piece of code, which is called a ' scraper'. Most web scrapers convert the data to a **CSV (Comma-Separated Values)** or Excel Spreadsheet formats. However, some advanced scrapers also support formats such as JSON (JavaScript Object Notation) that can be used for an **API (Application Programming Interface)**.

Web Scraping is also termed as **Screen Scraping, Web Data Extraction, Web Harvesting**, etc. Play Video

Advantages of Web Scraping with RPA

- Low cost and minimal errors.
- Faster and Easy Setup.
- Customized scraping.
- Gathers social media data.
- Automates batch tasks.
- No need to build a team for scraping.

2. Order Processing

Nowadays, there are many e-commerce websites for online shopping. These sites allow customers to order various items from different categories (i.e., grocery, electronics, fashion, etc.).

Whenever a customer places an order from an e-commerce website, an item should be available on the actual repository. The process of placing orders through the actual repository is done on the back-end. It helps in maintaining the stock and also dispatching the item. The stock details are updated in the system accordingly. Such type of data entry tasks can be

managed with RPA solutions as the entire process from order placement to stock updation will be automated.

Advantages of Order Processing with RPA

- Better customer experience.
- Reduced costs.
- High flexibility and improved **ROI (Return of Investment)**.
- Improved data control.
- No requirement for manual data entry.

3. Data Management

In organizations, RPA can help employees to pull relevant information from legacy systems to make it available for the newer systems. RPA can also help organizations to manage their data for backups or restorations easily. These types of data management tasks can be fully automated with RPA solutions by giving them required information such as credentials, source, and destination details, etc.

With RPA, organizations can save time from managing the entire data manually. The whole process, including checking and monitoring the data, is performed with the help of the RPA tool.

RPA can also help to generate the human task if there is a requirement of human intervention.

Advantages of Data Management with RPA

- Eliminates human errors.
- Saves administration hours.
- Reduces the delays that may occur in the manual process.
- Increases transparency and control with automated reporting.
- Streamlines the data management process and helps in conserving the resources.

4. Call Center Operations

Almost all organizations include call centers to solve customer queries. When the customer raises an issue, a call center executive will require to have all the information about a customer. They might need multiple systems or applications to get all the details.

With the help of RPA, it will be easy to consolidate all the details about a customer on a single screen. It will help the executive to have all the information required to provide the solutions for the specific queries.

Advantages of RPA Implementation with Call Center Operations

- Shorter call duration.
- Better communication.
- Optimal use of resources.
- Minimal chances of errors.
- Automated responses and triggers.

5. Forms Processing

Many organizations process forms for preparing the initial database in their system. It helps organizations to keep paper-based proof that can be served for further use in the investigation where paper-based proof is important. When these forms need to be transferred to digital, an RPA can be helpful.

RPA solution can read the forms and process further data entry tasks based on the data given in those forms.

Advantages of Forms Processing with RPA

- Reduced paper cost and storage memory.
- Remote access from anywhere.
- Checklist automation and enhanced auditing.
- Fast processing and improved productivity.

6. Credit Card Applications

RPA bots can be programmed to process the majority of credit card applications. They can handle several functionalities such as initiating a credit card application, collecting the required documents related to the individuals, performing necessary credit checks, carrying out required verifications, etc. RPA bots can automatically handle all these tasks.

Based on the details shared by an individual, RPA decides whether or not an individual is eligible for a card. If an individual is eligible for a new card, then the card will be issued. The entire process will be closed after the card is delivered successfully.

Advantages of Automating Credit Card Applications

- Improved employee productivity.
- Reduced process time.
- Better customer satisfaction.
- Access to online documents anytime, anywhere.
- Availabilityof useful methods to crosscheck operational metrics for process excellence.

7. Incoming Customer E-mail Query Processing

Many support organizations answer to thousands of e-mails daily. With RPA, such support tasks can be easily automated. RPA can handle the upcoming mails and separate them into defined groups. RPA can also provide automated responses to frequent issues or e-mails with the resolution. RPA categorizes the critical e-mails which are further assigned to respective personnel or executive.

8. Payroll Processing

Payroll processing is one of those tasks that require manual intervention every month in a year. RPA systems can be used to schedule and automate such repetitive tasks. These tasks may include data transfer and management, payslip generation, benefits disbursal, and others.

Advantages of Payroll Automation

- Generates accurate payslips.
- Calculates expenses, bounces, holiday pay, etc.
- Reduces the burden of compliance.
- Eliminates the requirement to understand complicated tax legislation.
- Saves and manages the data related to pay slips and annual reports in an easily accessibleand secure way.
- Payroll calculations and deductions at a faster rate.

9. Account Reconciliation

In banks and insurance sectors, requests for account reconciliation are very common and regular. An individual or an organization may perform account reconciliation to avoid overdrafts on cash accounts, fraudulent or overcharge on credit card transactions, etc. These types of tasks can be automated with the help of RPA software robots.

RPA helps in making such tasks easy by matching the payment details with the bank data and other records. The records are reconciled if the details are the same. During an unmatched or suspicious transaction, the software robot sends the records for further validation.

Advantages of Automating Account Reconciliation Process

- Reduces duplicate payments.
- Improved efficiency.
- Enhances the speed of the processes.
- Saves time in manually verifying bank statements and general ledger software.

10. Dispute Resolution

Dispute handling and management is another area of concern in the banking sector. RPA deployment in banks has drastically reduced the dispute resolution cycle and human errors. RPA helps in boosting operational efficiencies and overall customer experience.

Advantages of using RPA in Dispute Resolution

- Faster resolution to problems.
- Improved process.
- Prompt services.

11. Shipping Notifications

Many shipping and logistics companies are manually performing the operations like scheduling a delivery, tracking the information, estimating the time of arrival, etc. RPA can automate such manual processes and save time as well as costs. RPA can extract shipment details from incoming e-mails, log jobs from scheduling systems, and provide pick-up times in the customer's dashboard. The software bots can also scan and capture carrier website data, track the delivery over GPS. The traditional style of manual order processing and payment the can also help in automating e-mail communications.

Advantages of Automating Shipping Notifications

- Reduces labor costs.
- Increases accuracy.
- Allows streamlining of several tasks into one process.
- Avoids dimensional weight surcharges.

12. Onboarding Employees

When an organization hires employees, the offer letter is automatically generated and sent to the employees with the help of the RPA system. RPA system uses pre-defined rules to make decisions according to the new employee's profile. The details are also updated into the company's database. This type of onboarding system accesses the company's data system according to a specific job position.

Advantages of Onboarding Automation

- Efficient Data Collection.
- No errors.
- Low cost.
- Time-saving.

- Enhanced security to store employee data.

13. Member Eligibility and Billing

RPA system can quickly check the eligibility criteria of individuals and organizations for various products provided by the banks and insurance companies. With the RPA implementation, these processes do not require human interaction to check eligibility. They are automated to process the data as per the eligibility criteria. Such processes can be made available online so that they can be used anytime from anywhere.

Advantages of automating Member Eligibility and Billing System

- Faster processing of applications.
- Automated verification system.
- Easy process.
- Higher customer engagement.

5.2 Usage of RPA

Hospital uses RPA to reduce costs, increase process efficiency, and improve the patient experience

There are so many uses for RPA in healthcare. Focusing on a few in particular that could yield financial gains is a good start for any organization.

Let's see how we can apply RPA tools to improve the operational efficiencies for a hospital. Generic Hospital X has a lot of overhead administrative costs and attributes 30% of those costs to addressing errors and delays in manual processes. The hospital needs to optimize costs and resources so it can handle a greater influx of patients which has grown exponentially because of the COVID-19 surge.

Hospital X evaluated its business processes and identified several that are incurring greater costs than others:

- Prior insurance authorization
- Cost estimates
- Insurance verification and benefits denials
- Claims management and accounts receivable

Each of these processes involves several manual tasks that are time-consuming and demand accuracy to ensure quality patient care.

Using RPA, Hospital X can reduce the manual dependency of each process, which in turn reduces the risk of human error and increases accuracy, thereby reducing costs. The hospital addressed each of these processes using RPA to automate tasks:

Prior insurance authorization:

RPA and AI technology are used to submit and follow up on requests for prior authorization for procedures, communicating automatically with the patient and all involved constituents and often scheduling the procedure. Since insurance authorization submissions are dependent upon proper coding, AI technology can identify, and sometimes resolve, inconsistencies in submissions caused by manual errors. Approval of coverage for special tests or authorization for treatment are requested electronically, including the cost to the patient, and the response is communicated via auto-generated email.

Cost estimates:

Patients are made aware of the cost of procedures and treatments up front, and payment plans and collections efforts are automated, as well.

Insurance verification and benefits approvals or denials:

RPA is used to track and request approval for patients as appointments are made, attended or canceled. Information on cost to the patient, deductibles and other coverage details are generated automatically, for better up-front visibility and consistency.

Claims management and accounts receivable:

RPA, using bots and AI technology, is used to manage claims processing workflows. This includes denials communication and resubmission, and revenue and cost predictions based on history. Revenue collections are also automated with a workflow that helps to recover funds without repetitive manual intervention.

These are just a few of the administrative processes in a healthcare setting that benefit from the use of RPA to reduce manual intervention, repetitive tasks and human error to ultimately reduce costs and improve patient care and the patient experience.

CHAPTER 6

OUTCOMES OF RPA

6. Learning Outcomes of RPA

- Detailed understanding of RPA native functions and their correct application,UI Navigation ,Different areas of UiPath Enterprise and what you use them for.
- Recognize various stages and Pages in the Process and Object Studio, understand how to link and interact with pages, Process flow through Decision, choice& Calculation Stage.
- Different Attributes match Types in the application modeler &how to use dynamic attributes in application modeler & wildcards.
- Properties of data types and when would you use them &defining of different types and collections.
- Types of Exceptions: Business, System, Internal and Exception logic. Define and set up Recovery flows.
- Handling exceptions when stepping over or stepping out of subpages.
- How and why use breakpoints.
- Different Session statuses.
- Layering of logic.
- UiPath Process Templates.
- Credential Manager and its uses.
- Setting up Credential Manager.
- Storing Credentials.

CHAPTER 7

CONCLUSION

RPA compiled to provide easy access to the various training modules, exercises, and tests, which you should complete as part of UiPath Associate Developer up skilling.

RPA Developer Certification Learning Plan which focuses on the essential skills and knowledge required to configure a simple UiPath process automatic solution.

INTERNSHIP CERTIFICATE

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