

ACKNOWLEDGMENT

The success and outcome of this project required a lot of guidance and assistance from many people and I am extremely privileged to have got this all along the completion of my project. All that I have done is only due to such supervision and assistance and I would not forget to thank them.

I respect and thank Mr. Raghav Suvarna, for providing me an opportunity to intern at Softtek and the required support and resources which helped me complete the project duly.

I owe my deep gratitude to Mr. Karthik Sunil & Mr. Sunesh Madakkuni, who took a keen interest in our project work and guided us all along, till the completion of our project work by providing all the necessary information for developing a good system.

I would not forget to remember Mr. Krishnan Narendran for his encouragement and timely support and guidance till the completion of our project work.

I am thankful and fortunate enough to get constant encouragement, support and guidance from all, which helped me in successfully completing our project work. Also, I would like to extend our sincere esteems to all staff for their timely support.

ABOUT THE COMPANY

Founded in 1982, Softtek is a global company and the largest provider of IT services from Latin America. With a broad portfolio of business-transforming products and solutions, Softtek helps Global 2000 organizations evolve their digital capabilities constantly and seamlessly, from ideation and development to execution.

It is a Mexican-based information technology company, operating in North America, Latin America, Europe and Asia. As of 2010 it was the largest private IT vendor in Latin America. Headquartered in Monterrey, Mexico, the company has 12,000 associates in Mexico and abroad

The company offers application software development, testing, security and support; business process outsourcing (BPO); and IT infrastructure management, security and support to more than 400 corporations in more than 20 countries. It also acts as a value added reseller (VAR) for SAP SE, Informatica, Cognos, Business Objects and other software products. The company has trademarked the term "nearshoring" to describe the provision of outsourced services to customers in other countries that are in proximity

Softtek has one of the few female CEOs in a large multinational company. Blanca Treviño, President & CEO of Softtek, assumed the position in August 2000. Under her leadership Softtek became the largest private IT service provider in Latin America.

INDEX

Serial Number	Topic	Page Number
1.	Introduction: Business Process Automation.	4
2.	Automation Development Life Cycle Phases of automation development life cycle	7
3.	Onboarding Automation Process: Purpose	13
4.	Existing Workflow: Flowchart for Manual Ticket Creation Flowchart for Automated Ticket Creation	14
5.	Steps to Run the Script About the Excel File	16
6.	Configuration Files	17
7.	Application Programming Interface Introduction to Postman API Introduction to ServiceNow API	18

INTRODUCTION

BUSINESS PROCESS AUTOMATION

BPA is a means of automating recurring business processes through the use of software & different application integrations. Meaning, instead of having your employees to menial & simple tasks, you just let the software take care of it.

Here are some specific examples of how BPA can work:

Customer Support – If you own any kind of website, you probably have some sort of customer support software set up. While the software tends to differ in functionality, most of them allow you to automate responses to customers. For example, if your software has problems with users logging in through LinkedIn, and that's 90% of customer tickets. You can just create an automatic response to any message that has "LinkedIn" mentioned, saying that it's a known issue and will soon be solved. This allows your support team to attend to tickets that are less-known.

Approval Management – Let's say you're working in procurement & are ordering the new machinery. For the order to be completed, it has to go through the approval of 5 different general managers. Without automation, you'd have to hunt down each management member & ask for signatures. With approval management software, all you have to do is click "start the approval process."

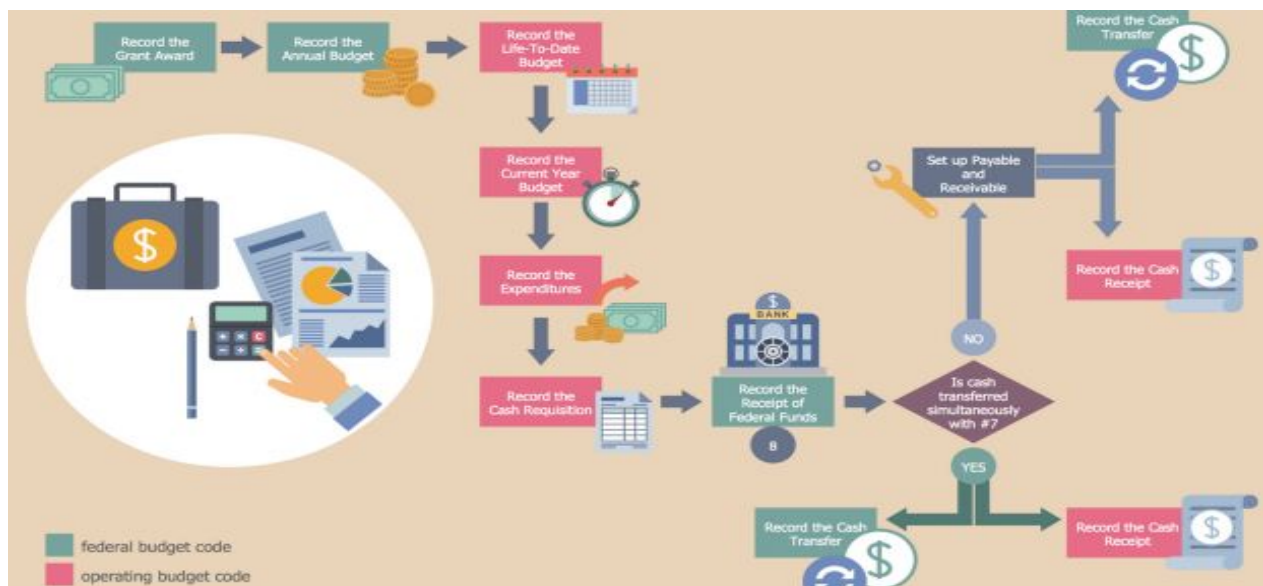
Employee Onboarding – Whatever your industry is, you've probably done employee onboarding before. The process is usually very structured, so rather than doing the whole thing from scratch, you can let workflow management software lead the entire process.

Business Process Automation can either be completely stand-alone (automating several company processes) or be part of a larger initiative, such as:

Business Process Improvement (BPI) – finding lackluster processes and improving them. In BPI, automation can either be a big part of it (overall improvement through automation), or just a tiny puzzle piece (automating a step in a process).

Business Process Re-engineering (BPR) – BPR works just about the same as BPI, with the main difference being that it focuses on tearing down and rebuilding processes from scratch. Automation tends to play a big part in BPR initiatives; in most cases, if you're completely re-designing a process, it's because of new technologies.

Business Process Management (BPM) – BPM is a methodology of continuous improvement – unlike BPI or BPR, both of which are one-time initiatives, BPM is something a company does systematically. Accordingly, BPA can play a part in streamlining and automating old processes.



Benefits of Business Process Automation

Here are some key benefits that business process automation will bring you.

1. Better allocation of the workforce

Automating tasks allows your business to free up your workforce from many repeated actions that actually do not need that much human intervention. This enables you to reorganize your company's structure and focus more on creative tasks and innovation.

2. Cost reduction

Business process automation means that more man-hours are available to you. This means your company can have the same level of output even after reducing the human workforce. Thus, you have the chance to focus more on the quality of your employees instead of quantity. And eventually, reduce the overall cost of business operation.

3. Reduction of human errors

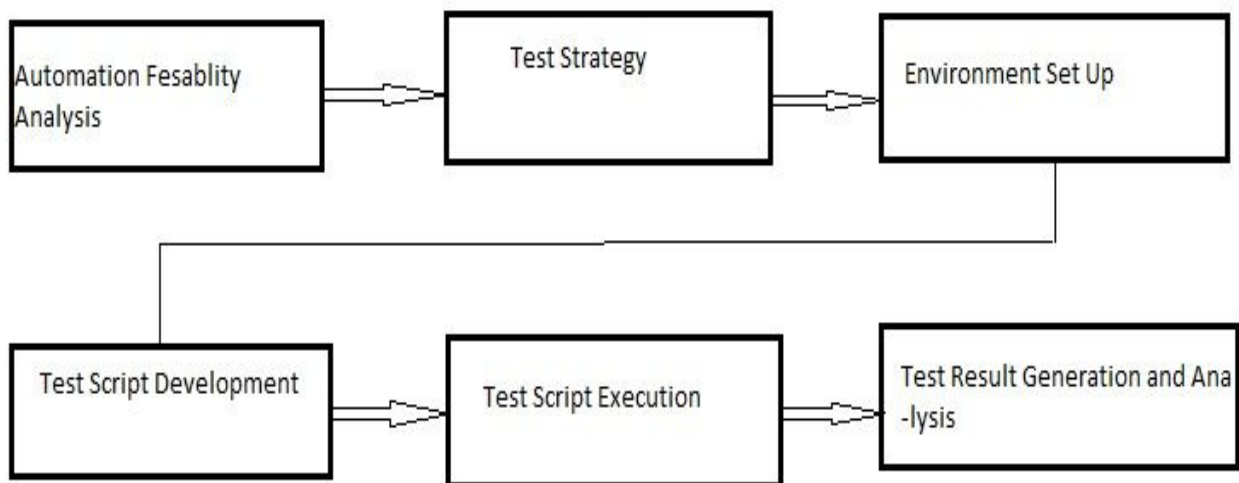
No matter how efficient your workforce is, it's impossible to avoid human errors. Automation can limit the possibility of errors in the business process. Of course, it's not possible to use software to run all parts of any business. But integrating BPA can reduce or eliminate the possibility of human errors at certain stages of the business process.

4. Better collaboration

At complex projects, monitoring every team member and ensuring proper flow of information often turns out to be a difficult task. Keeping track of project process, updating the different teams, setting goals and deadlines become a lot easier if these processes can be automated.

AUTOMATION DEVELOPMENT LIFE CYCLE

The Automation Development Life Cycle involves in parallel with the system development life cycle. The Automation Development Life Cycle involves a new structured, building-block approach to the entire test lifecycle, with the help of this software test professionals to approach software testing in a methodical and repeatable fashion. Automation Development Life Cycle methodology also supports the development and management of test data and the test environment, and addresses test documentation to include problem reports. The methodology represents a structured approach.



Phases of Automation Development Life cycle:

1. Automation Feasibility Analysis

Feasibility Analysis plays an important role in automation testing. Basically it can be referred to as a checklist against which we need to check if the particular test case can be automated.

From the point of automation, few points which can be found in any checklist are as follows:

- If all steps are documented properly in the test case.

- If the test case needs to be executed only one time, then we can test it using manual testing as automation testing is quite useful if we are going to be used in regression pack only.

- Objects in the application can be identified by automation tool or not.

- Most important point is ROI (Return of Investment).

- Now I would like to throw some more light on ROI.

2.Test Strategy

Test Strategy is also known as test approach defines how testing would be carried out. Test approach has two techniques:

Proactive - An approach in which the test design process is initiated as early as possible in order to find and fix the defects before the build is created.

Reactive - An approach in which the testing is not started until after design and coding are completed.

Following are the types of test automation framework:

- Record and Playback Framework

- Functional Decomposition Framework
- Keyword/Table Driven Framework
- Data Driven Framework
- Hybrid Framework
- Business Process Framework

3. Environment Set up

It is ideal to execute test automation scripts in regression environment. Test environment set up phase has the following tasks:

- Sufficient tool licenses
- Sufficient add-ins licenses
- Sufficient utilities like comparison tools, advance text editors etc.
- Implementation of automation framework
- AUT access and valid credentials

4. Test Script Development

This phase is the inception of implementing test automation. Activities of Automation test engineers as follows:

- Object Identification
- Creating Function Libraries
- Building the scripts
- Unit testing the scripts
- Warm-up test execution

5. Test Script Execution

- Execute Script
- Update the execution or coverage tracker
- Log all defect

6. Test Result Generation and Analysis

- Analysis the result
- Generate Report
- Documents all the issues. Collect the knowledge

ONBOARDING AUTOMATION PROCESS

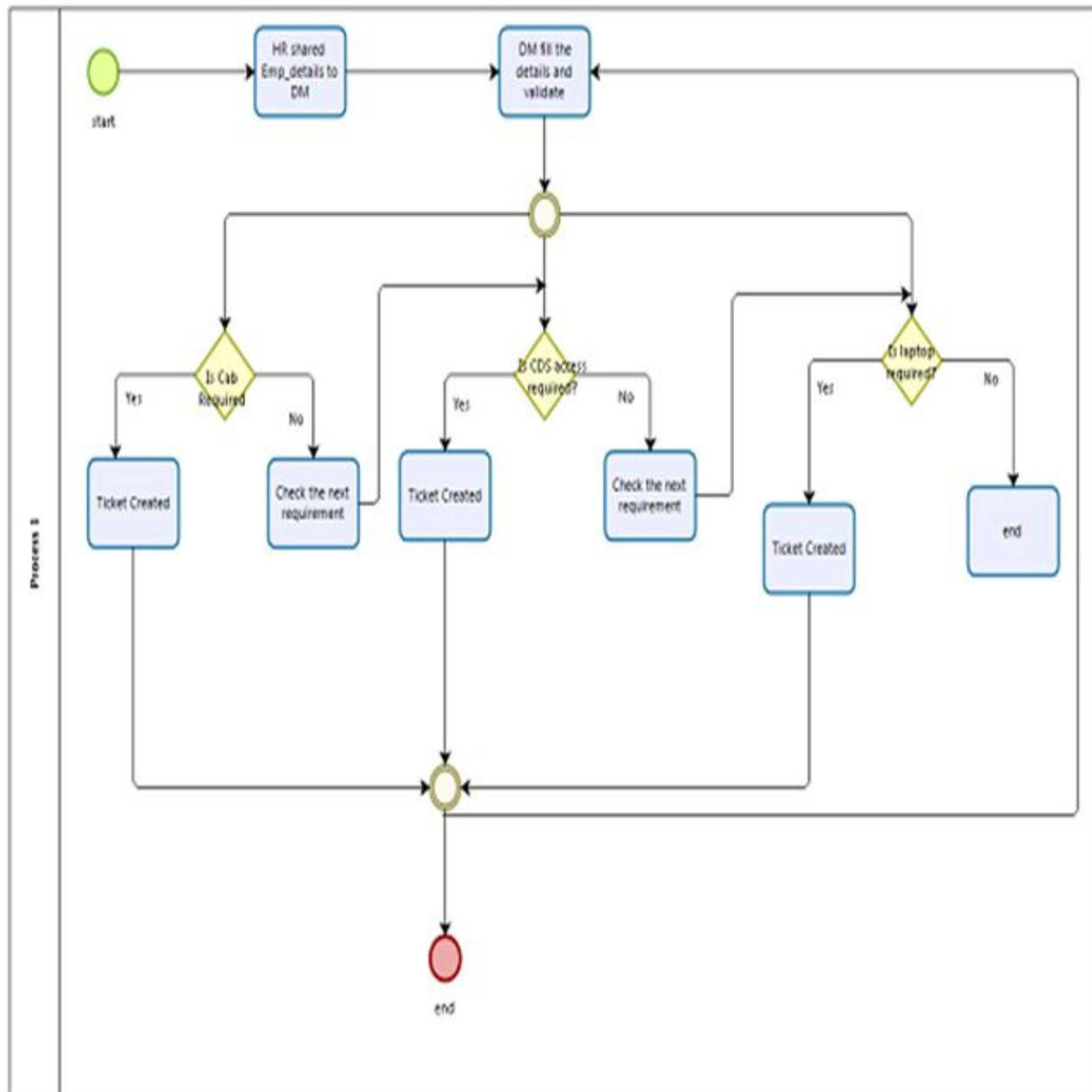
PURPOSE

An automated onboarding process is a sigh of relief to HR representatives & Reporting Managers. In reality, these new employee onboarding techniques benefit teams beyond the HR department; those in Finance and Operations, for example, can concentrate on more strategic tasks with the help of modern HR management systems.

The start of a new employee's journey in a company begins with onboarding. A large part of what determines the future success of new employees is how smoothly the onboarding process is performed. Additionally, each new employee represents risk and a temporary loss of productivity for the company, especially if they are replacing a more experienced former employee. In the past year, Millennials in the workplace changed jobs three times more than their older coworkers, representing a loss of \$30.5 billion in turnover costs annually. Therefore, it is worth investing money to ensure that new employees stick around.

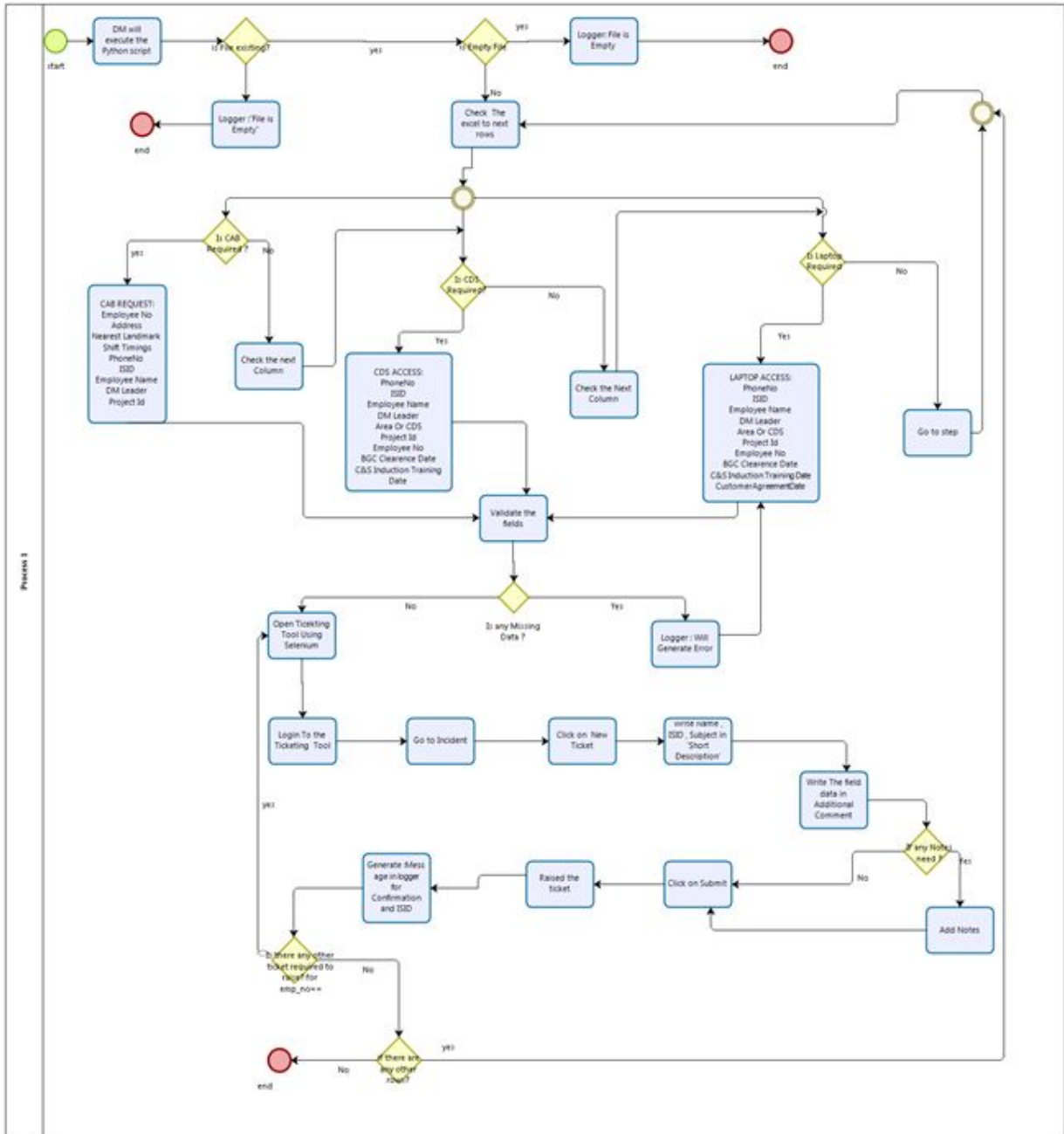
Investing in a workflow automation software tool can help increase new hire retention rates while freeing up HR and IT resources for more important tasks.

FlowChart for Manual Ticket Creation



FlowChart for Automated Ticket Creation

Below is the Automation Workflow which we make using selenium and python:

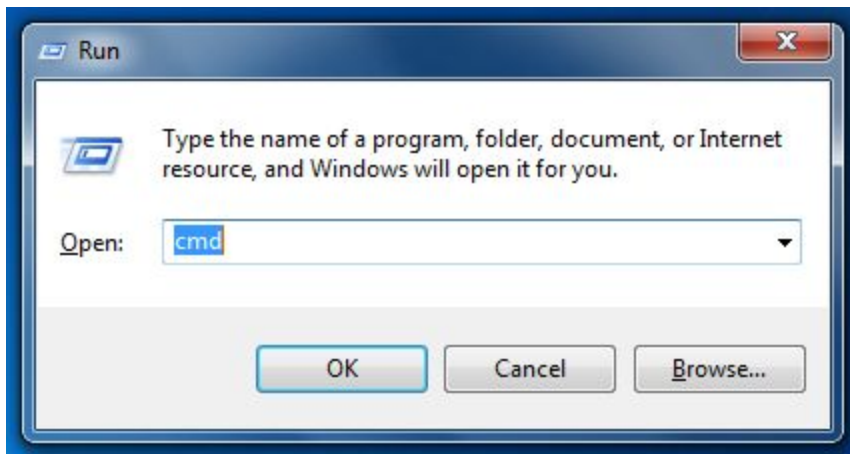


Steps To Run The Script

Note: You should have python3 or above installed in your computer



1. Firstly you have to open 'Run' from the start menu
2. Now type 'cmd'



3. Now Go to the path for example file is in "C:\Private\Mini Project\Automated Ticket Generator" this path.
4. Then type "cd "C:\ Now to execute the script you have to type "py main.py.python"

About the Excel File

Excel file contains Employee Details which can be used to raise a ticket. Add Excel file path in configuration file (config.properties) before running the script.

Emp_No	ISID	Name	DM_Leader	Practice	BGC_ClearanceDate	C&S_Induction_Training_Date	Status	Nearest_Landmark
ASP01200	NIRN	Sunesh	Achut Ratnakara Kulkarni	ITIS	6-May-18	1-Jul-16	Green	Marathalli
ASP01555	RMKO	Rajshree	Girish Kumar	AMS	6-May-18	1-Jul-16	Green	Munnekollala
ASP01556	PAHR	Shrey	Arathi Prabhu	ERP	6-May-18	1-Jul-16	Green	Agara
ASP01212	LABP	Iaxmi	Achut Ratnakara Kulkarni	ITIS		1-Jul-16	Green	Marathalli
ASP01414	SUBP	sujata	Girish Kumar	AMS	6-May-18	1-Jul-16	Green	Munnekollala
ASP01323	PABP	pari	Arathi Prabhu	ERP	6-May-18	1-Jul-16	Green	

Software Requirements

1. Microsoft Visual studios



2. Selenium Framework



3. Google Chrome WebDriver



4. Postman API Development Environment



Configuration File:

```
≡ config.ini
1  [USER PATH]
2  username = admin
3  url = https://dev60179.service-now.com/navpage.do
4  excel_path = C:\\Private\\Selenium\\Input_Onboarding_Offboarding.xlsx
5  chrome_driver_path = C://Private//Selenium//chromedriver.exe
6
7  [XPATH]
8  user_name_xpath = //*[@id="user_name"]
9  user_password_xpath = //*[@id="user_password"]
10 login_button_xpath = //*[@id="sysverb_login"]
11 incident_button_xpath = //*[@id="087800c1c0a80164004e32c8a64a97c9"]/div/div
12 new_incident_xpath = //*[@id="sysverb_new"]
13 short_description_xpath = //*[@id="incident.short_description"]
14 additional_comments_xpath = //*[@id="incident.comments"]
15 submit_incident_xpath = //*[@id="sysverb_insert"]
16
```

There is a configuration File Also attached to Program which do the following tasks ("config.ini")

- a) The configuration file contains two classes named: "USER PATH" and "XPATH".
- b) Each class contains some keys and values.
- c) The file is used to make certain changes regarding URL and XPATHS (for future reference in the program), increasing code readability.
- d) The configuration file is directly linked to the program.
- e) Changes can be made only in the values and not in the class.Keys can be later formatted in the program.
- f) Key are on the left hand side and Values are the on the right hand side.
- g) USER PATH: The path class contains the url of ticketing tool and path of excel file.
- h) XPATH: It contains the id, element, text, attribute of web which used to access these components while selenium automating the web pages.

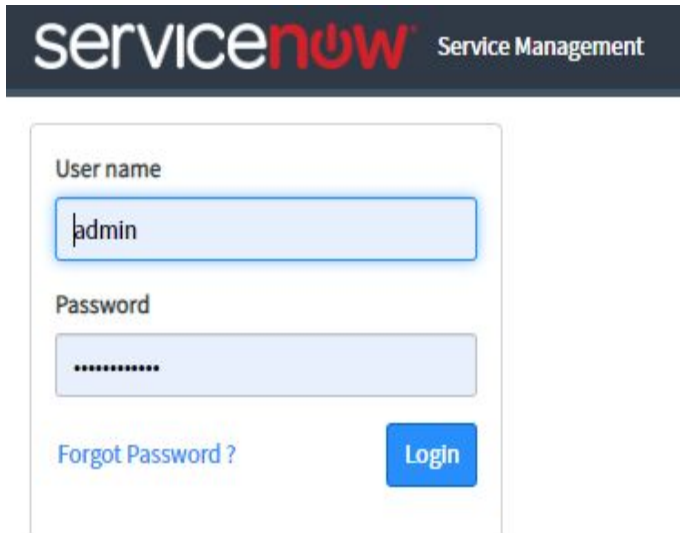
Ticket Creation

We have created a function name : “ticket_generation(employee_list, count, empty_field_list, type_of_req)”

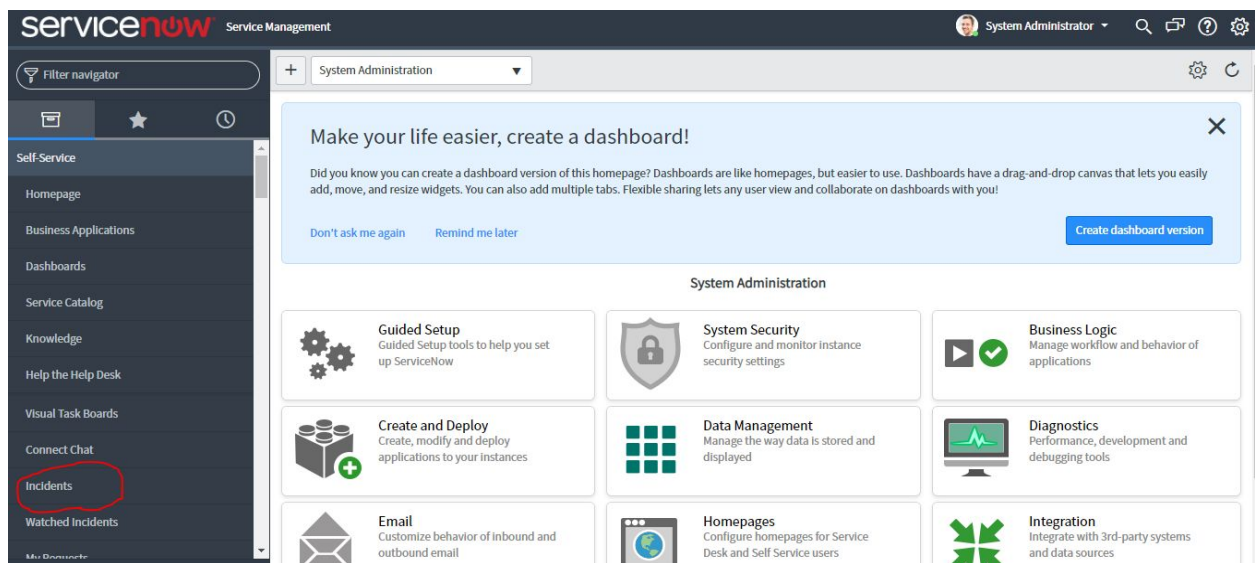
this will create a ticket after all the validation things get completed. This function will get call. It contains four parameters.

This function will first use selenium webdriver to open the Chrome and do the ticket creation activity using selenium:

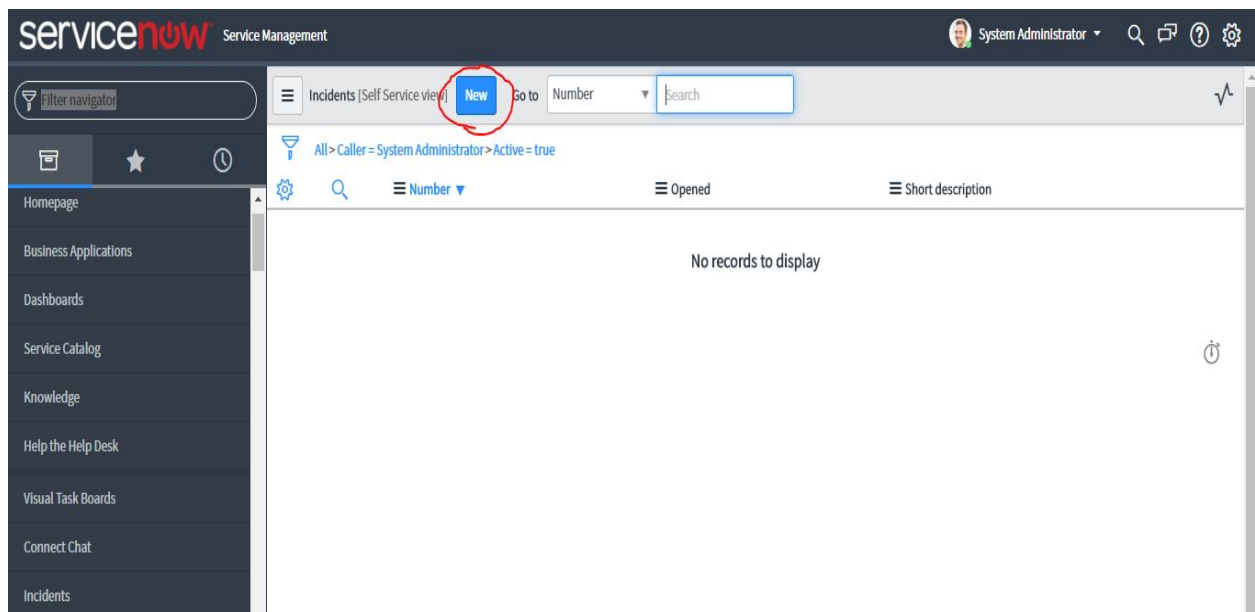
- 1) First it opens Google Chrome Browser
- 2) It then automatically Logs in using the given Admin credentials

The image shows the ServiceNow login interface. At the top, there is a dark blue header with the 'servicenow' logo in white and red, and the text 'Service Management' in white. Below the header is a white login box with a light blue border. Inside the box, there are two input fields: 'User name' with 'admin' entered, and 'Password' with masked characters '*****'. Below the password field is a blue 'Login' button. To the left of the button is a link that says 'Forgot Password ?'.

- 3) It is then directed to the Incident field using the XPath



4) Using the given XPath, it clicks on the 'New' button in order to create a new incident



5) It then automatically fills the Short Description and Additional comments

The screenshot shows the ServiceNow 'Incident' form in 'Self Service view' for incident INC0010087. The form is populated with the following information:

- Number:** INC0010087
- Caller:** System Administrator
- Watch list:** (empty)
- Short description:** laxmi-LABP-CDSAccess
- Opened:** 2019-07-09 07:16:47
- Closed:** (empty)
- Urgency:** 3 - Low
- State:** New

Below the form, the 'Additional comments (Customer visible)' section contains the following text:

ASP01212
laxmi
8104029303
1-0000017450-3
Achut Ratnakara Kulkarni
Bangalore
Marathalli
1:00 PM-10:00 PM

A 'Post' button is located at the bottom right of the comments section.

6) Similarly it fills the information of other Employees

The screenshot shows the ServiceNow 'Incidents' list view in 'Self Service view'. The table displays the following data:

	Number	Opened	Short description
<input type="checkbox"/>	INC0010087	2019-07-09 07:16:47	laxmi-LABP-CDSAccess
<input type="checkbox"/>	INC0010085	2019-07-09 07:15:57	Rajshree-RMKO-LaptopAccess
<input type="checkbox"/>	INC0010086	2019-07-09 07:16:23	Shrey-PAHR-CABRequest
<input type="checkbox"/>	INC0010088	2019-07-09 07:17:11	sujata-SUBP-LaptopAccess
<input type="checkbox"/>	INC0010084	2019-07-09 07:15:20	Sunesh-NIRN-CDSAccess
<input type="checkbox"/>	INC0010089	2019-07-09 07:17:35	pari-PABP-CABRequest

At the bottom of the table, there is a filter bar with the text 'All > Caller = System Administrator > Active = true' and a search bar. The table also includes a 'New' button and a search bar at the top.

Application programming interface

In computer programming, an application programming interface (API) is a set of subroutine definitions, communication protocols, and tools for building software. In general terms, it is a set of clearly defined methods of communication among various components. A good API makes it easier to develop a computer program by providing all the building blocks, which are then put together by the programmer.

An API may be for a web-based system, operating system, database system, computer hardware, or software library.

An API specification can take many forms, but often includes specifications for routines, data structures, object classes, variables, or remote calls. POSIX, Windows API and ASPI are examples of different forms of APIs. Documentation for the API usually is provided to facilitate usage and implementation.

Introduction to the Postman API

The Postman API has several endpoints to help you integrate Postman with your development toolchain.

You can add new collections, update existing collections, update environments, or add and run monitors directly through the API. This API enables you to programmatically access your data stored in your Postman account with ease.

The easiest way to start with the API is to click the Run in Postman button at the top of the Postman API documentation page and use the Postman app to send requests.

Postman API overview

You need to know three important points about the Postman API:

1. You need a valid API Key to send requests to the API endpoints. Postman users can get a key in the Integrations page.
2. The API is rate limited.
3. Using the API, you can add and update collections, environments, and users.
You can also run monitors, create a mock server, and so much more.

ServiceNow APIs

There are three API categories:

- Client-side
- Server-side
- REST

For most methods the API include:

- Method name
- Method description
- Return data type
- Return data description

- Example script

getFullName()

Returns the first and last name of the current user.

Return:

Type	Description
String	The current user's full name.

Example

```
var formalName = g_user.getFullName();
```