UiPath

Documentation
of
UiPath RPA Log Dashboard

Team
Savvy Insights

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1. Problem Statements

As given in the Power Up Automation Hackathon:

Ready-made dashboards which can be deployed by users in their environments. Will use the UiPath robot's logs as a data source. Can be made in Kibana or any other reporting/BI platform. It would be great if a mockup is submitted along with the idea, or at least comprehensive descriptions of all the data points. File type: .json files

2. Key Objective

To provide descriptive analysis from the UiPath robot's logs that would help users to take business decisions and bring value. Also to forecast the trends based on analytics model that would help in rendering both predictive and preventive analytics.

Value would include:

- Load planning based on the Bot Availability
- Delivery Planning based on the Bot Performance and Runtime
- Schedule Planning (On-time and Hassle-free execution and Transactions)
- Failure prediction and prevention
- 100% Utilization of the Bots
- Cost savings
- Return on Investments

3. Functional Requirement

- Data source from UiPath robot's details
- Data source from UiPath robot's logs
- Data Storage and Processing
- Connecting Data source with the BI tool
- Identification of all Use cases and Metrics
- Dashboard development using Tableau Public/any BI tool
- Comprehensive descriptions of all the use cases

4. Software Requirements

| S.No	Software	Purpose	Download Link
1.	Python Anaconda3	Convert .json to csv	https://www.continuum.io/downloads
2.	SQL Server 2012 Express edition	Data Storage and Processing	https://www.microsoft.com/en-gb/download/details.aspx?id=29062
3.	Tableau	Data Visualization	https://www.tableau.com/products/desktop

5. Approach

5.1 Design Thinking Process Approach
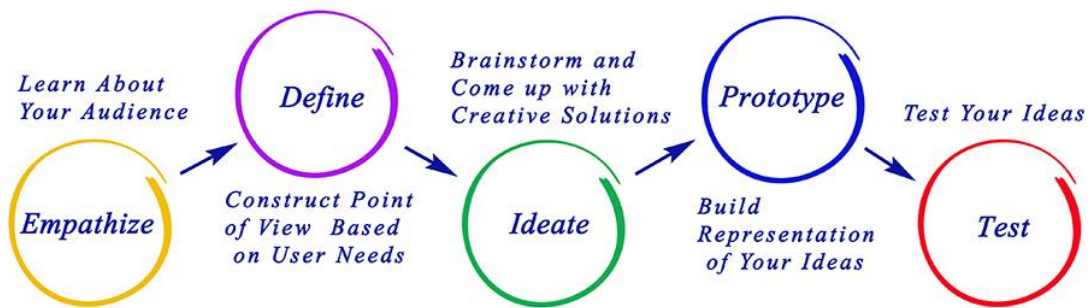
Timeline August 10th to 28th 2018
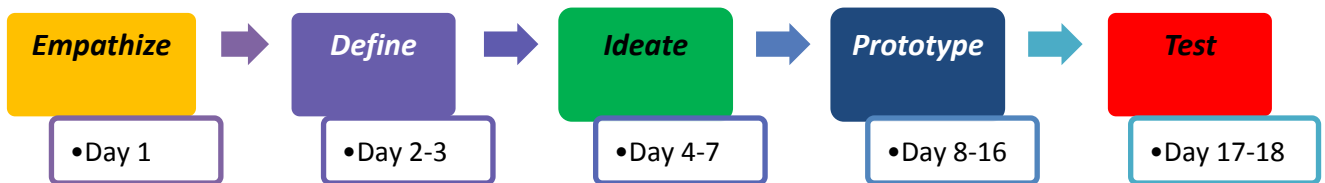
Empathize phase:

We began with pen and paper, noting down all the requirements that have to be considered for the building of the dashboards thinking as an end user.

Define phase:

Our initial thoughts involved Data Source, How the data would be stored, How the data to be processed and How the output of processed data would be visualized.

Ideate phase:

We came up with multiple ideas involving various technologies and techniques to be involved for developing an end product – Dashboard
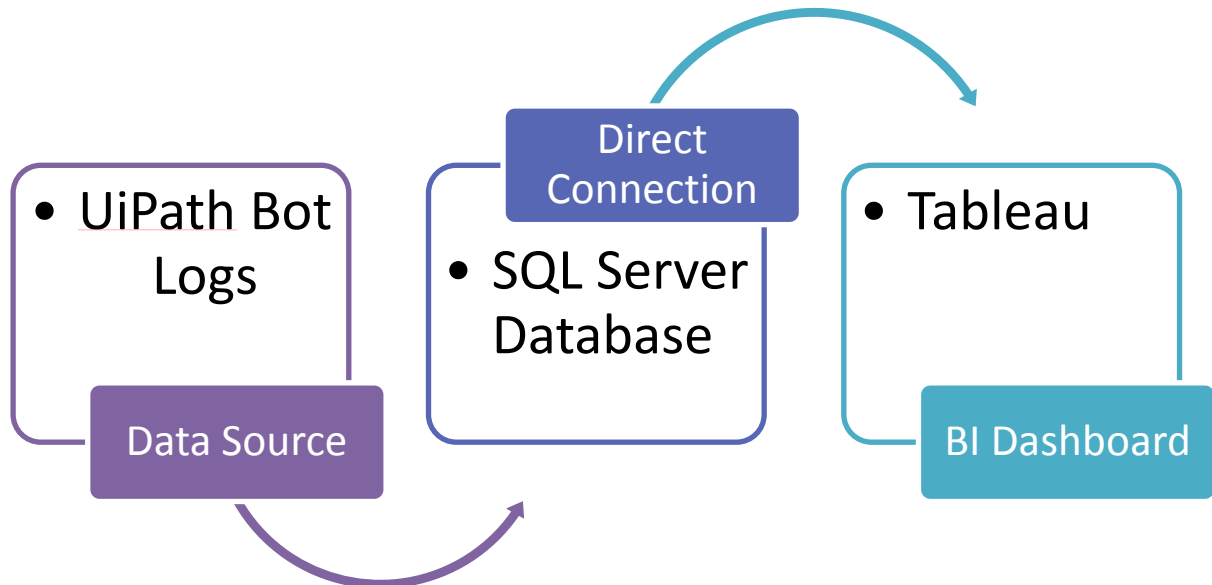
Prototype phase:

We started developing dashboard using Tableau and iterated according to the ideation and implementing UI/UX on the way.

Test phase:

We tested the dashboard with various people (both technical and non-technical) in order to bring out the essence of the dashboard.
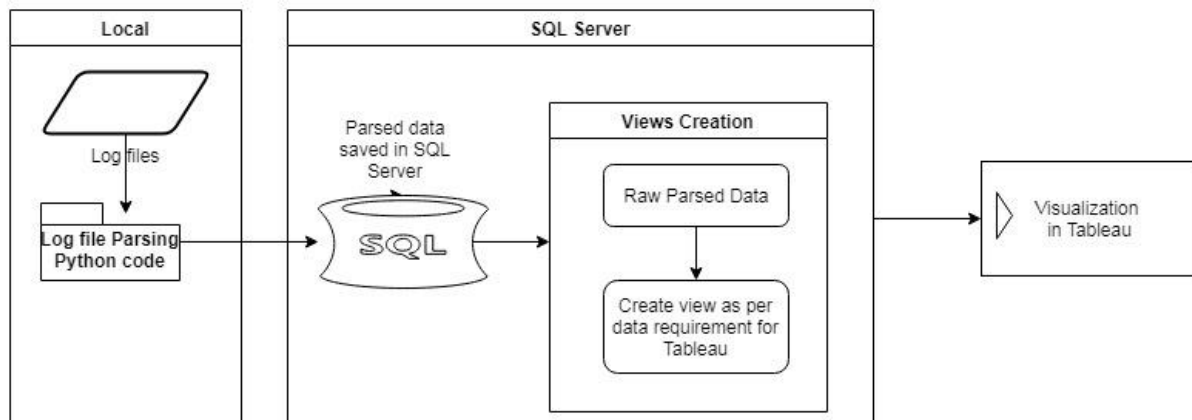
5.2   Application Requirements

Data pipeline would include

- Python code to parse the log files
- Parsed data to be stored in SQL Server
- SQL Server data connection to Tableau

Deployment Diagram – Data pipeline

5.3 Cost involved for implementation

Basic implementation

S.No	Software	Product Type	Cost Per Annum for Basic Implementation
1	SQL Server	Standard - Per core	USD 3,717.00
2	Python	Open Source	USD 0.00
3	Tableau	Tableau Creator	USD 840.00
		Total	**USD 4,557.00**

Enterprise Implementation

S.No	Software	Product Type	Cost Per Annum for Enterprise Implementation
1	SQL Server	Enterprise	USD 14,256.00
2	Python	Open Source	USD 0.00
3	Tableau	Enterprise	USD 152,400.00
		Total	**USD 166,656.00**

6. Use Cases

We developed the dashboard using a dummy dataset(Superstore data of tableau edited as required for dashboard development) . Once we have the original dataset, the dashboard could be implemented based on the description provided for each dashboard use case.

Dashboard link -
https://public.tableau.com/profile/swetha.srivarna.s#!/vizhome/SavvyInsights-PowerUpAUTOMATION/HomePage

(It is published on Tableau public, thus anyone could access it. For enterprise level, it would be published in Tableau Server and users can be monitored.)

6.1   Home Page

This Dashboard could be integrated to the UiPath Website or customer specific sites. When the user clicks on the "UiPath RPA Log Dashboard", the user would land in the Home Page.
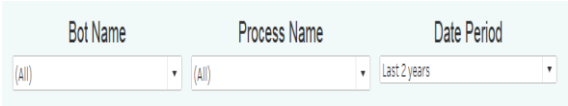
From here the user could be directed to

- The Log Summary dashboard which would provide the descriptive analysis of the data.
- The Failure Analytics which would provide insights on the failure and details about the failed Bots, thereby forecasting the failure.
- The Log Analytics which would provide insights to plan and implement business decisions.
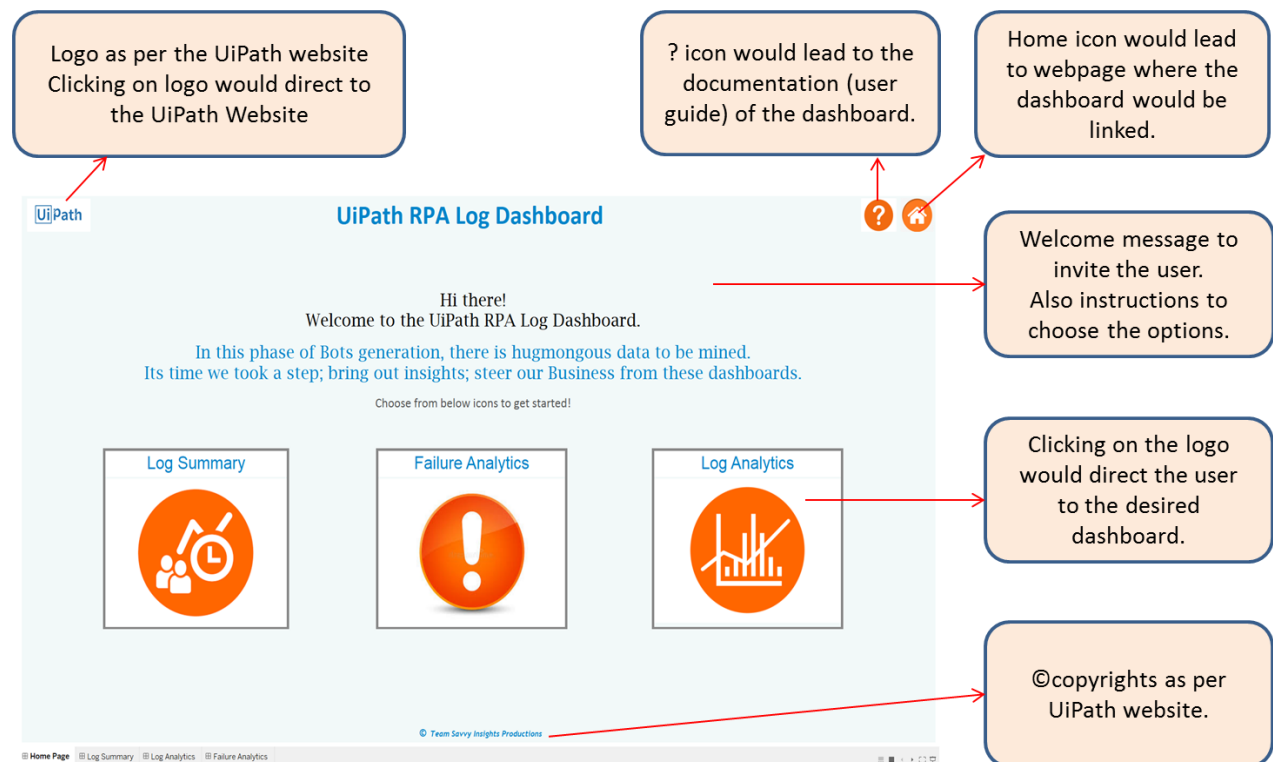
UI/UX implementations in the UiPath RPA Log Dashboard

Colors Blue and Orange are used across to provide similarities to the UiPath Website; providing a sense of belonging to the UiPath Product. |
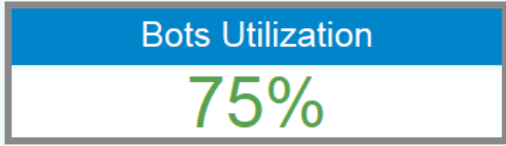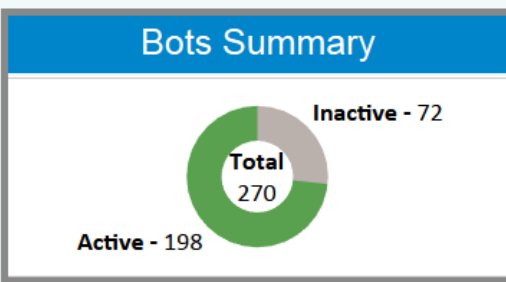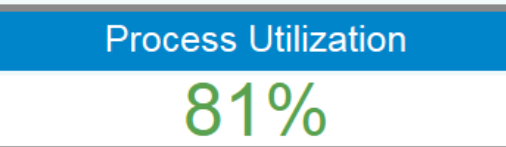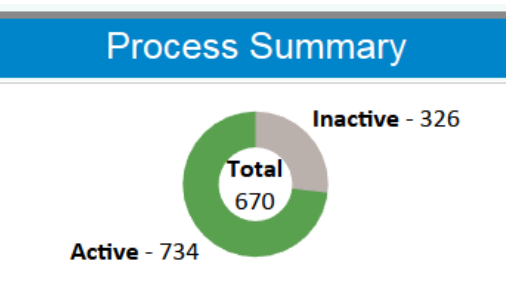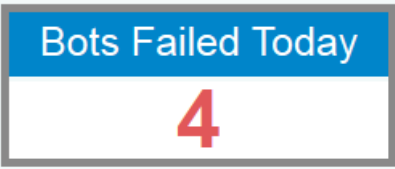
6.2   Common across Dashboards
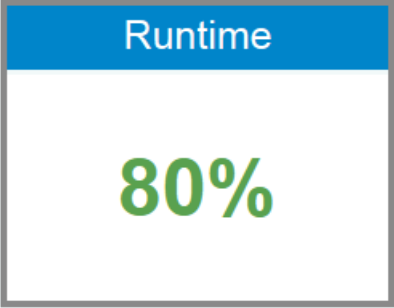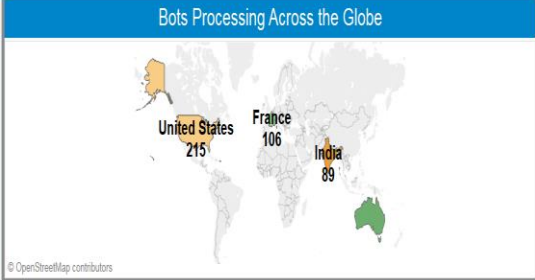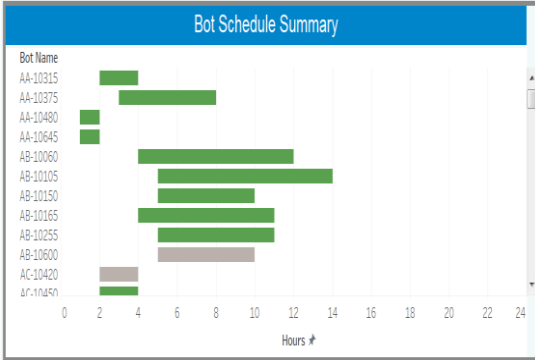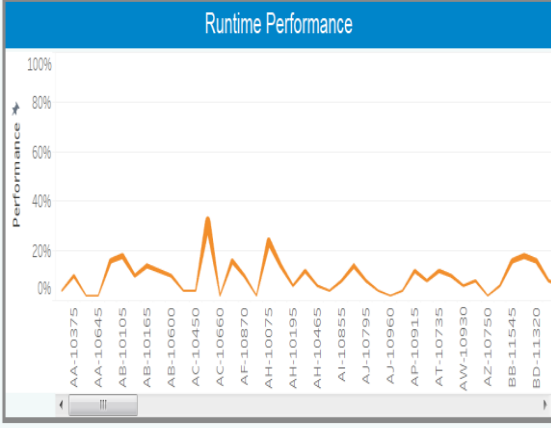
Visualization	Description	Logic Implementation
Common Across Dashboards		
Bot Name (All) · Process Name (All) · Date Period Last 2 years	Filters across all the dashboards. *Allow users to drilldown the values based on Bot Name, Process Name and Date Period.*	Metrics- 1. Bot Name 2. Process Name 3. Date
	How to view the dashboard	Clicking on the icon would redirect to the documentation prepared on UiPath RPA Log dashboard.
	Home	Would direct to the home page where all the different dashboard icons are placed.

6.3   Log Summary

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Log Summary

|		
Bots Utilization 75%	To understand whether all the Bots are completely utilized *Allows us to provide the cost savings and return on Investment for all the Bots.*	Bot Utilisation: [(No of hours Bot ran per day / 24) * 100] (In %)
Bots Summary Inactive - 72 Total 270 Active - 198	Bots Count Summary (Total, Active, Inactive) The below provides the overall summary of the Bots on a given day. *Allows the Bot Owner to utilize all the available Bots for other process planning.*	Metrics- 1. Count Distinct of Bot ID/Bot Name 2. Status – Active/Inactive
Process Utilization 81%	To understand whether all the processes are successfully completed *Allows the Bot owner to plan the Load accordingly.*	Process Utilization: [(No of Items Successfully processed) – (No of Exceptions) / (Total no of Items)] * 100 (In %)
Process Summary Inactive - 326 Total 670 Active - 734	This gives the high level view of the complete process history. *Allows the Bot Owner to understand the total number of available processes in the business and lets them to plan their delivery and load balancing accordingly.*	Metrics- 1. Count Distinct of Process ID/ Process Name 2. Status – Active/Inactive
Bots Failed Today 4	To provide the number of bots failing on a given day. *Allows the users to understand the failure of any Bots on a given day.*	Metrics- 1. Count of Bot Errors 2. Filter date as Today

	This gives the performance of the Bot per day. The Scope of this chart is to utilize the bots to their utmost ability. *Based on the historic data, the Bot Owner could target for certain performance value.*	The logic would be calculations based on the number of hours a Bot is running per day to the number of process successfully completed by the Bot.

	Global Distribution allows the user to have a consolidated view of all the Bots and their location. *Allows users to take a consolidated look on the bots they own.*	Metrics- 1. Count Distinct of Bot ID/Bot Name 2. Location of the Bot

	The Schedule summary gives the total allocation of the Bot for a given day over 24 hours. Based on this Gantt chart, the Bot Owner could assign the schedule for any upcoming process. *Provides recommendations in the future based on the analytics model.*	Metrics- 1. Bot Name 2. Status – Active/Inactive 3. Hours allocated per day for processes (0-24 hours)

	This gives the runtime performance of each Bot per day. The Scope of this chart is to utilize the bots to their utmost ability. *Based on the historic data, the Bot Owner could target for certain performance value.*	Metrics – 1. Runtime Performance 2. Bot Name 3. Filter date as today

6.4 Log Analytics
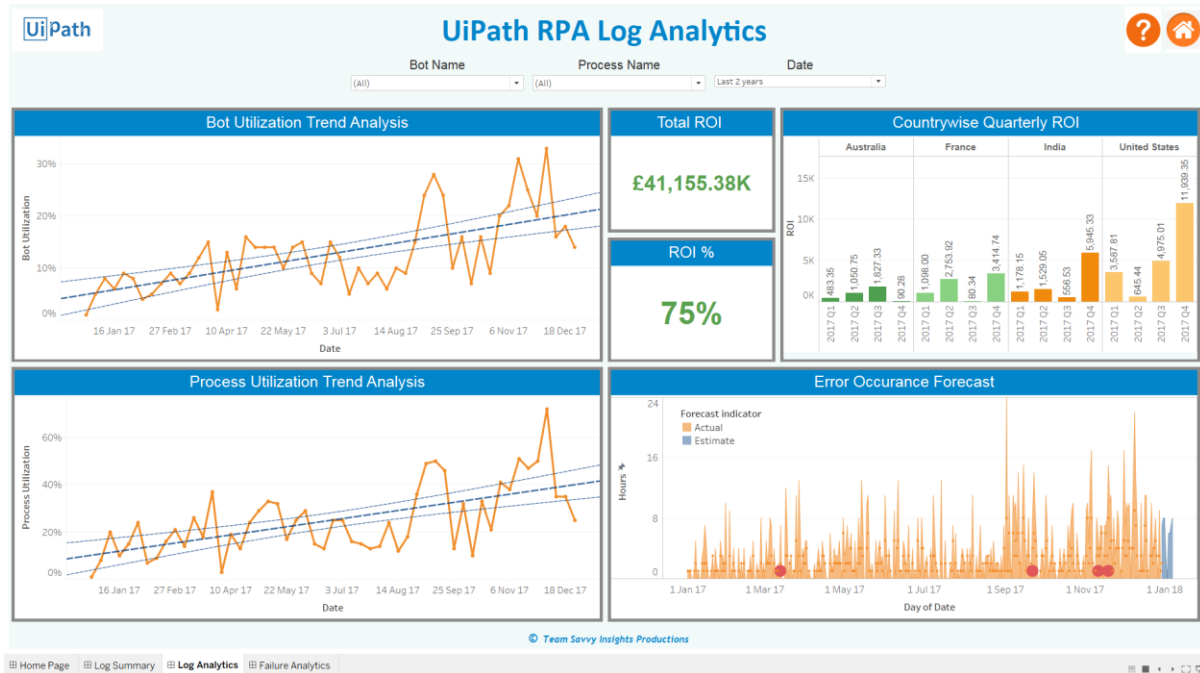
Log Analytics
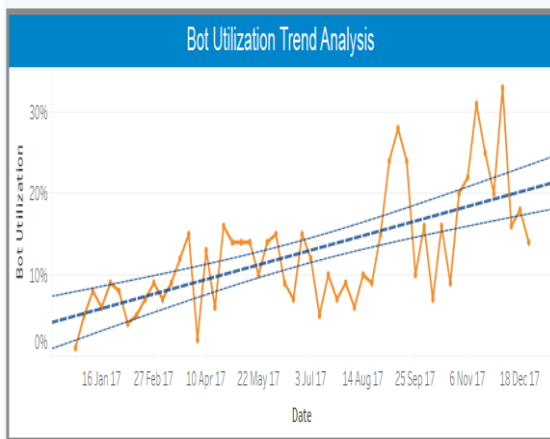
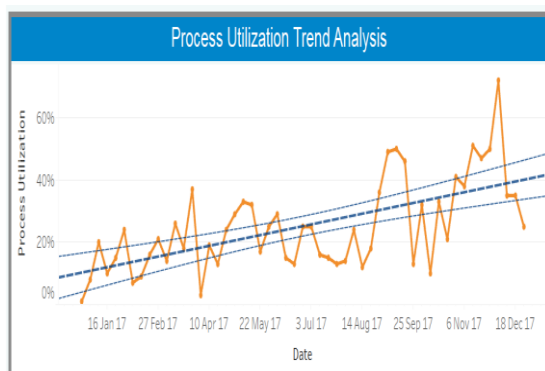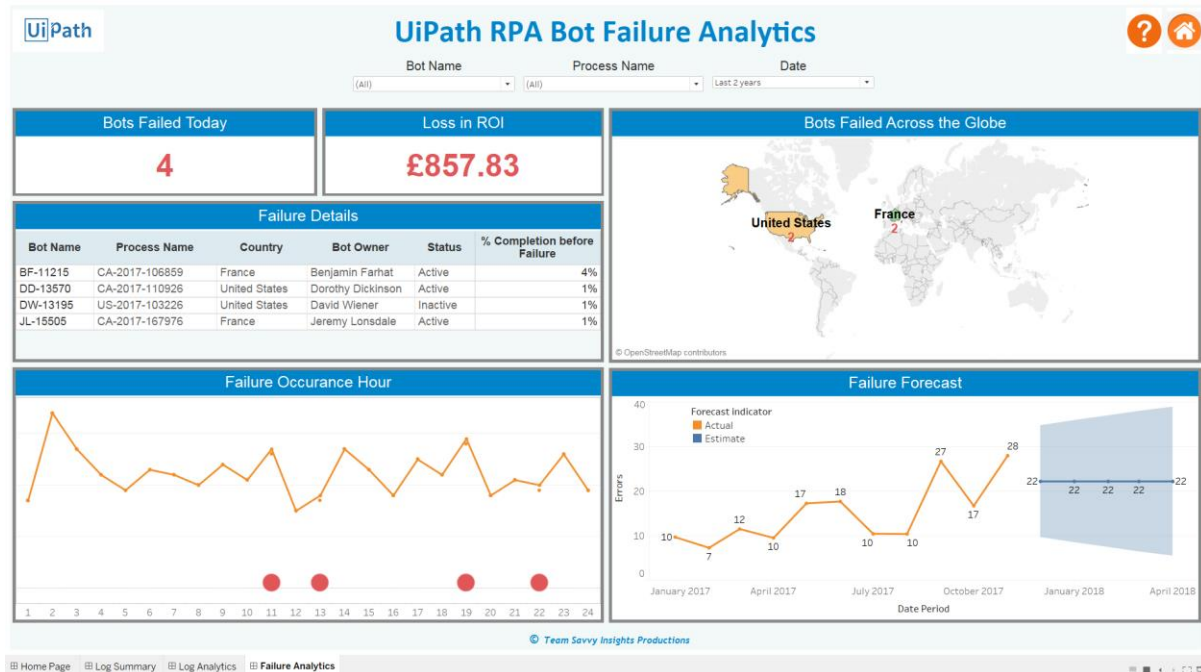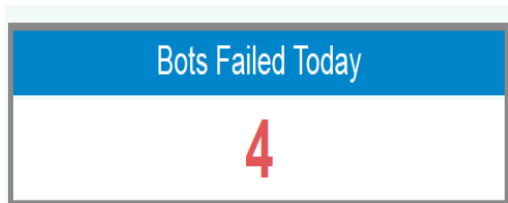|		
	To understand whether all the Bots are completely utilized *The Blue trend lines provide the distribution (High, Median and Low lines) of the Bot utilization across a given time period.*	Bot Utilization: [(No of hours Bot ran per day / 24) * 100] (In %) Trend calculation in Tableau Metrics – 1. Bot Utilization 2. Time Period
	To understand whether all the processes are successfully completed *The Blue trend lines provide the distribution (High, Median and Low lines) of the Process utilization across a given time period.*	Process Utilization: [(No of Items Successfully processed) – (No of Exceptions) / (Total no of Items)] * 100 (In %)Trend calculation in Tableau Metrics – 1. Process Utilization 2. Time Period

Total ROI

£41,155.38K

Business users can customise their ROI calculations based on their needs.	ROI calculations involves several parameters of investments and returns like
Providing the ROI allows users to have a check on their investments on the Bots.	1. License cost 2. Development cost 3. Maintenance cost 4. Hours saved 5. Cost/hour

ROI %

75%

Calculating the total percent of ROI achieved.	Metrics-
Allows users to know the level of ROI achieved as per the revenue goal set got the financial year.	1. ROI 2. Revenue Goal Value

Distribution of the ROI across the different geographical locations.	Metrics-
Allows users to understand the ROI concentration and take business decisions accordingly.	1. Locations 2. ROI 3. Time Period - Quarterly

To understand how the errors have occurred in the past, thereby forecasting the error occurrence for the future.	Metrics-
The Blue estimate provides a look into how the errors would occur in the future (current data till 2017, the chart forecasts for 2018).	1. Count of Bot Errors 2. Time period Forecast calculation in Tableau

6.5 Failure Analytics

Failure Analytics
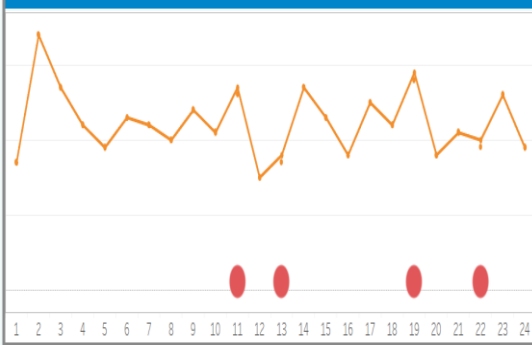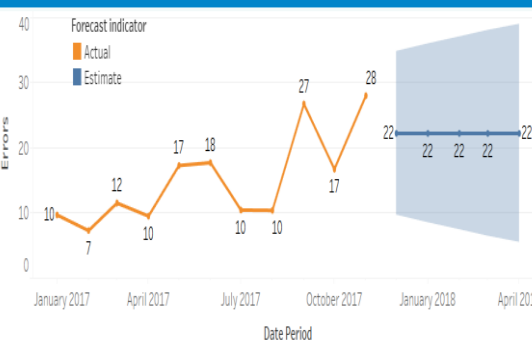
Bots Failed Today — 4	To provide the number of bots failing on a given day. *Allows the users to understand the failure of any Bots on a given day.*	Metrics- 1. Count of Bot Errors 2. Filter date as Today
Loss in ROI — £857.83	Business users can customise their ROI calculations for loss when there is a failure. *Providing the ROI Loss allows users to have a check on their failed bots and how they affect the revenue stream.*	ROI loss can be calculated from the number of bots failed and the cost of the bot for the time period it failed.

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Failure Details Bot Name / Process Name / Country / Bot Owner / Status / % Completion before Failure BF-11215 / CA-2017-106859 / France / Benjamin Farhat / Active / 4% DD-13570 / CA-2017-110926 / United States / Dorothy Dickinson / Active / 1% DW-13195 / US-2017-103226 / United States / David Wiener / Inactive / 1% JL-15505 / CA-2017-167976 / France / Jeremy Lonsdale / Active / 1%	Detailed table about the failed bots. *Allows users to understand where and when the bot failed.*	Metrics – 1. Bot Name 2. Process Name 3. Country 4. Bot owner 5. Status 6. % completion
Bots Failed Across the Globe United States 2 / France 2 © OpenStreetMap contributors	Global Distribution allows the user to have a consolidated view of all the failed Bots and their location. *Allows users to take a consolidated look on the failed bots they own.*	Metrics- 1. Count of Failed Bot 2. Location of the Bot
Failure Occurance Hour 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Hours when the Bots failed. *Allows Bot owners to understand which hour of the day a bot failed. Scope would be to run analytics model to understand and predict the failures.*	Metrics – 1. Failed bots 2. Time period - Hourly
Failure Forecast Forecast indicator Actual Estimate Errors: 10, 7, 12, 10, 17, 18, 10, 10, 27, 17, 28, 22, 22, 22, 22, 22 January 2017 / April 2017 / July 2017 / October 2017 / January 2018 / April 2018 Date Period	To understand how the errors have occurred in the past, thereby forecasting the error occurrence for the future over months. *The Blue estimate provides a look into how the errors would occur in the future (current data till 2017, the chart forecasts for 2018).*	Metrics- 1. Count of Bot Errors 2. Time period - Monthly Forecast calculation in Tableau

7. Scope Statement

7.1 Email Alerts

When a bot fails, the data field which indicates the bot failure would be chosen by tableau to send failure email alerts.

After developing the dashboard in tableau desktop, it would be published to Tableau server. In tableau server, the email alert condition would be applied. Thereby the users of the dashboard would receive the error alert email.

7.2 Failure Prevention

To build analytics model to prevent the failures of Bots in the future based on the metrics identified. Prevention would involve message/email alerts sent to the Bot owner.

7.3 Failure mode Prediction

To build analytics model to predict the failures of Bots. Based on the prediction, the dashboard would forecast the utilization and cost savings incurred to the business.

8. Assumptions, Risks & Limitations

8.1 Assumptions

- Data source is consistent and unique(has the exact data fields).

8.2 Risks

- Sample dataset would differ from the Actual. Thus data engineering has to be considered before the dashboard is developed.

8.3 Limitations

- Utilized Tableau Public (which involves data in Public cloud). Investment on Tableau tool is high.
  Alternative: In-house tools could be used to deploy the same use cases.
- Sample Bot log created for the dashboard. Connection to Actual Bot logs could involve changes in the scripts.