

EY CAFTA CC 2023

Analytical Minds

By Lunatic Byte

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PROBLEM STATEMENT

Company ABC is a leading Indian multinational corporation with operations in over 20 countries globally. With a strong focus on innovation, the company is exploring the potential of advanced technologies like artificial intelligence, machine learning, and robotic process automation (RPA) to enhance its corporate treasury function. The company wants to evaluate the potential use cases within its cash, investments, forex, and debt functions to improve efficiency and effectiveness.

Executive Summary

Organisation ABC has recognized the importance of advanced technologies to enhance their treasury functions.

AI/ML are technologies used to make machines smarter. RPA is used to automate mundane tasks. Applications of these techniques are vast covering the front, middle and back office functions. We have elaborated upon 2 major use-cases

Forex Forecast

Forex Forecasting is a way to estimate the exchange rates of various currencies. Forex forecasting is essential for traders, investors, and financial institutions who aim to make informed decisions regarding currency trading, hedging strategies, and international investments

Bank Customer Churn

Building a predictive model using the XGBRegressor algorithm. This model will help forecast or predict customer behavior, such as the likelihood of customer churn or the probability of customer retention. By leveraging machine learning techniques, we can make data-driven predictions and take proactive actions to retain customers.

ChatGPT in Treasury

Technologies like ChatGPT are revolutionizing the world of treasury management, enabling multinational companies to streamline their operations, enhance decision-making, and improve overall efficiency. Main usecases include -

Virtual Advisor

It serves as a virtual assistant, offering instant and accurate responses to treasury-related queries

Treasury Operations Support

It offers guidance on transactional activities, automates routine tasks, and assists in resolving operational issues.

Treasury Documentation

ChatGPT can write treasury documentations fed by a minimum amount of information about the company's policies

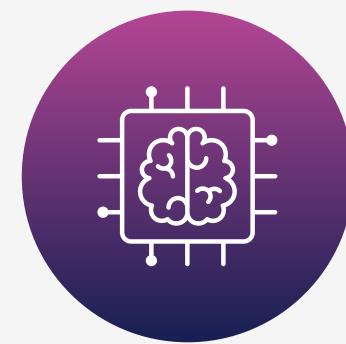
Success Stories in India

- CreateMate handles credit resolutions
- MSwipe digital recording of KYC documentation
- SBI/HDFC/ICICI Banks virtual assistants and chatbots
- CogNext efficient management and scaling of credit and lending businesses

Success Stories outside India

- Deluxe lock box systems that process payments
- Orbograph automatically reads and processes cheques
- IBM Cognos Analytics AI-powered chatbot and virtual assistant

AI/ML/RPA



Artificial Intelligence

Artificial Intelligence (AI) refers to the development of computer systems or machines that can perform tasks that typically require human intelligence. AI aims to simulate human intelligence by enabling machines to learn, reason, perceive, and make decisions based on data and algorithms. Examples include Personal Voice Assistants, Recommendation Systems



Machine Learning

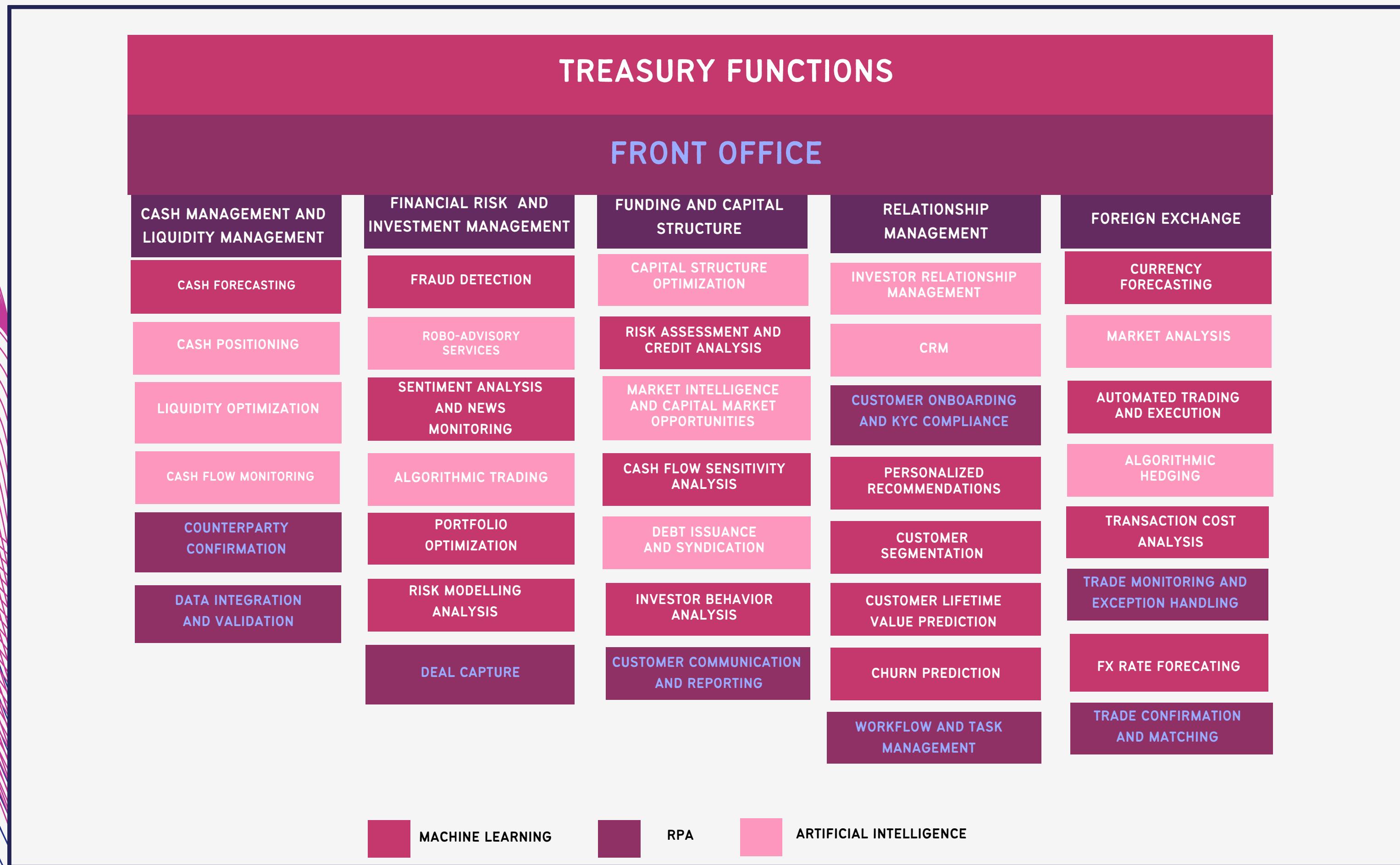
Machine Learning (ML) is a subset of AI that focuses on the development of algorithms and models that allow computers to learn from and make predictions or decisions based on data, without being explicitly programmed. ML algorithms analyze and identify patterns in data, enabling machines to improve their performance over time through experience. Examples include Fraud Detection, Image Recognition



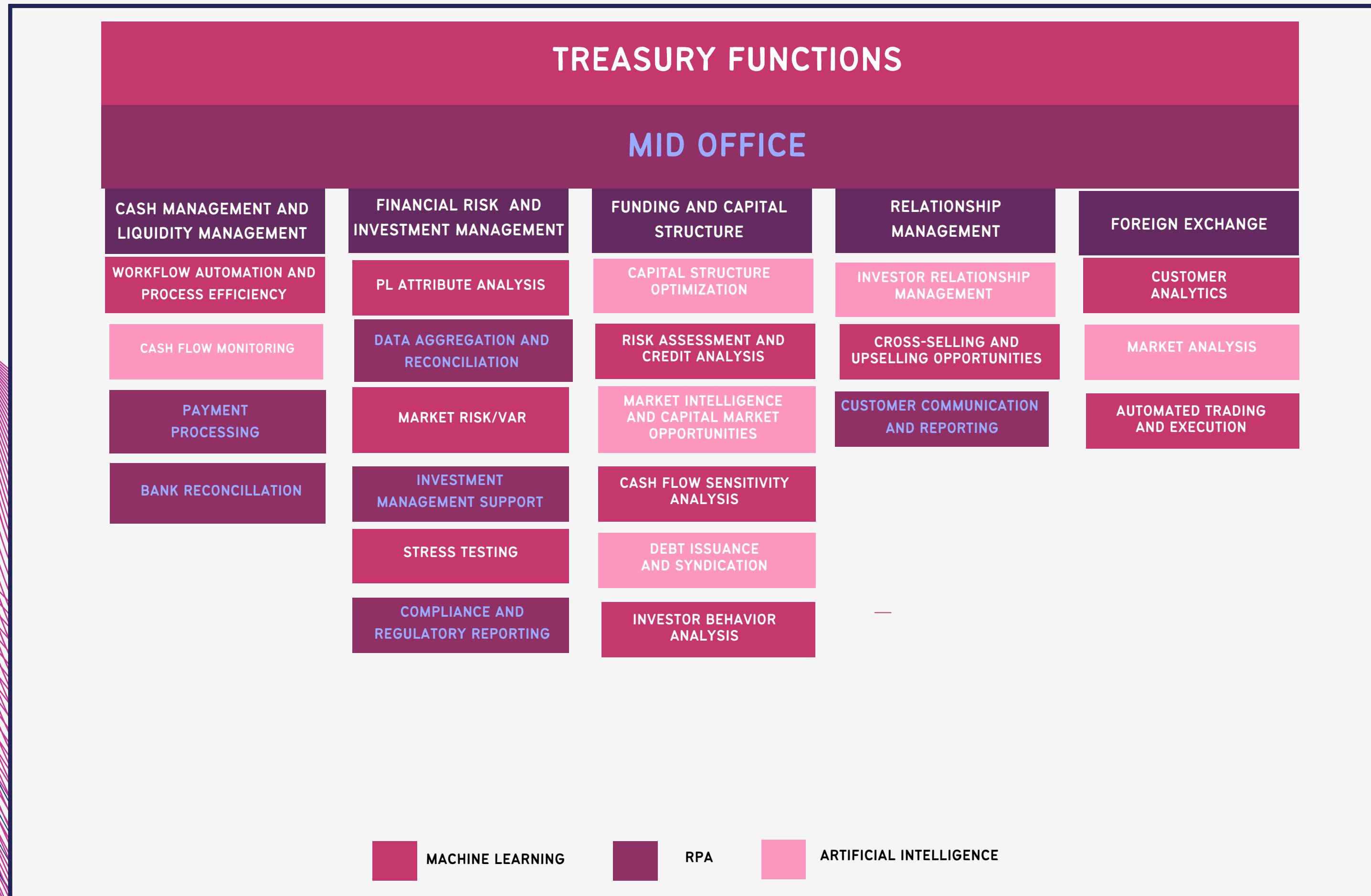
Robotic Process Automation

Robotic Process Automation (RPA) is a technology that automates repetitive and rule-based tasks by using software robots or bots. RPA mimics human interactions with digital systems and applications to execute tasks, such as data entry, data manipulation, and transaction processing. RPA aims to improve efficiency, accuracy, and productivity by reducing human intervention in routine tasks. Examples include Data Entry, Invoice Processing

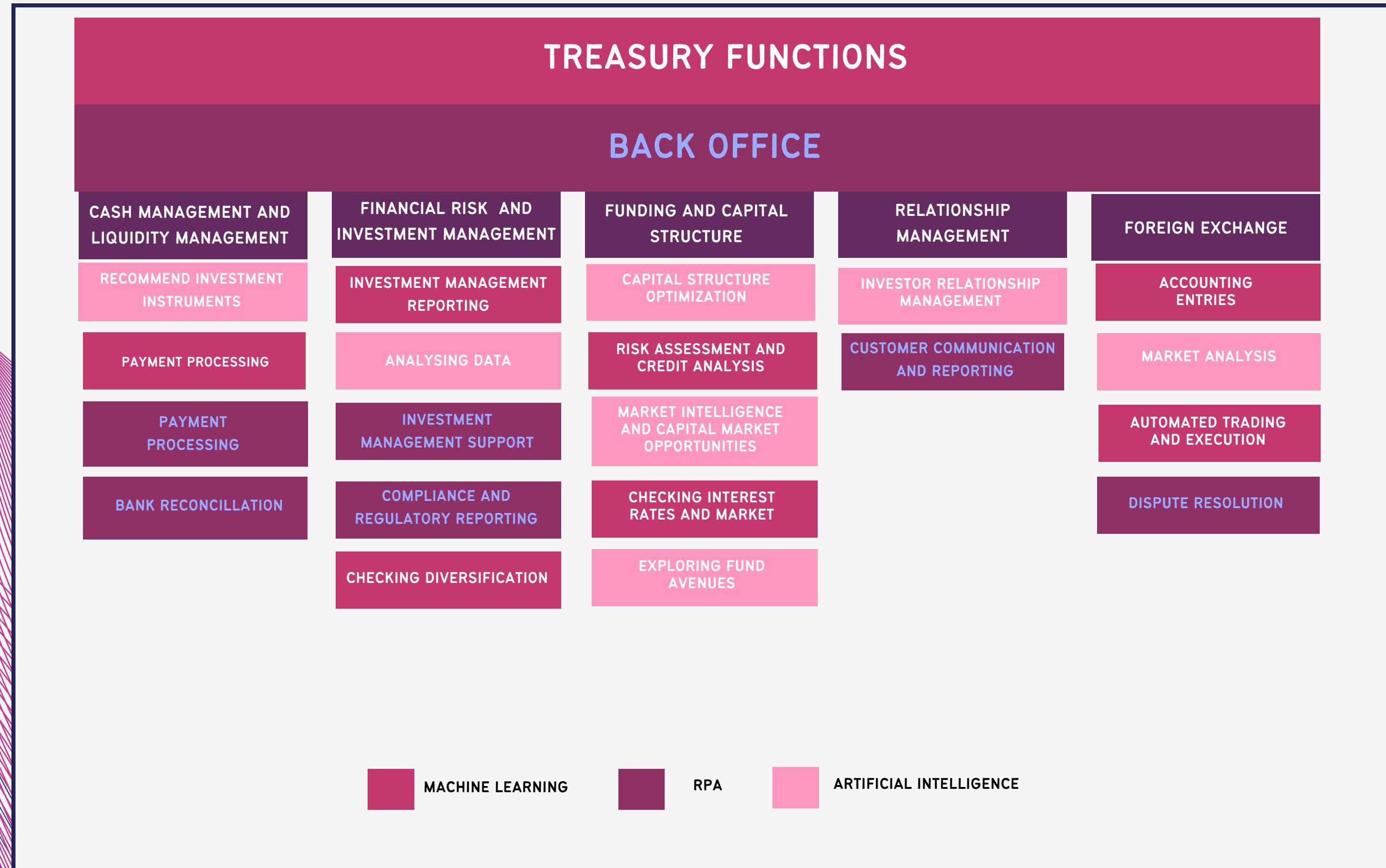
Q.1 REIMAGINING TREASURY FUNCTION THROUGH USE OF ADVANCED ANALYTICS



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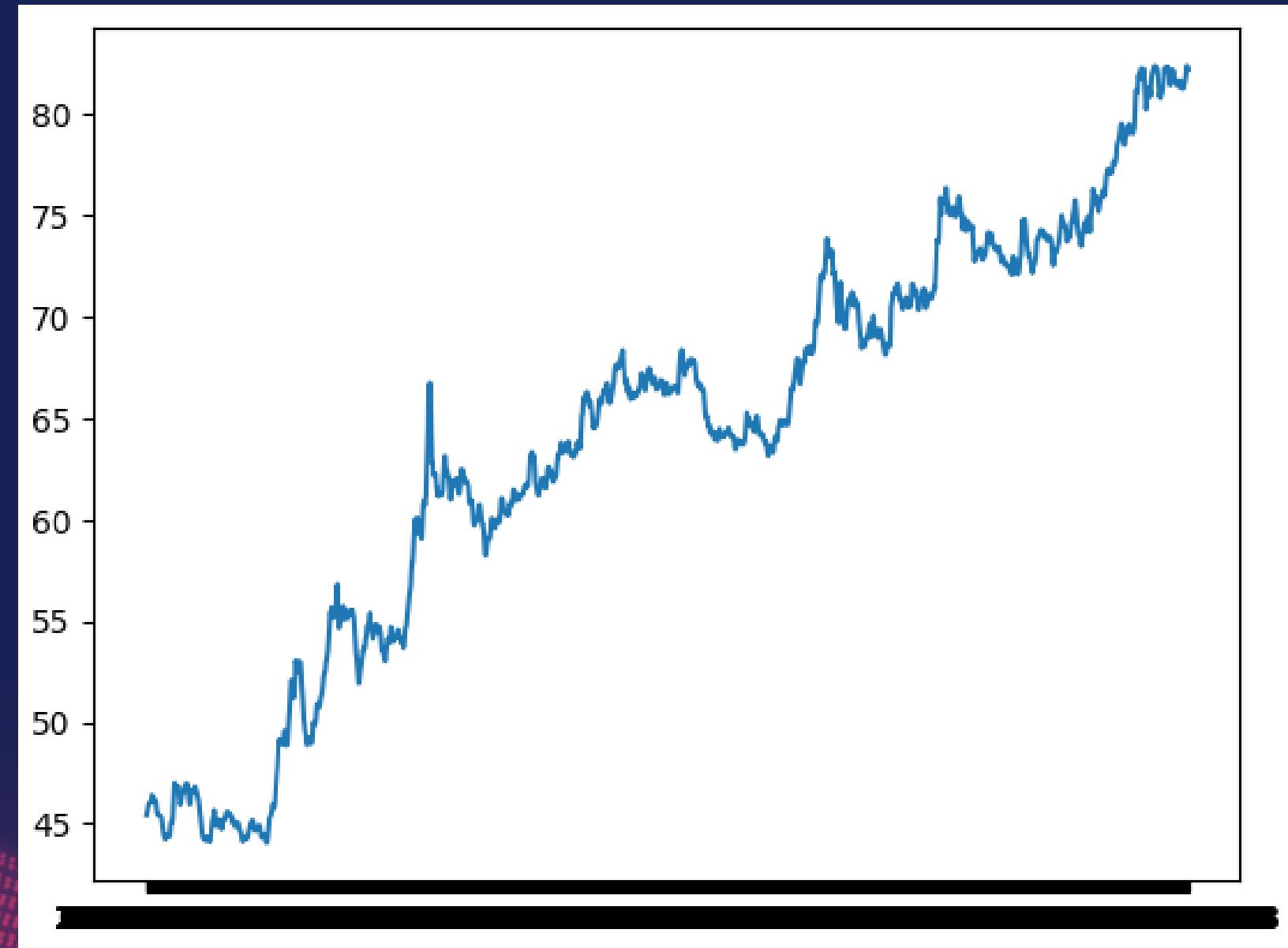
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Forex Forecast (USD-INR)

	Price	Open	High	Low	Chg%
Date					
01-01-2010	46.615	46.610	46.677	46.590	0.0044
04-01-2010	46.295	46.545	46.655	46.245	-0.0069
05-01-2010	46.205	46.305	46.305	46.045	-0.0019
06-01-2010	45.695	46.165	46.205	45.695	-0.0110
07-01-2010	45.650	45.610	45.890	45.570	-0.0010
08-01-2010	45.470	45.680	45.900	45.470	-0.0039
11-01-2010	45.260	45.510	45.510	45.230	-0.0046
12-01-2010	45.660	45.140	45.750	45.100	0.0088
13-01-2010	45.495	45.735	45.775	45.415	-0.0036
14-01-2010	45.600	45.490	45.720	45.400	0.0023

Data for Exchange rates of Rupees to USD
from January 2010 to May 2023



Distribution of the prices over the years
(2010-2023)

Forex FORECAST

- Forex forecasting, in layman's terms, refers to predicting future movements or trends in foreign exchange (forex) rates.
- Forex rates represent the relative values of different currencies.
- We've applied the LSTM algorithm to historical data to forecast the future values.
- Fig. 2.a shows the predicted and actual values of the exchange rates ranging from Sep 2020 to May 2023



[PowerBI-Dashboard](#)

[Dataset](#)

[Jupyter Notebook](#)

Bank Customer Churn Using XGBRegressor

CustomerID	Surname	CreditScore	Geography	Gender	Age
15634602	Hargrave	619	France	Female	42
15647311	Hill	608	Spain	Female	41
15619304	Onio	502	France	Female	42
15701354	Boni	699	France	Female	39
15737888	Mitchell	850	Spain	Female	43
15574012	Chu	645	Spain	Male	44
15592531	Bartlett	822	France	Male	50
15656148	Obinna	376	Germany	Female	29
15792365	He	501	France	Male	44
15592389	H?	684	France	Male	27
15767821	Bearce	528	France	Male	31



Bank Customer Churn Prediction

Explore and run machine learning code with Kaggle Notebooks | Using data from Predicting Churn for Bank Customers

kaggle.com / Nov 20, 2018

DATASET CONSISTING OF 18 ATTRIBUTES

CUSTOMER CHURN



```
xgb = XGBRegressor()
xgb.fit(X_train, y_train)
y_pred = xgb.predict(X_test)
y_pred = np.round(y_pred)
accuracy = accuracy_score(y_test, y_pred)
cm = confusion_matrix(y_test, y_pred)
print("Accuracy model:", accuracy)
print("Confusion Matrix:")
cm
```

✓ 0.8s

```
Accuracy model: 0.997
Confusion Matrix:

array([[1604,     3],
       [    3, 390]], dtype=int64)
```

The Model gives an accuracy of 99.7% after applying
XGBRegressor

Q.3 ChatGPT for Treasury

Technologies like ChatGPT are revolutionizing the world of treasury management, enabling multinational companies to streamline their operations, enhance decision-making, and improve overall efficiency. Let's dive into how ChatGPT and similar AI-powered tools are transforming the treasury landscape.

ChatGPT functions as a virtual advisor, offering instant and accurate responses to treasury-related queries. Treasury professionals can interact with ChatGPT using natural language, obtaining real-time information on cash positions, liquidity forecasts, risk exposures, market trends, and regulatory updates. With a user experience (UX) optimized for natural language processing, ChatGPT can respond to basic queries like converting global bank balances to USD or understanding exposure to the Yen, as well as more complex requests such as analyzing forecast variances or assessing liquidity. This quick access to information facilitates informed decision-making and empowers the development of robust financial strategies.

Additionally, FinGPT, a specialized adaptation of the GPT model, provides financial-related information, insights, and support across various areas of finance and banking. It can answer questions about financial concepts, explain complex terms, offer investment guidance, analyze market trends, and generate financial reports, further enhancing ChatGPT's capabilities for treasury management.

ChatGPT also automates day-to-day treasury operations, simplifying tasks like bank account management, payment processing, and reconciliation. It guides transactional activities, automates routine tasks, and assists in resolving operational issues. This automation improves efficiency, reduces manual effort, and allows treasury teams to focus on strategic aspects of their roles. Documentation and policy management are critical areas where ChatGPT proves invaluable. It streamlines the process of documenting treasury processes, procedures, and policies, which can be challenging during the implementation of a Treasury Management

Q.3 ChatGPT for Treasury

System (TMS). ChatGPT generates efficient and accurate documentation, including detailed treasury policies, and can even assist in writing Request for Proposals (RFPs), saving time for treasury practitioners.

Integrating technologies like ChatGPT into treasury management empowers professionals to make data-driven decisions, automate routine tasks, and enhance operational efficiency. These AI-powered tools act as reliable and accessible sources of information, facilitating faster and more accurate analyses. By leveraging these advancements, multinational companies can optimize their treasury operations, manage risks effectively, and stay ahead in today's dynamic financial landscape. It is important to note that while AI-powered tools like ChatGPT offer significant benefits, there are also potential risks associated with the use of AI in cybersecurity. Cybercriminals are increasingly using natural language AI algorithms to enhance the complexity of phishing emails and launching sophisticated attacks.

Therefore, it is crucial to employ automated systems to detect and prevent cyberattacks at machine speed. For treasury management, this includes using AI within payment processes to ensure compliance with payment policies and leveraging AI-driven adversarial networks to detect suspicious payments.

In conclusion, technologies like ChatGPT are transforming treasury management by providing virtual advisor capabilities, automating tasks, and supporting documentation and policy management. Integrating AI-powered tools becomes increasingly crucial for multinational companies seeking to streamline operations, enhance decision-making, and improve overall efficiency in their treasury management endeavors. However, it is essential to remain vigilant and adopt robust cybersecurity measures to mitigate potential risks associated with AI in treasury management.

SUCCESS STORIES OF INDIA

CreditMate

CreditMate's product, **Sherlock**, employs an ML system to assess defaulters' ability to handle credit resolutions effectively, enabling faster decision-making and optimizing the collection of delayed payments.

MSwipe

MSwipe's automation app for field forces connects the head office and on-field sales teams, facilitating real-time information exchange through AI and ML capabilities. Their collaboration with F2A2 Asia enables digital recording of KYC documentation and instant authentication, significantly reducing the time required for merchant onboarding.

SBI & HDFC

SIA, the AI-powered chat assistant developed by State Bank of India (SBI), addresses customer inquiries and assists with everyday banking tasks. HDFC Bank's chatbot, **Eva**, leverages AI to quickly retrieve information from thousands of sources, providing prompt and accurate answers to customer queries.

CogNext

Cognext developed India's first zero-code regulatory compliance platform and utilize technologies like deep learning, NLP, and predictive analytics to offer efficient management and scaling of credit and lending businesses. Their automated platform, **Platform X**, streamlines client data processing, making it more accessible and user-friendly.

Conclusion

The use of AI, RPA, and ML in treasury management offers the potential for increased efficiency, improved accuracy, better risk management, optimal cash management, fraud detection, enhanced decision-making, and regulatory compliance.

However, it's important to note that while these technologies can be powerful tools, they should be used alongside human expertise and oversight to ensure responsible and effective implementation.

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