

# BANK OF AMERICA CODE2CONNECT 2023

## FICC TECH PROBLEM

Presented by:

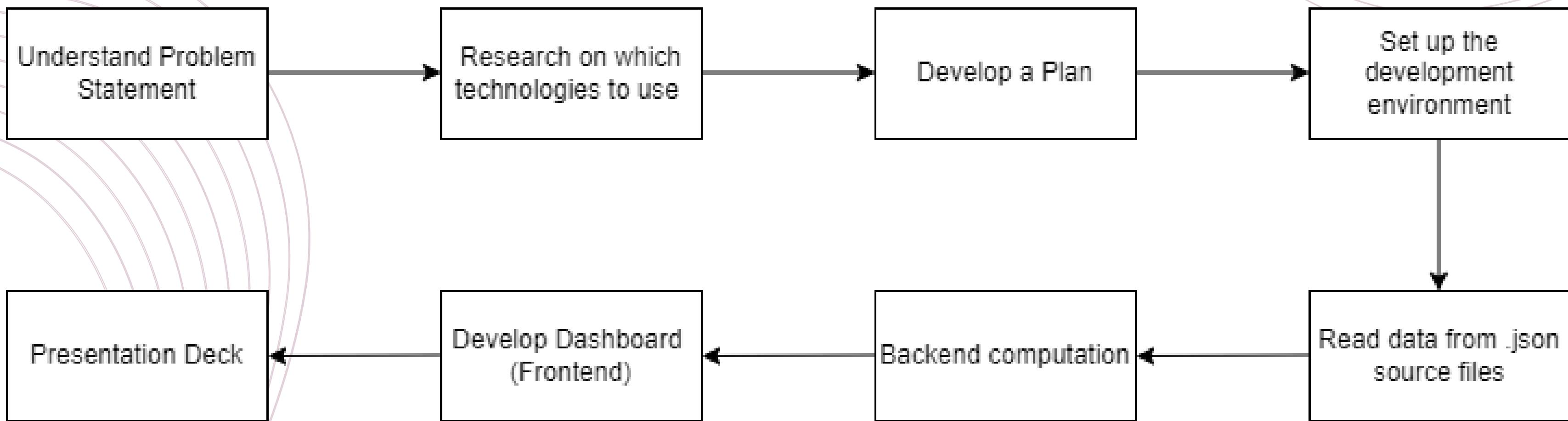
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# HOW WE TACKLED THE PROBLEM?



# DESIGN CONSIDERATIONS

- Scalability: The solution must be scalable to handle a large amount of data and must be able to scale horizontally to add more processing power as needed.
- Testing: The solution must be thoroughly tested, as the pricing engine must be accurate and reliable to ensure that it works as expected under different scenarios and conditions.
- Documentation: The code must be well-commented and organized, and there must be clear documentation on how to deploy, run, and maintain the system.



# PROBLEM STATEMENT APPROACH

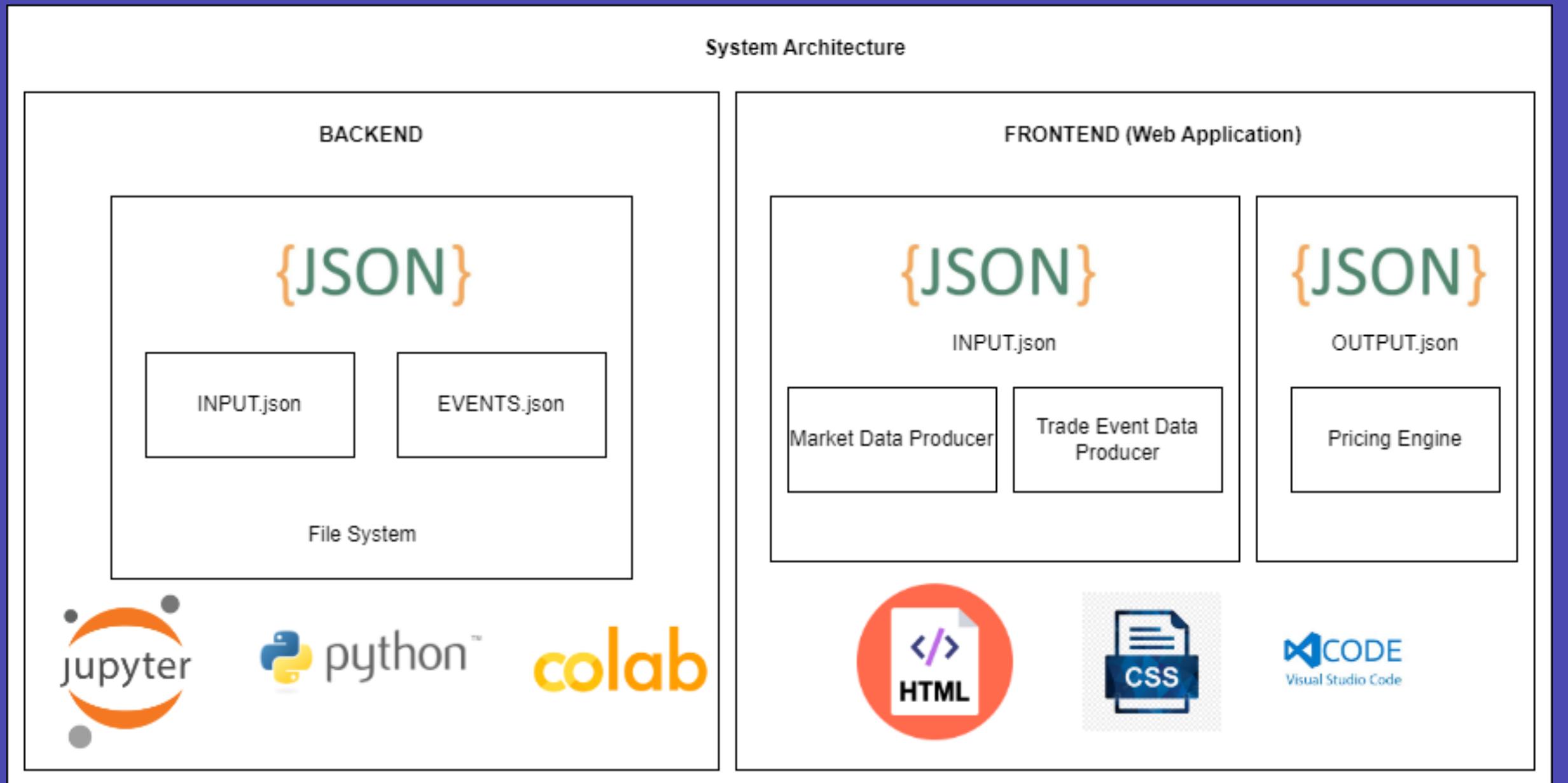
- Check all EventIds in the Events.json file including the EventID in the Input.json tuple, based on the EventID in the Input.json tuple.
- If there is a match between the currency and tenor of the Input.json tuple and a tuple in the Events.json file, check if both FXMidEvent and ConfigEvent have occurred before or at the current EventID. If so, perform trading calculations and output the result in the Output.json. Otherwise, the transaction will not occur.

# CHALLENGES FACED

- Understanding the concept of FX forwards
- Computing Bid and Ask calculations
- Building a web application (interactive user dashboard) from scratch
- Struggling to finish on time :)



# SYSTEM DESIGN



# UI INTERFACE

## MARKET DATA PRODUCER COMPONENT

### FICC Trade Challenge

#### Market Data Producer

Event ID	Event Type	Currency	Rate
6	FXMidEvent	CHX	0.88
7	FXMidEvent	KRX	1322.06
11	FXMidEvent	JPX	133
15	FXMidEvent	GBX	0.8
17	FXMidEvent	EUX	0.9
20	FXMidEvent	EUX	0.89
22	FXMidEvent	CHX	0.87
24	FXMidEvent	EUX	0.9
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Event ID	Event Type	m	b	Divisor Ratio	Spread
1	ConfigEvent	0.01	0.07	300000	2
2	ConfigEvent	0.03	0.08	300000	1
5	ConfigEvent	0.02	0.08	100000	3
9	ConfigEvent	0.02	0.06	100000	3
12	ConfigEvent	0.03	0.07	100000	3
13	ConfigEvent	0.03	0.07	200000	2
14	ConfigEvent	0.04	0.09	200000	2
16	ConfigEvent	0.03	0.06	100000	3
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# UI INTERFACE

## TRADE EVENT DATA PRODUCER COMPONENT

### Trade Event Data Producer

Event ID	Event Type	Buy/Sell	Currency	Tenor	Quantity	Trade ID
3	TradeEvent	sell	CHX	1M	3000	T1
4	TradeEvent	buy	JPX	1M	1000	T2
8	TradeEvent	buy	KRX	6M	2000	T3
10	TradeEvent	sell	JPX	2M	1000	T4
18	TradeEvent	buy	EUX	2M	500	T5
21	TradeEvent	buy	GBX	1M	100	T6
26	TradeEvent	sell	JPX	1M	3000	T7
29	TradeEvent	sell	JPX	2M	2000	T8
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# UI INTERFACE

## PRICING ENGINE COMPONENT

### Pricing Engine

Event ID	Currency	Tenor	Position	Bid	Ask	Quote Status
5	CHX	1M	-3000	NA	NA	EXCEPTION
25	GBX	1M	100	0.7996	0.7997	TRADABLE
20	GBX	1M	NA	NA	NA	EXCEPTION
66	JPX	12M	999900	-11.7856	-11.7854	NON-TRADABLE
3	GBX	1M	NA	NA	NA	EXCEPTION
91	GBX	2M	NA	NA	NA	EXCEPTION
3	EUX	6M	NA	NA	NA	EXCEPTION
...	...	...	...	...	...	NON-

# TAKEAWAYS & CONCLUSION

- The management of currency risk exposure involves gaining valuable insights into FX forward pricing engines.
- In order to generate bid and ask prices, accurate data processing and calculation are crucial.
- The choice of programming languages and libraries should be based on the specific requirements of the pricing engine.
- Teamwork and Collaboration with randomly paired group mates.



# THANK YOU

