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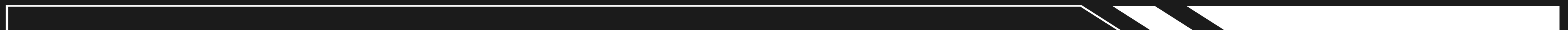
Enhancing Workspace Utilization & Employee Experience through Data-Driven Insights



– Manish Kumar Vuppugandla

STAGES

I	Foundational Data Analytics.
II	<p>Predictive Modelling.</p> <ul style="list-style-type: none">○ Time Series Analysis of Booking Patterns.○ Predictive Modelling for Future Demand.
III	Ultimate Recommendation Engine.



MVP's (*Most Valuable Places, People, etc...*)

Where: Campus Utilization

- Identify the most utilized spaces, areas, and campuses based on booking frequency.
- Determine which workspaces experience high demand and require optimization.
- Optimize resource allocation by focusing on popular locations.

When: Time Analysis

- Analyze the time of day, day of the week, and week of the month with the highest booking activity.
- Examine booking patterns during significant events, project stages, or deployment phases.
- Identifying peak periods and optimize space availability during these times.

When: Seasonal and Event Trends

- Study the months of the year associated with increased booking activity.
- Monitor specific events that result in higher workspace demand (e.g., conferences, product launches).
- Plan for resource allocation and staffing adjustments based on event-driven trends.



Who: User Insights

- Categorize users into groups (rookies, founding employees, trainees) and assess their booking behavior.
- Determine which user segments utilize workspaces the most and during which times.
- Tailor recommendations and resources based on user profiles to enhance their experience.

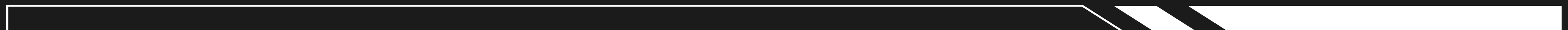
Who: User Engagement

- Track the engagement levels of different user groups (temporary employees, trainees, veterans).
- Identify trends in engagement based on workspace utilization patterns.
- Develop strategies to engage and retain users through optimized workspace experiences.

Who: Team Dynamics

- Analyze team-based booking patterns and preferences.
- Discover how specific teams utilize spaces during collaborative projects.
- Provide team-specific recommendations for workspace arrangements.

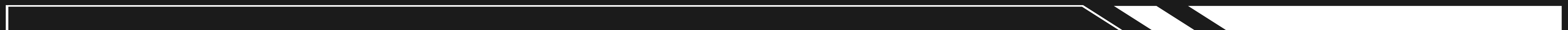
*Provide personalized premium recommendations and prioritized bookings to premium users. (*Monetization)*



Why CXApp Should Care About Past Booking Patterns:

Problem of Ignoring Past Booking Patterns:

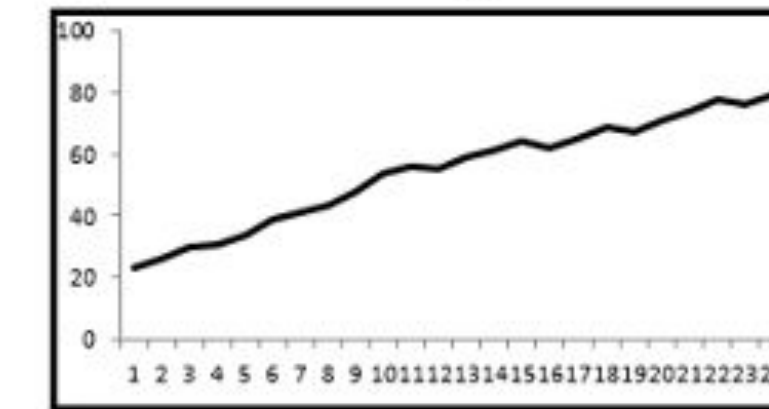
- Resource Allocation Confusion
 - Inefficient Space Utilization
 - Financial Loss
-
- If a company overspends on maintenance and staffing due to unpredictable variations in demand, it could strain budgets and hinder growth. Ignoring booking patterns can lead to financial losses.
 - Disregarding past booking patterns can result in underutilized spaces during certain periods and overbooking during others, leading to dissatisfaction among users and potential loss of clients.
 - If a certain room was heavily booked during an event but barely used later, valuable space might be wasted.



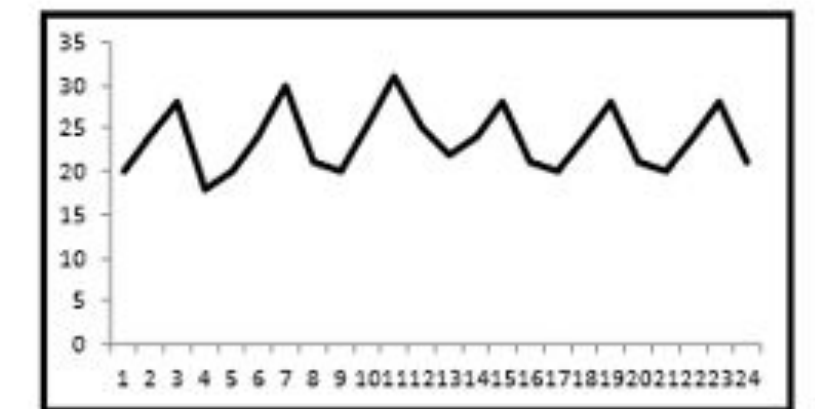
Example patterns around Salesforce Dreamforce:

- In 2019, Dreamforce had 120,000 attendees, causing heavy demand for workspaces and facilities.
- In 2022, the attendance dropped to 30,000, leading to underutilized spaces and unnecessary maintenance costs.
- In 2023, attendance spiked to 170,000, overwhelming the facilities and causing inconvenience.

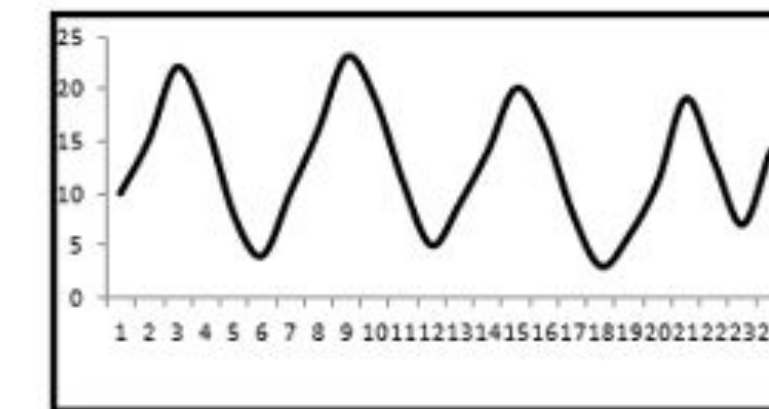
Components of Time Series



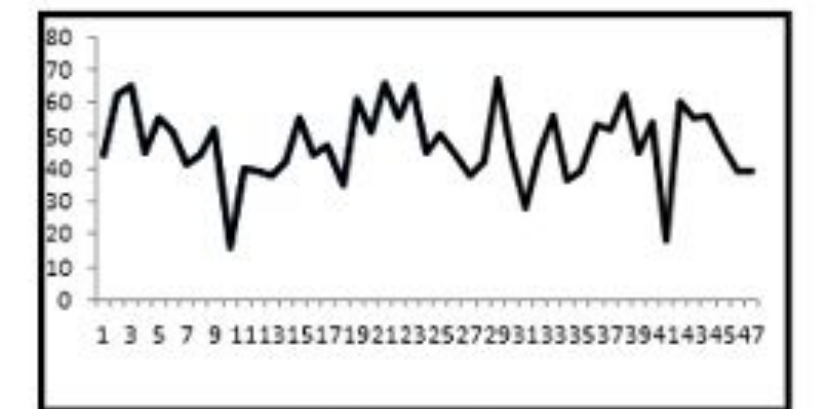
(a) Trend



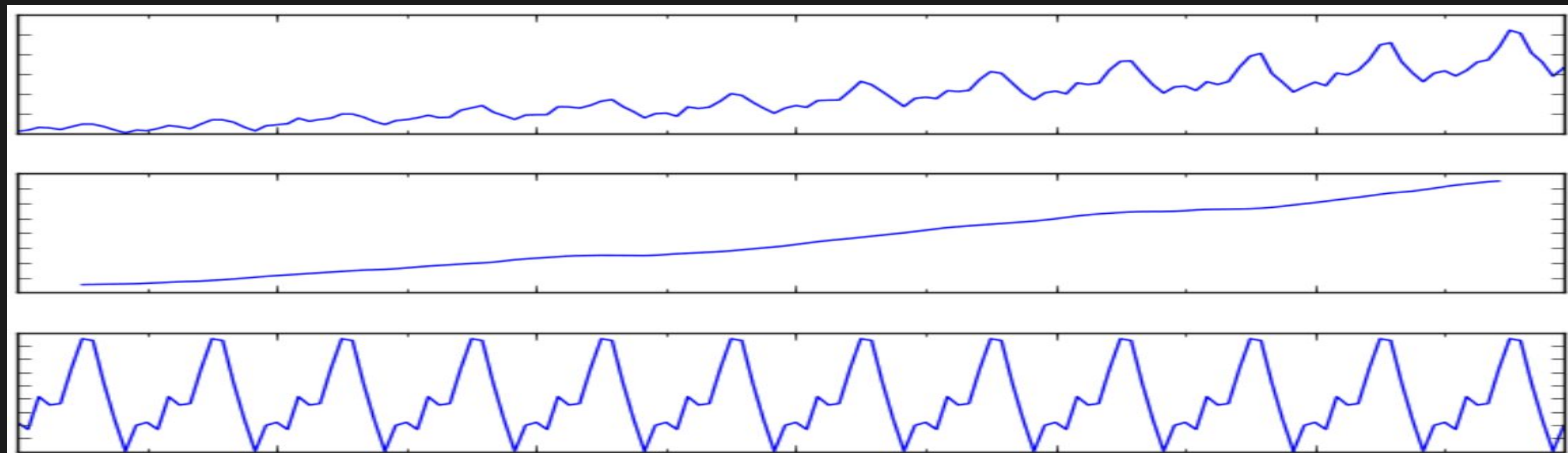
(b) Seasonality



(c) Cyclicality



(d) Irregular



Upsides of Time Series Analysis for Booking Patterns:

Strategic Resource Management:

- Predict future booking trends accurately. For instance, analyzing past attendance at events like Dreamforce can help anticipate demand fluctuations for specific campuses.

Cost Efficiency:

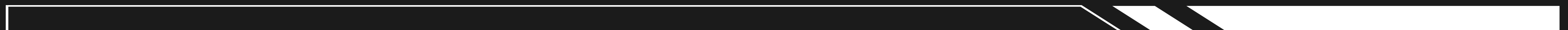
- By understanding patterns, CXApp can optimize resource allocation. During low-demand periods, facilities can be maintained at a cost-effective level, and during high-demand times, they can be prepared adequately.

Enhanced User Experience:

- Accurate analysis of booking patterns ensures that CXApp provides the right resources and facilities when needed. This leads to improved user satisfaction and loyalty.

Data-Driven Decision Making:

- Analyzing booking patterns empowers CXApp to make informed decisions about expanding or reducing resources based on actual demand, such as opening more facilities during events like Dreamforce.



Problem of Ignoring Demand Prediction:

Missed Revenue Opportunities:

- Without predicting future demand, CXApp might miss out on revenue-generating opportunities. For instance, if there's unexpectedly high demand during a specific period, the company could have accommodated more bookings.

Customer Dissatisfaction:

- Failure to accurately predict demand can lead to dissatisfaction among partnering companies. If they can't secure the required resources due to poor demand projection, they might look for alternatives.

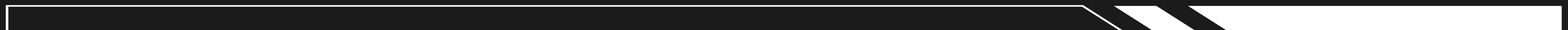
Upsides of Predictive Modeling for Future Demand:

Enhanced Experience and Client Satisfaction:

- Scaling up resources during event seasons to meet the increased booking requests.
- Accurate demand projection ensures that partnering companies have a smooth and hassle-free experience, building strong client relationships.

Strategic Planning:

- Predictive modeling allows CXApp to plan ahead for resource scalability and expansion, aligning with events like Dreamforce.



With this insight, CXApp could consider entering new markets by:

Market Research:

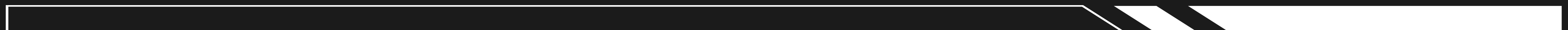
- Analyzing booking patterns in various regions can reveal potential demand for workspace management solutions. For instance, if CXApp identifies a consistent trend of high-demand events in a particular city, it might indicate an untapped market.

Adaptation to Local Trends:

- Different regions might have unique booking preferences and patterns. Analyzing these patterns enables CXApp to tailor its offerings to match local expectations and maximize its success in the new market.

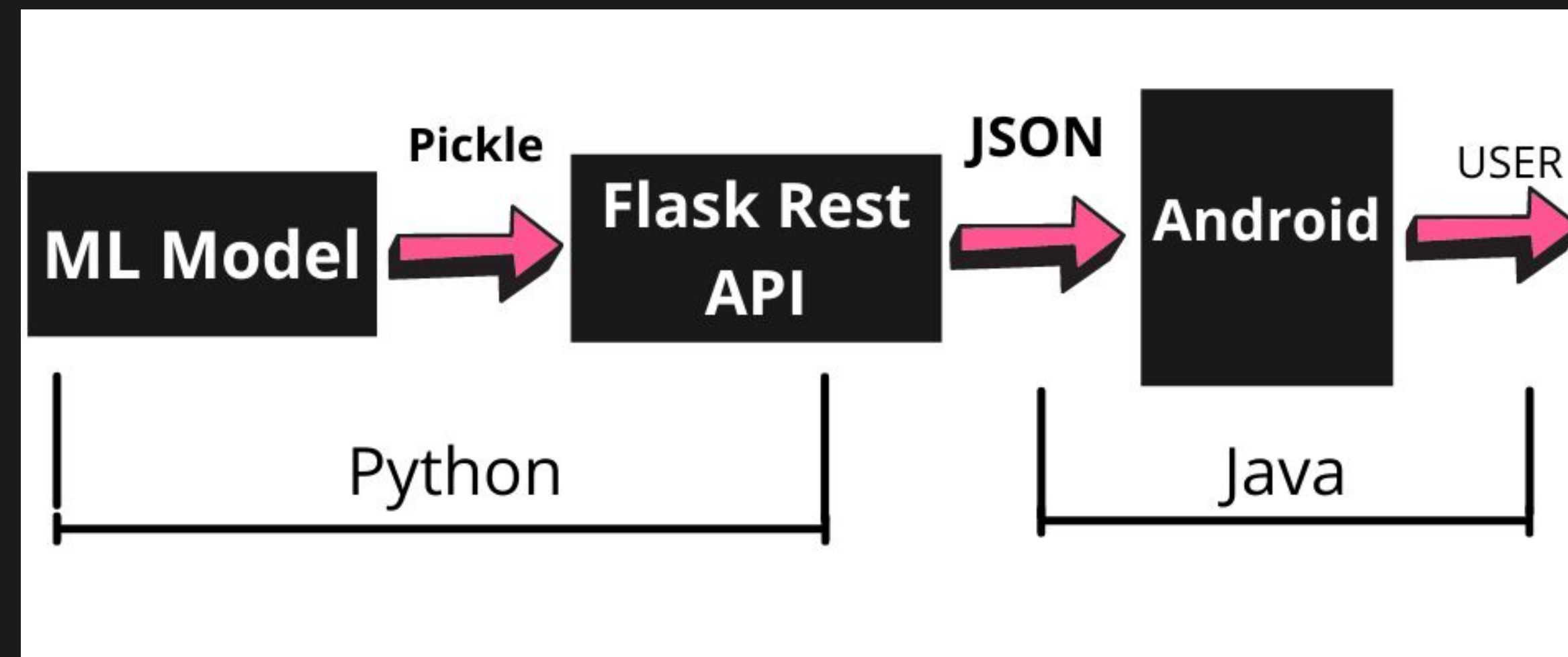
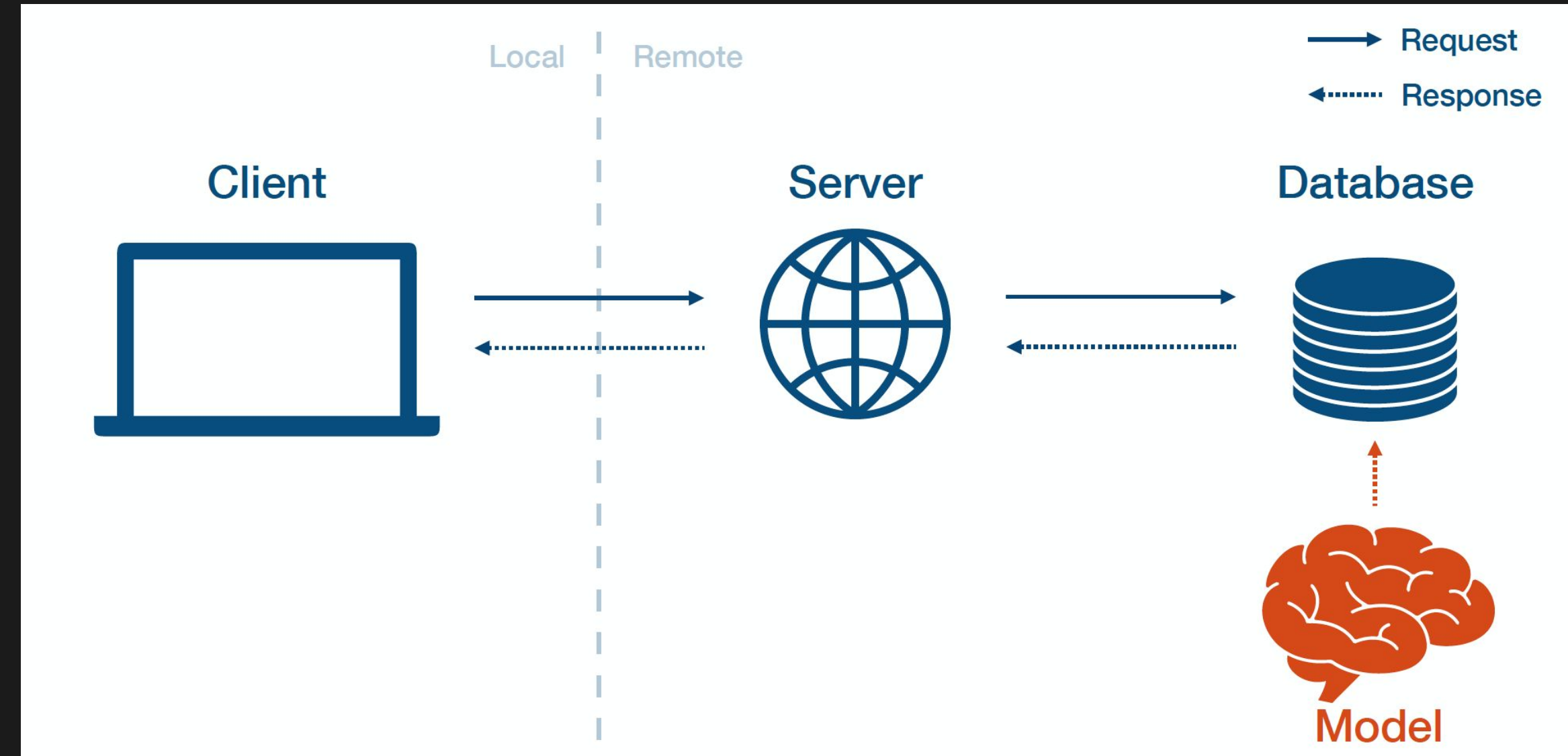
Expansion Strategy:

- Armed with insights from booking pattern analysis, CXApp can develop a well-informed expansion strategy. This includes deciding when and where to launch its services, optimizing workspace offerings, and ensuring a competitive edge in the new market.
- Establishing partnerships with local companies to provide workspace management solutions during these events.



Technical Implementation:

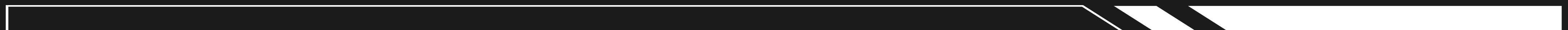
- *Predictive Modeling:*
 - *Time Series Data Preparation*
 - *ARIMA Model Training*
 - *Feature Engineering*
- *Integration with CXApp:*
 - *Cloud Hosting for Web Platform*
 - *Client-Side Predictions*
 - *API Integration*



Challenges and Implementation Hurdles:

- *Model Hyperparameters*: overfitting vs underfitting.
- *Data Quality*: Ensuring that historical booking data is accurate and consistent for reliable model training.
- *Seasonality and Trends*: Addressing challenges posed by varying seasonality and trends in booking patterns.
- *Real-Time Processing*: Managing the integration of real-time predictions without compromising app performance.
- *Model Maintenance*: Keeping the model up-to-date with the latest booking data for accurate predictions.
- *Scalability*: Adapting the model for diverse campuses and scaling it to handle large user bases across multiple companies.
- *User Privacy*: Ensuring that user data is anonymized and secure, adhering to data privacy regulations.
- *Integration Complexity*: Streamlining the integration of the ARIMA model across different components of CXApp's ecosystem.

*(*premium real-time prediction features as part of a subscription package can create new revenue streams)*



THANK YOU !



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