# InnTell: Effective Hotel Management using Prospective Customer Insights

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## *Motivation and Objective*

- Influx of tourists to Singapore is increasing @7% every year
- Accommodation makes up 22.5% of tourism receipts
- Average occupancy rate at hotels is increasing @1.7% every year
- In spite of this, the revenue of hotels is decreasing @0.9% every year
- Lack of strategic pricing – lack of information about potential customers
- Lack of user specific customization
- Cannot employ extensive in-house analytics – IT costs
- Consultants like Deloitte's GX – expensive, small players cannot compete

## *Approach*

**InnTell**

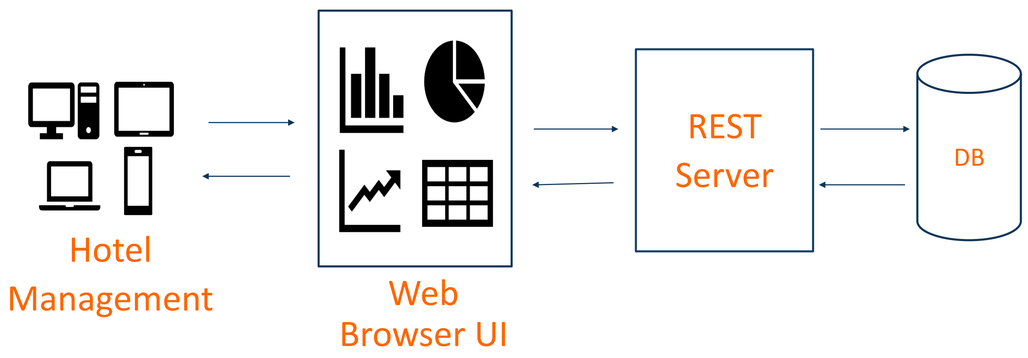
- Cloud-based software solution
- Helps hotels identify trends and patterns in customers
- Helps hotels plan logistics to suit the needs of customers
- Suggests dynamic pricing
- Enhances hotel customers' experience

**Technological Approach**

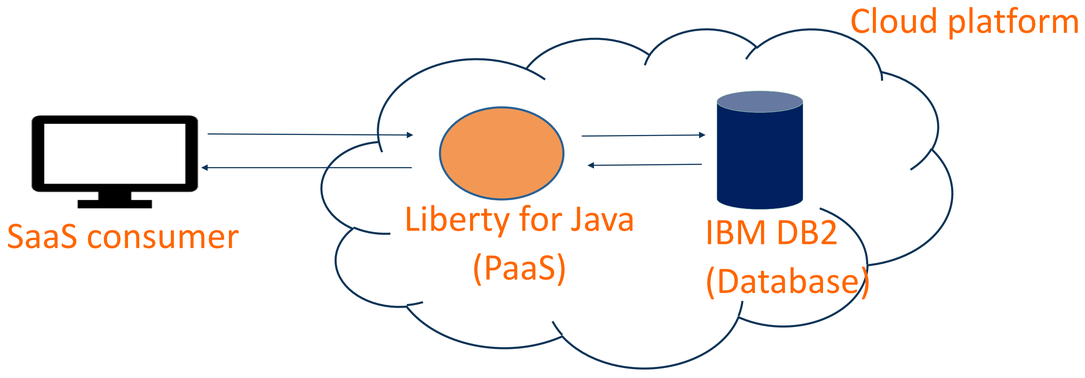
- Cloud - ↓Cost, ↑Elasticity,↑Resiliency, Multi-tenancy
- Machine Learning - to derive insights from yesteryear data (*Data source:* data.gov.sg)
- Recommends dynamic pricing based on predicted market trend and supply-demand gap – Avg. Occupancy Rate, Avg. Room Rate, Revenue per Available Room
- Helps hotels plan logistics better – Visualization of fine grained tourist data that includes age group, nationality, purpose and frequency of visit
- Enhances hotel customers' experience – Provides food recommendations, suggests selective customer targeting

## *Implementation*

### High Level System Design




### SaaS Architecture




### Development

- Cloud Platform – IBM Bluemix
- Built as a SaaS application
- Laid on top of PaaS
  - Liberty for Java
  - IBM DB2
- Languages Used
  - Backend – JAVA Spring MVC
  - Frontend – HTML5, CSS3, JavaScript, jQuery
- Datasets Used
  - Economy Category – Visitors, Hotels
  - Environment Category - Climate

### External Libraries

jQuery, Bootstrap, Chart.js, Popper.js

### Implementation Details

- Regression on existing data to predict metrics for selected month and tier
- Dynamic pricing based on price elasticity, estimated demand and focused customer insights to suggest change in given price

## *Revenue Model*

**Revenue Model**

- Subscription model - recurring revenue
- Information good – unit demand, frequent updates
- Interesting insights will be made available for free, luring users to sign up for a paid version with data analytics
- Lock in strategies – discounts, promotions
- Customization for specific customers will also be incorporated in the paid version
- Updates – more datasets, deeper insights based on customer feedback