



Data Science

# HOTEL POPULARITY INDEX

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# OVERVIEW

01

Introduction

02

Dataset

03

Data Preprocessing

04

Method

05

Deployment

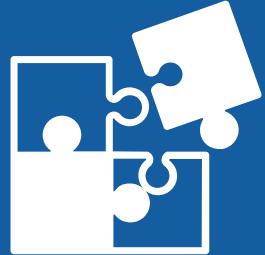
06

Conclusion



# INTRODUCTION

## OBJECTIVE



Create a scoring or ranking system for hotels based on features like location, property type, and price per night.

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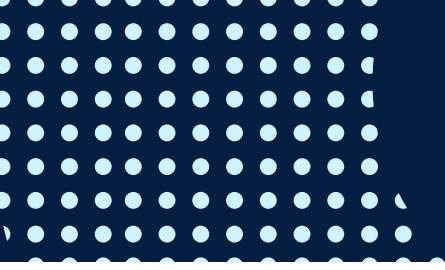
## BENEFIT



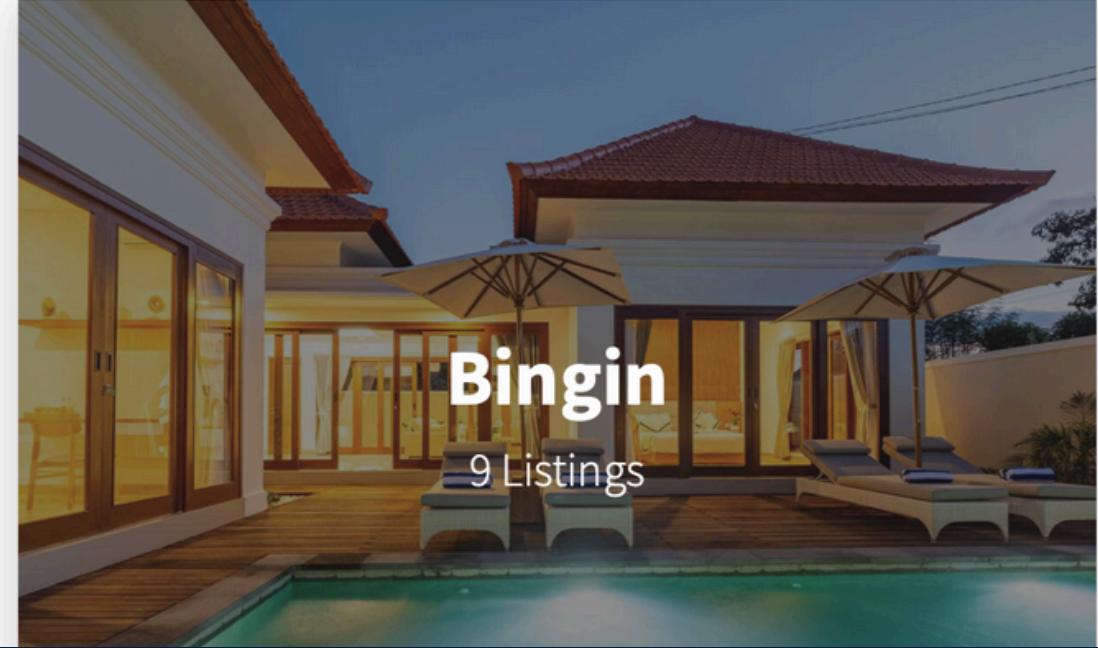
- Assists customers in identifying high-value properties.
- Combines multiple features into a composite score using weighted averages.
- Demonstrates feature scaling and scoring methodology.



# DATASET



Discover Bukit Vista's handpicked villas, from Uluwatu's beaches to Ubud's rice fields, for your perfect holiday stay.



RangeIndex: 50 entries, 0 to 49  
Data columns (total 6 columns):

	Hotel Name	Price	Property Type	Bedroom	Bathroom	Location
0	Bingin Beach Hideaway: Group Villa with Pool &...	161.0	Amazing pool, Island life, Pool view, Surfing,...	3	3.0	Jl. Pantai Cemongkak Gg. Samuh Sari No.2, Peca...
1	4-Bedroom Mediterranean Luxury Villa with Ubud...	202.0	Amazing pool, Amazing View, Jungle View, Pool ...	4	4.0	Jl. Suweta, Ubud, Kecamatan Ubud, Kabupaten Gi...
2	Luxurious 3-Bedroom Nusa Dua Seafront Villa w/...	357.0	Beachfront, Villa	3	4.0	Unknown
3	Grand Villa Retreat w/ Pool & Garden in Ungasan	84.0	Amazing pool, Golfing, Pool view, Villa	2	2.0	Jl. Pantai Balangan I No.9x, Ungasan, Kec. Kut...
4	Surfer's Villa 4 Mins to Bingin & Dreamland Be...	118.0	Pool view, Villa	2	2.5	Pecatu, Kuta Selatan, Badung, Bali, Nusa Tengg...

# METHOD



## Weights

- Price per Night: 30%
- Total Bedrooms: 20%
- Total Bathrooms: 15%

The weights can be modified based on assumptions or user input.



## Normalization

Use techniques like Min-Max scaling:

$$x_{\text{scaled}} = \frac{x - x_{\min}}{x_{\max} - x_{\min}}$$



## Computation

Sum up the weighted scores for each hotel to calculate the popularity index:

$$w_1 \cdot x_1 + w_2 \cdot x_2 + \dots + w_n \cdot x_n$$

# DATA PREPROCESSING

Hotel Name	Price per Night (USD)	Property Type	Bedroom	Bathroom	Location
Bingin Beach Hideaway: Group Villa with Pool &...	161.0	Amazing pool, Island life, Pool view, Surfing,...	3	3.0	Jl. Pantai Cemongkak Gg. Samuh Sari No.2, Peca...
4-Bedroom Mediterranean Luxury Villa with Pool in Ubud...	202.0	Amazing pool, Swimming pool, Sea view, Jungle view,...	4	4.0	Jl. Suweta, Ubud, Kecamatan Ubud, Kabupaten Gianyar...
Luxurious 3-Bedroom Nusa Dua Seafront Villa w/...	<ul style="list-style-type: none"> <li>• <b>Property Type, Location =&gt; Match with Hotel Name</b></li> <li>• <b>Bathroom =&gt; Match with Bedroom</b></li> </ul>		3	4.0	Nusa Dua, Bali
Grand Villa Retreat w/ Pool & Garden in Ungasan	84.0	Amazing garden, Golfing, Relaxing, Villa...	2	2.0	Jl. Pantai Balangan I No.9x, Ungasan, Kec. Kut...
Surfer's Villa 4 Mins to Bingin & Dreamland Beach...	118.0	Pool view, Villa...	2	2.5	Pecatu, Kuta Selatan, Badung, Bali, Nusa Teng...
Private Pool Villa Minutes from Bingin Surf Ha...	165.0	Pool view, Villa...	2	2.0	Pecatu, Kuta Selatan, Badung, Bali, Nusa Teng...
Ungasan Exquisite Villa w/ Rooftop & Private P...	167.0	Amazing pool, Golfing, Surfing, Tropical, Villa...	3	3.5	Ungasan, Kuta Selatan, Badung, Bali, Nusa Teng...
Sun-Soaked Canggu Villa Perfect for Families	100.0	Villa...	2	2.0	Tibubeneng, Kuta Utara, Badung, Bali, Nusa Teng...
Sunny Exquisite Umalas Villa: 20 Minutes to C...	108.0	Guest House, Villa...	2	2.0	Canggu, Bali
Ubud's Verdant Hideaway w/ Pool & Garden Views	34.0	Guest House...	1	1.0	Ubud, Bali
Dazzling Villa with Pool and Rooftop in Bingin	202.0	Villa...	2	2.0	Bingin, Badung, Bali
Sun-Soaked 2BR Villa w/ Pool 15-Min Ride to...					

## Handle Missing Values

- **Property Type, Location => Match with Hotel Name**
- **Bathroom => Match with Bedroom**

## Handle Unstandard Values

- **Hotel Price => Generalize to price per night in USD**

# DEPLOYMENT

<http://localhost:8501>

Deploy

## Customize Weights

Weight for Price

0.30

0.00 1.00

Weight for Bedrooms

0.20

0.00 1.00

Weight for Bathrooms

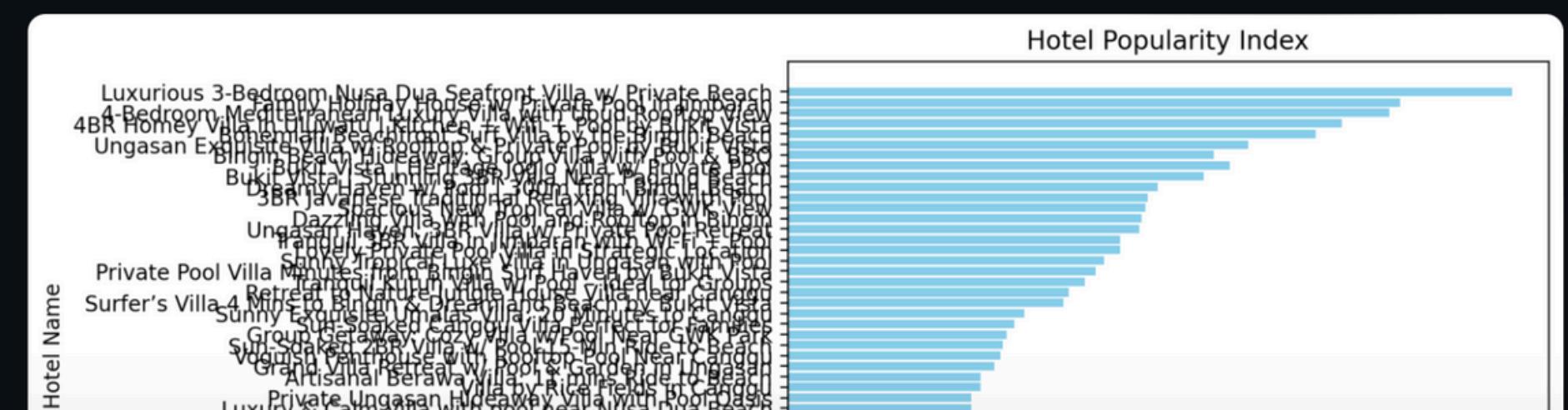
0.15

0.00 1.00

## Top Ranked Hotels

	Rank	Hotel Name	Popularity Index
0	1	Luxurious 3-Bedroom Nusa Dua Seafront Villa w/ Private Beach	0.5125
1	2	Family Holiday House w/ Private Pool in Jimbaran	0.4332
2	3	4-Bedroom Mediterranean Luxury Villa with Ubud Rooftop View	0.4253
3	4	4BR Homey Villa in Uluwatu   Kitchen + Wifi + Pool by Bukit Vista	0.3917
4	5	Bohemian Beachfront Surf Villa by the Bingin Beach	0.3737
5	6	Ungasan Exquisite Villa w/ Rooftop & Private Pool by Bukit Vista	0.3256
6	7	Bukit Vista   Heritage Joglo Villa w/ Private Pool	0.3126
7	8	Bingin Beach Hideaway: Group Villa with Pool & BBQ	0.3015
8	9	Bukit Vista   Heritage Joglo Villa w/ Private Pool	0.2976
9	10	Bukit Vista   Stunning 3BR Villa Near Padang Beach	0.2945

## Popularity Index Bar Chart





# CONCLUSION



## For Travelers

Helps simplify the decision-making process by highlighting the best hotels tailored to their needs.



## For Businesses

- Enables property management companies to benchmark their properties against competitors.
- Provides actionable insights to improve services, pricing, or amenities to enhance popularity.



## For Analysts

Offers a framework for applying data science skills, such as feature engineering, weighting, and machine learning, to real-world scenarios.



Data Science

# Thank's For Watching

**Connect with us.**



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