



The 7 Powers of Machine Learning

Lucas Bernardi
Principal Data Scientist

Booking.com

Amsterdam

Visitors Love: [Van Gogh Museum](#), [Coffee Shops](#), [Red Light District](#)

Amsterdam's intriguing history spans seven centuries. From humble beginnings as a small village to a world power in the 17th century, Amsterdam today is a fascinating mix of history and commerce. The... [Show more](#)



Search

Destination/Property Name:

Amsterdam

Check-in Date

Friday, March 30, 2018

Check-out Date

Monday, April 2, 2018

3-night stay

2 adults

No children

1 room

☐ I'm traveling for work

Search

Filter by:

Free Cancellation & More

- ☐ Free cancellation
- ☐ Book without credit card
- ☐ No prepayment

Popular Filters

- ☐ Amsterdam City Center
- ☐ Breakfast included
- ☐ Hotels



Amsterdam is 81% unavailable for your dates on our site. Have you thought about staying nearby? [Show more destinations nearby](#)

[Schiphol](#)

46% cheaper

11.4 km away, 6 properties

[Badhoevedorp](#)

57% cheaper

8.3 km away, 1 property

[Hoofddorp](#)

52% cheaper

17.2 km away, 12 properties

Amsterdam

Our Top Picks

Lowest Price First

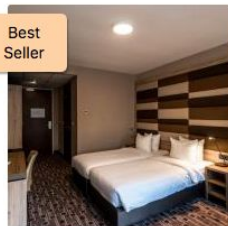
Review Score & Price

Stars

Distance From Downtown

Review Score

Best Seller



XO Hotels Blue Square

Geuzenveld-Slotermeer, Amsterdam – [Show on map](#) (3.8 km from center)

50 people are looking right now

In high demand! Booked 193 times in the last 24 hours



Twin Room

Only 5 rooms left on our site!

Good 7.8
1,503 reviews

Price for All 3 Nights

€ 530

[See our last available rooms >](#)



Ozo Hotel

Zuidoost, Amsterdam – [Show on map](#) (6 km from center) – [Subway Access](#)

7 people are looking right now

Good 7.4
3,110 reviews

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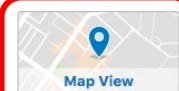
☐ I'm traveling for work ?

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Personalized elements

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[Show more destinations nearby](#)

Recommendations

Amsterdam

Our Top Picks

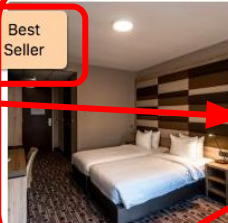
Best Price First

Review Score & Price

Stars

Distance From Downtown

Review Score



XO Hotels Blue Square ★★★★★

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Ozo Hotel ★★★★★

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A Pragmatic Definition of Machine Learning

Machine Learning: A pragmatic definition.



**DOG
or
MOP?**

Machine Learning: A pragmatic definition.



**DOG
or
MOP?**

Machine Learning: A pragmatic definition.



Input



**01100
10110
11110**

Program



DOG

Output

Machine Learning: A pragmatic definition.



Input



01100
10110
11110

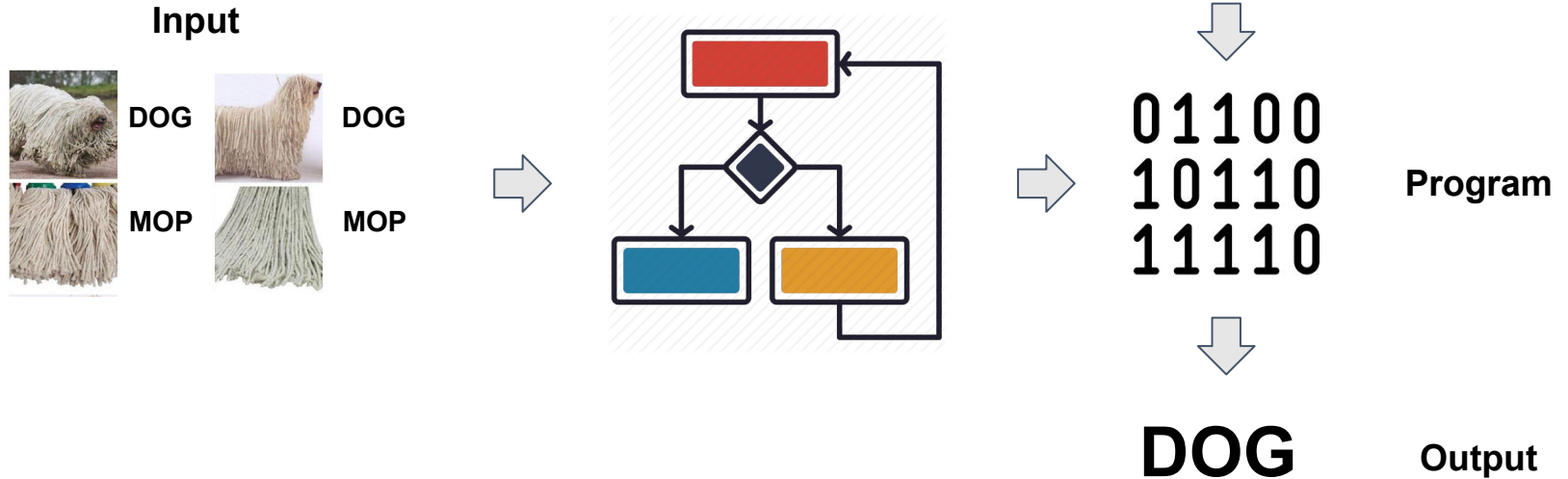
Program



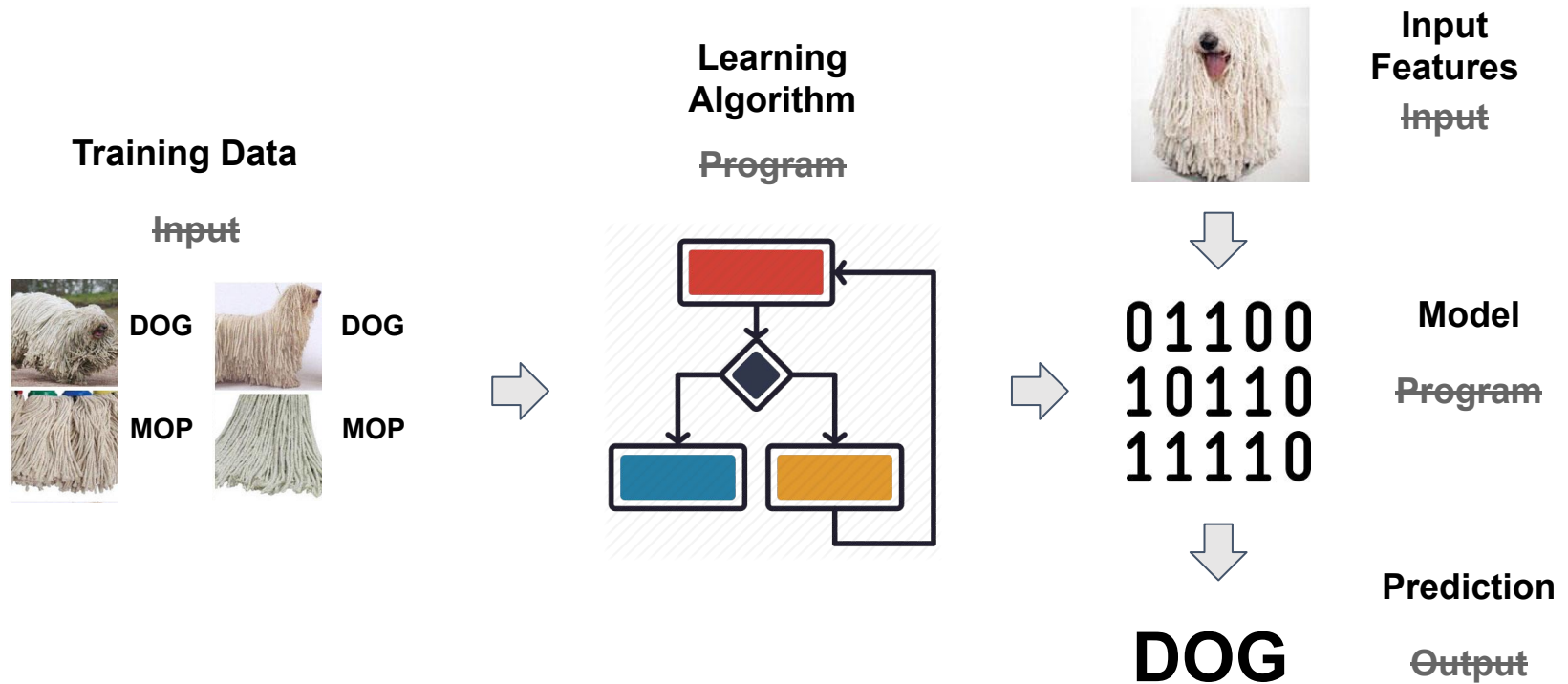
DOG

Output

Machine Learning: A pragmatic definition.



Machine Learning: A pragmatic definition.



A photograph of a modern office building's atrium, featuring multiple levels with glass railings and stone walls. The space is well-lit, with plants visible on the upper floors. The text is overlaid in the center.

Machine Learning is just a method to **Program Computers**



The 7 Powers of Machine Learning

1

Predict the Future

2

Guess a Fact about the Present

3

Describe an Alternative Future

4

Untangle Complexity

5

Materialize Subjectivity

6

Automate a Human Task

7

Optimize a Variable



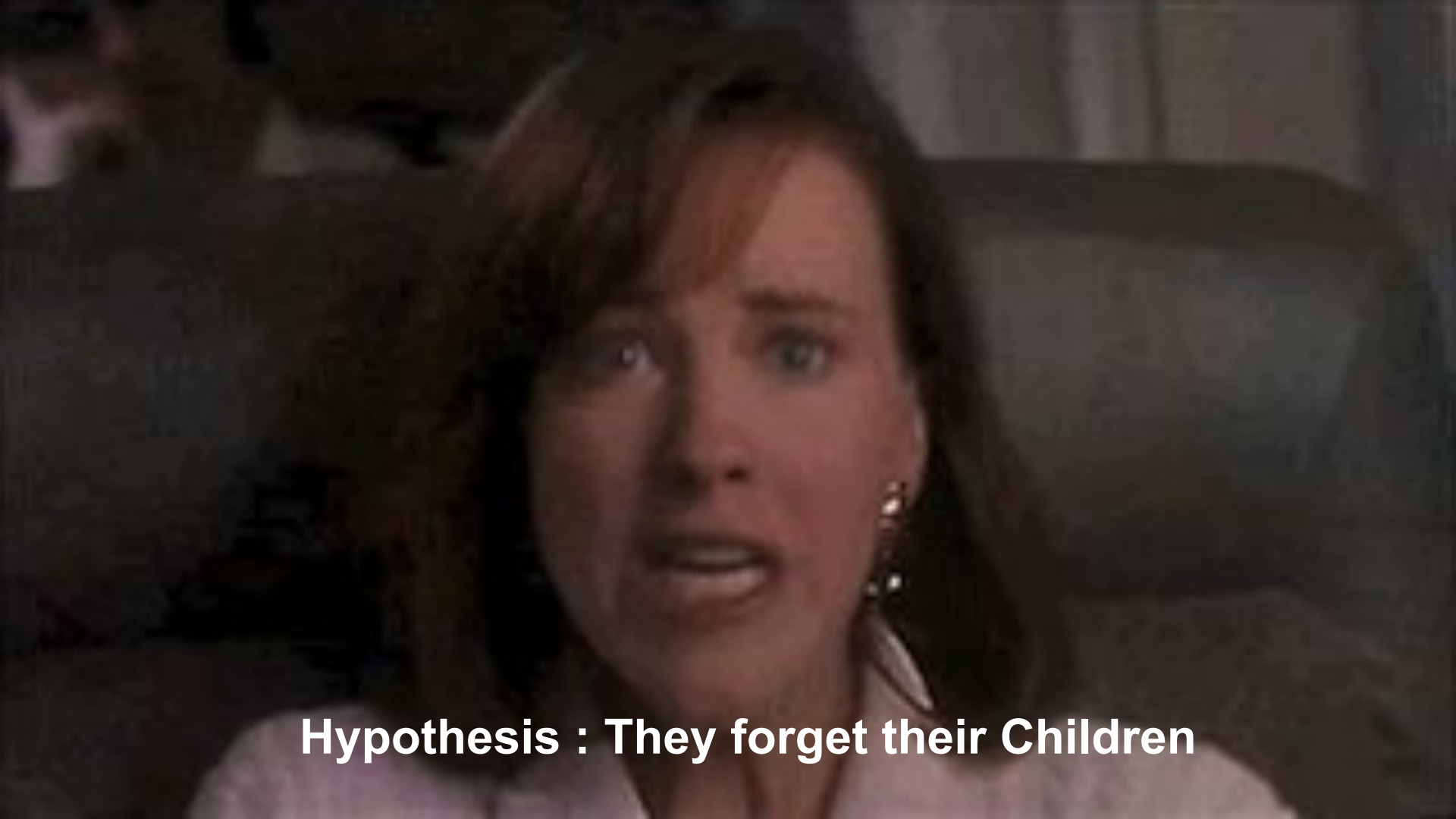
Examples

Booking.com

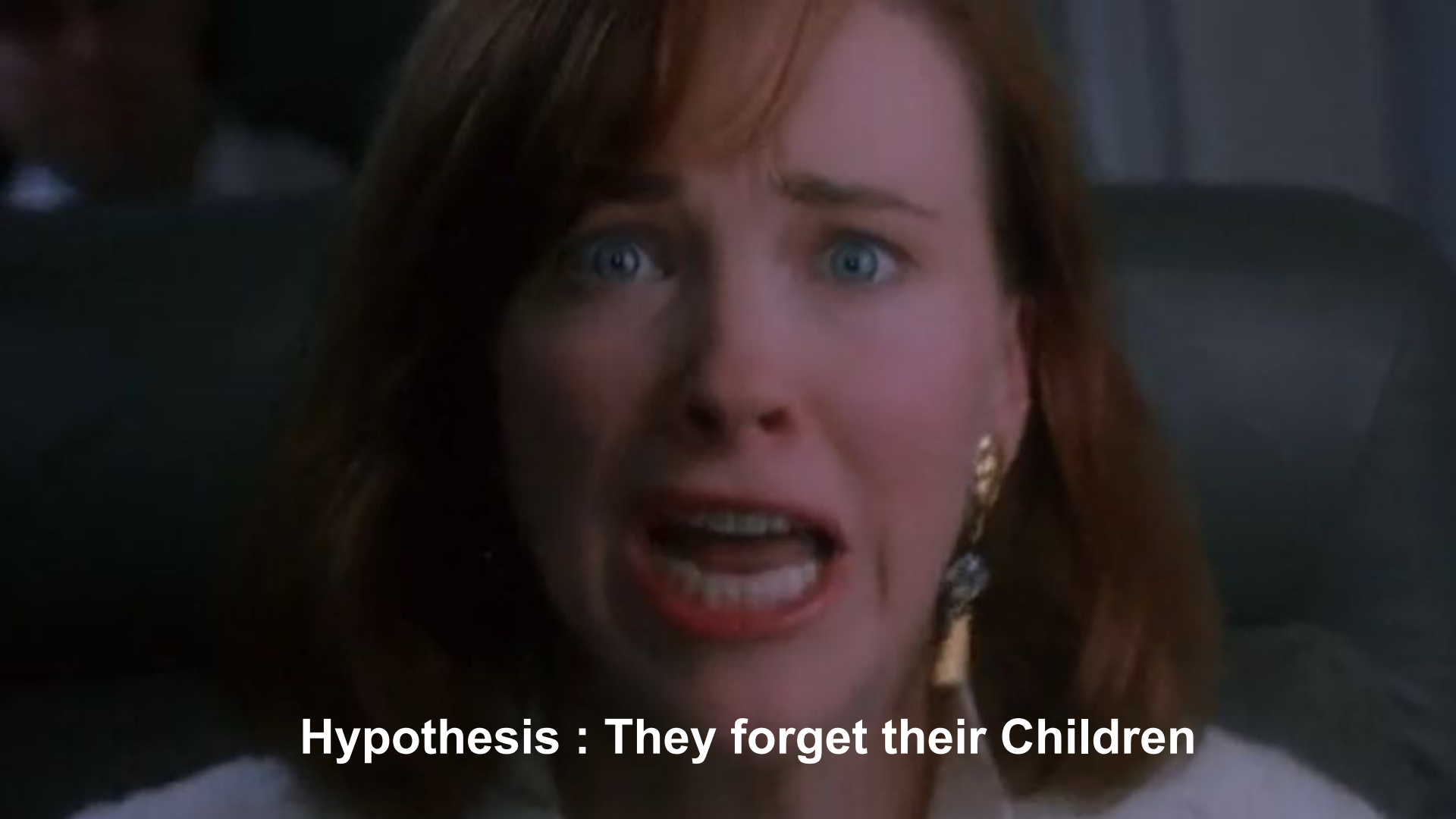


The Missing Children Case.

About 30% of searches done by people travelling with kids don't include any information about the children



Hypothesis : They forget their Children



Hypothesis : They forget their Children

Guess
a Fact about
the Present

Traveling with Children?

Booking.com

Amsterdam

May 13 - May 14 (1 night) 2 adults

Traveling With Kids?
Add your kids to find the perfect property!

Rooms Adults Children

1 2 0

Are you travelling for work?
☐ Yes ☐ No

Travelling with children?
Find the perfect property for your family by filling this in

City Centre • In ci

Parking WiFi

Search

Destination/hotel name:
Pefkohori

Are you travelling for work?
☐ Yes ☐ No

Check-in
Thursday 15 June 2017

Check-out
Friday 23 June 2017

8-night stay

Rooms Adults Children

1 3 0

Travelling with children?
Find the perfect property for your family by filling this in

Search

27%
reserved

Pefkohori: 43 p
3 reasons to visit: th

Top picks for groups

Don't want to use a crec

Booking Home Sweet Home.

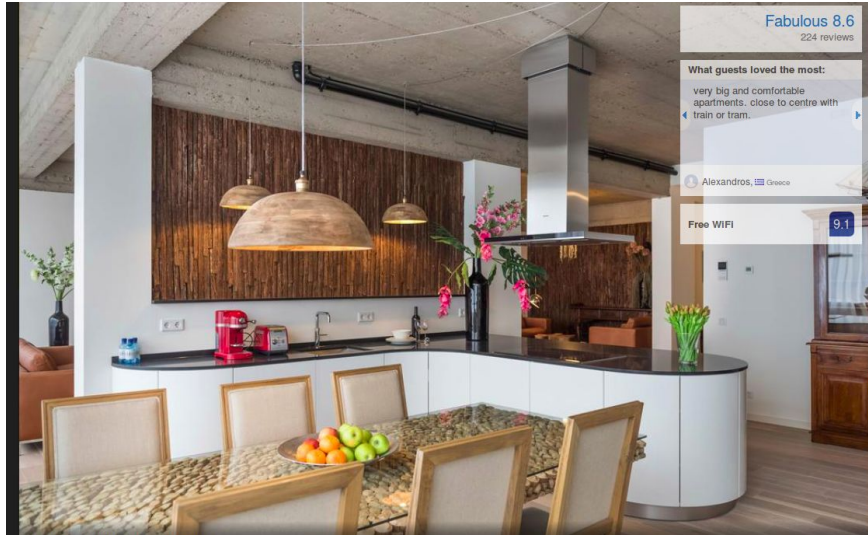
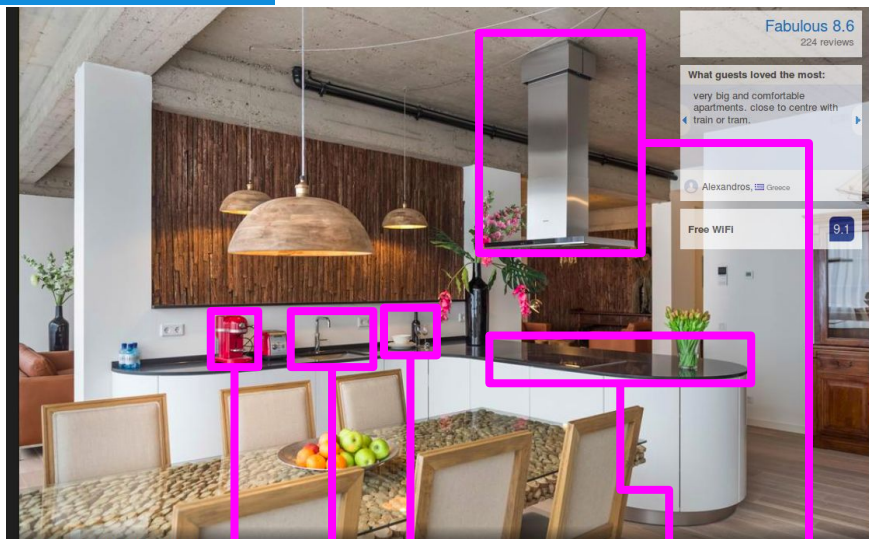
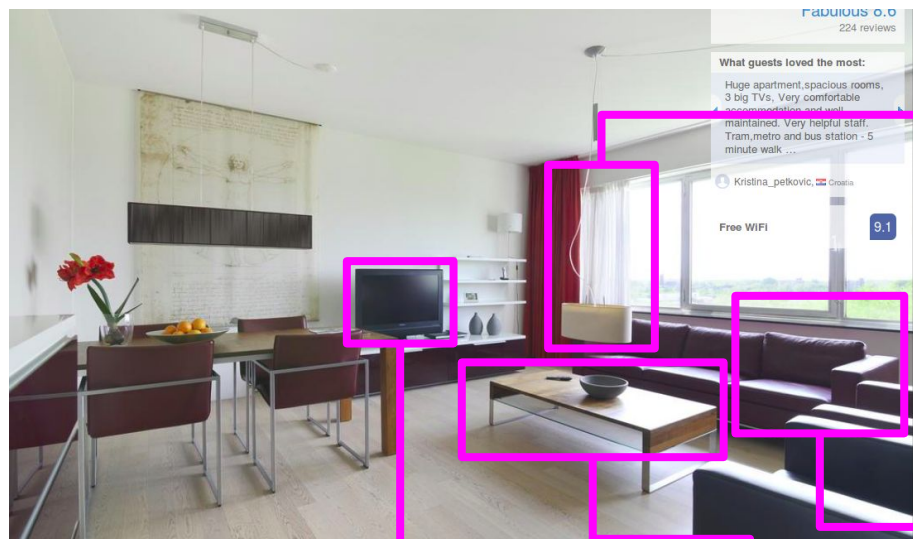


Photo Tagging.

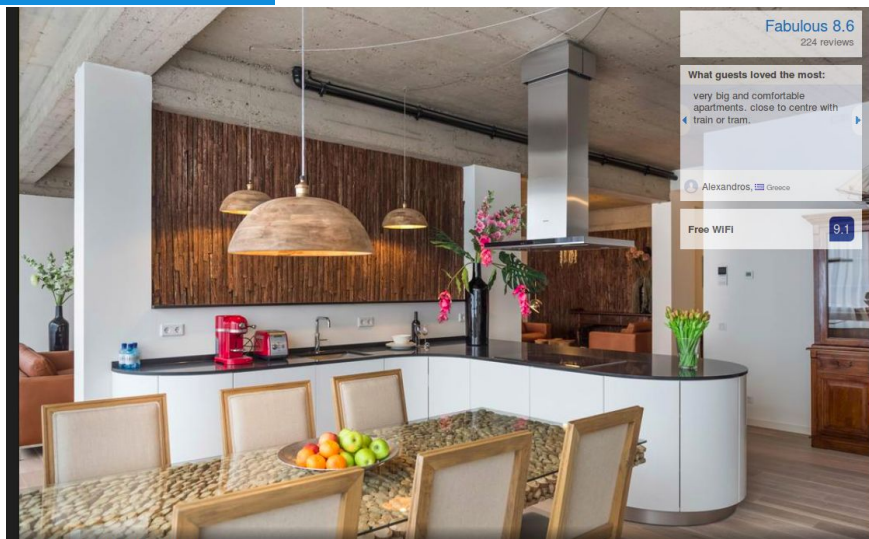


Kitchen

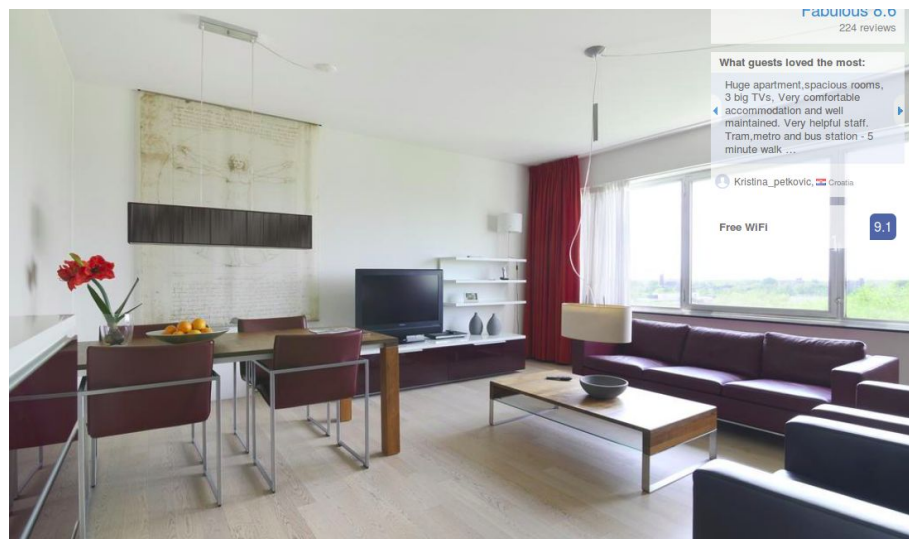


Living Room

Photo Tagging.



The freedom to eat when you want



Space for everyone to be together

No Stars for Vacation Rentals.

Popular filters

- ☐ Breakfast included 60
- ☐ Hotels 576
- ☐ Very good: 8+ 744
- ☐ Superb: 9+ 373
- ☐ Double bed 305
- ☒ Apartments

- ☐ Free cancellation 1097
- ☐ Bed and breakfasts 525

Location score

- ☐ Excellent location: 9+ 832
- ☐ Very good location: 8+ 947
- ☐ Good location: 7+ 964
- ☐ Pleasant location: 6+ 965

Star rating

- ☐ 3 stars 1
- ☐ 4 stars 2
- ☐ 5 stars 3
- ☐ Unrated 1315



Apartment House Sant'Angelo near San Pietro

Rome City Centre, Rome

Reservation possible without a credit card

Superb 9.1
50 reviews
Location 10



You missed it!

Your dates are popular – we've run out of rooms at this property! Check out more below.



Apartment Laura Family Apartments

Rome City Centre, Rome – Metro access

Exceptional 9.8
40 reviews
Location 9.7

Guest Favourite



100% of guest reviewers had their expectations of this property met or exceeded

Price for 2 nights

One-Bedroom Apartment – 2 people

Sleeping arrangements: 1 bedroom and a living room

Beds: 1 sofa bed and 1 large double bed

Size: 55 m² – Bigger than most in Rome

In high demand - only 1 left on our site!

Risk free: You can cancel later, so lock in this great price today.

€ 235 € 213

includes taxes and charges

FREE cancellation

No prepayment needed

Choose your apartment >

No Stars for Vacation Rentals.

Area
I. General Hotel
Cleanliness / Hygiene
Preservation condition
General impression
Staff
Car Park
Others
Facilities for disabled persons ⁷

Area	No.	Criterion	Points	☆	☆☆	☆☆☆	☆☆☆	☆☆☆
	43	Ironing service (return within 1 hour)	2					M
	44	Laundry and ironing service (return as agreed)	1			M		
	45	Laundry and ironing service (delivery before 9 a.m., return on the same day – weekend excluded)	3				M	
	46	Laundry and ironing service (delivery before 9 a.m., return within 9 hours)	4					M
Payment	47	Payment via card	2		M	M	M	M
Miscellaneous	48	Support for in-house IT	2					M
	49	Umbrella at the reception/in the room	1					
	50	Up-to-date magazines	1					M
	51	Daily newspapers (print or digital)	2				M	M
	52	Sewing service	2				M	M
	53	Shoe polishing service	2			M ⁹	M ¹⁰	M
	54	Shuttle or limousine service	2					M
	55	Offer of sanitary products (e.g. toothbrush, toothpaste, shaving kit)	2		M	M	M	M
	56	Personalized greeting for each guest with flowers or a present in the room (not only a welcome message on the TV-screen)	6					M
	57	Accompanying the guest to the room at the arrival	2					
	58	Turndown service in the evening as an additional room check ¹¹	10					M

☆☆	☆☆☆	☆☆☆	☆☆☆
	M	M	
			M
		M	M
			M
			M
	M	M	
			M
M	M	M	M
M	M		
		M	M

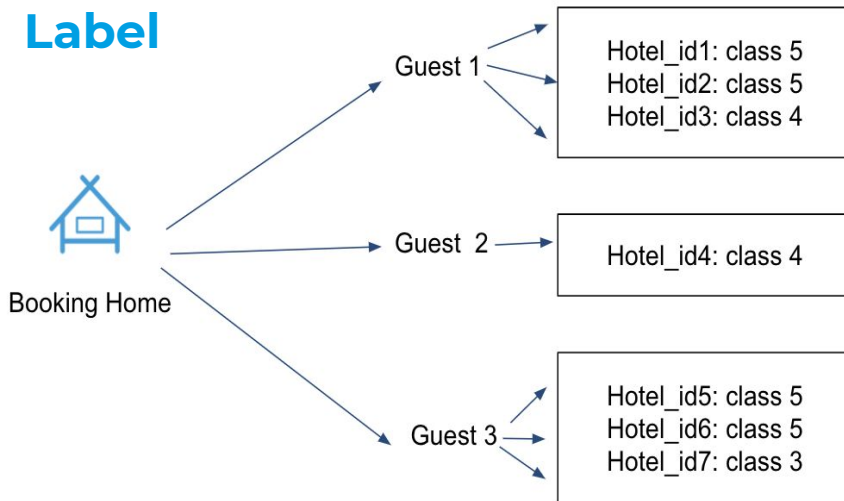
9 A shoe polishing machine (see no. 163) can be offered instead of a shoe polishing service in the hotel. A shoe polishing kit in the room is also considered equivalent (see no. 162).
 10 A shoe polishing machine (see no. 163) can be offered instead of a shoe polishing service in the hotel.

Vacation Rentals Rating.

Features

- ★ Facilities, amenities, services
- ★ Location and review scores
- ★ And many more I cannot tell you about

Label



Avg: 4.42

Vacation Rentals Rating.

Villa Emanuele 



Botlierskop Bush Villas 



CMG Gambetta 



Machine Learning is just a method to Program Computers

It showed us that **Computers** are capable
of **amazing things**

The 7 Powers of Machine Learning
are tools to do those things

A modern office interior with a high ceiling, exposed pipes, and large circular pendant lights. People are working at long tables, and there's a central lounge area with a long wooden table, colorful armchairs, and a red partition wall. The scene is dimly lit, with the text overlaid in white.

Thank you!

Questions?

Checkout booking.ai

Booking.com