

Style Spotter

Sanghamitra Dutta

12th Dec 2017

Objective

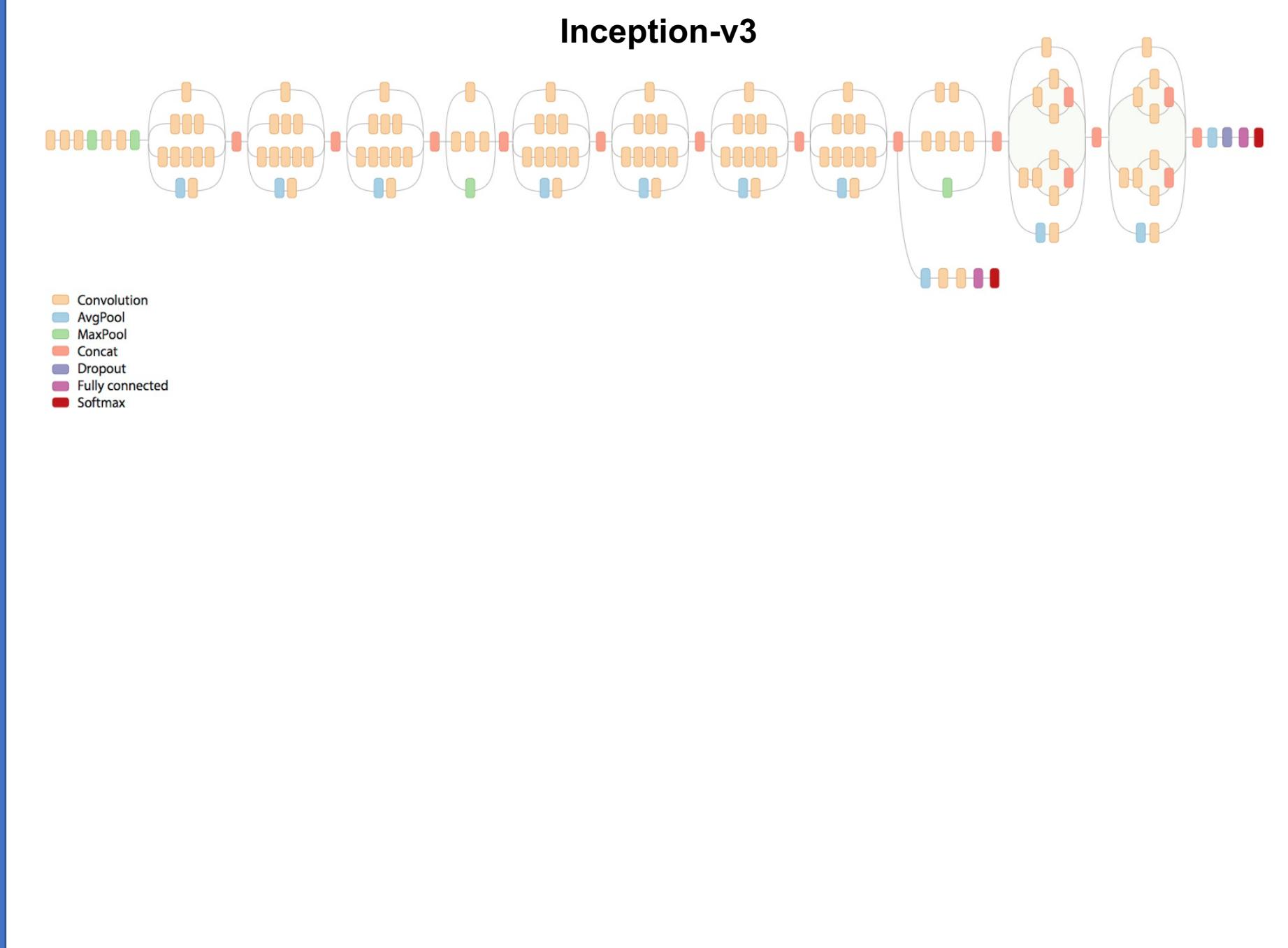
Use computer vision to recognize
women's clothing items
from images and classify them
into categories

Data

- DeepFashion Data Set
 - 800,000 Images
 - 48 Clothing Categories
 - Clothing - Men, Women and Unisex
- Selected 22 Clothing Categories
 - Women's Wear & Unisex
 - Avoided narrow categories like Kaftan, Onesie, etc.

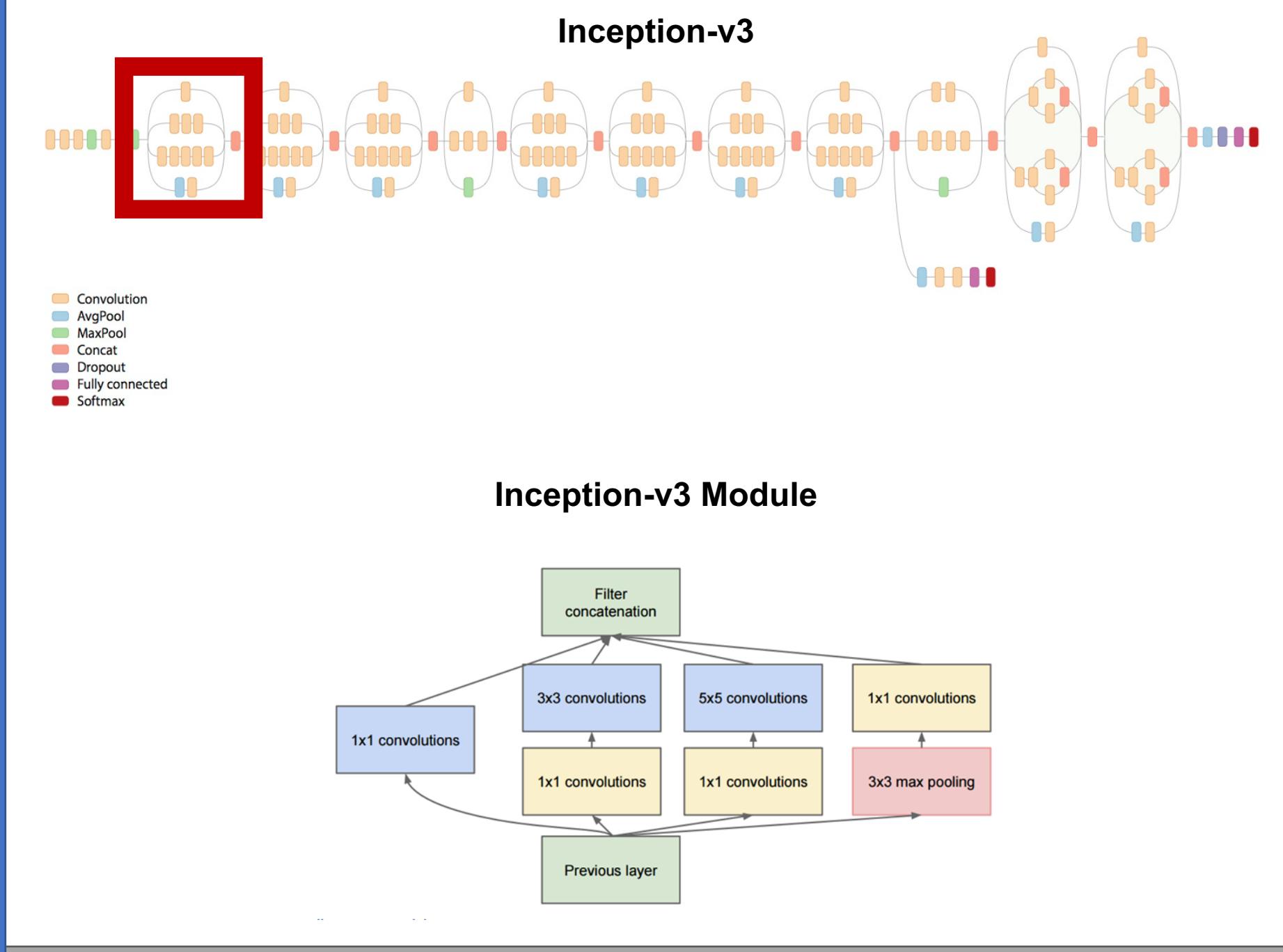
Model

Inception -v3

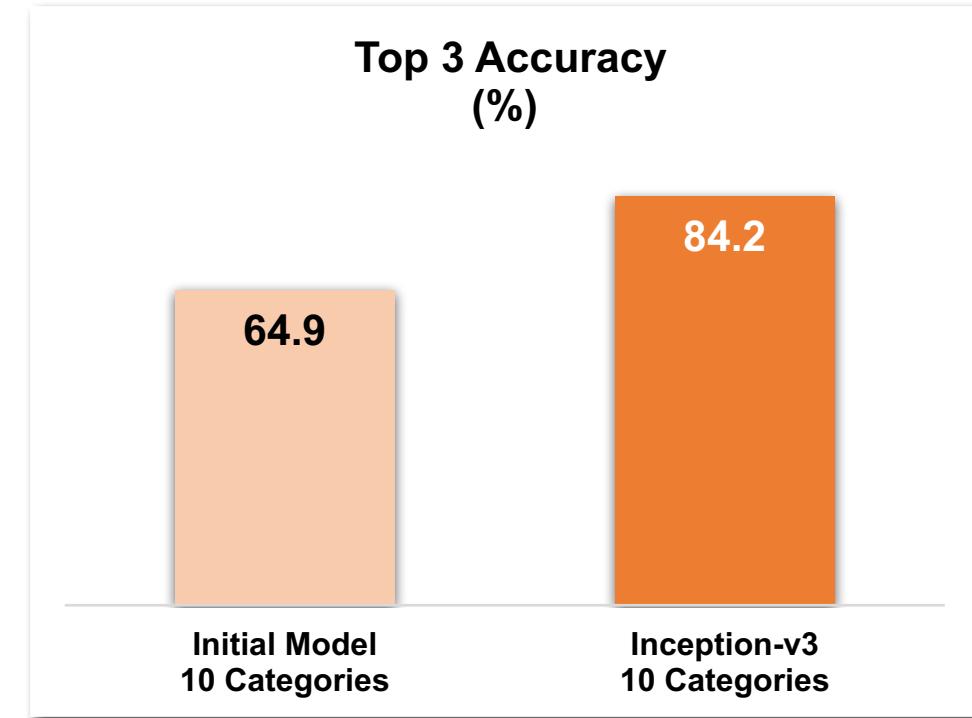
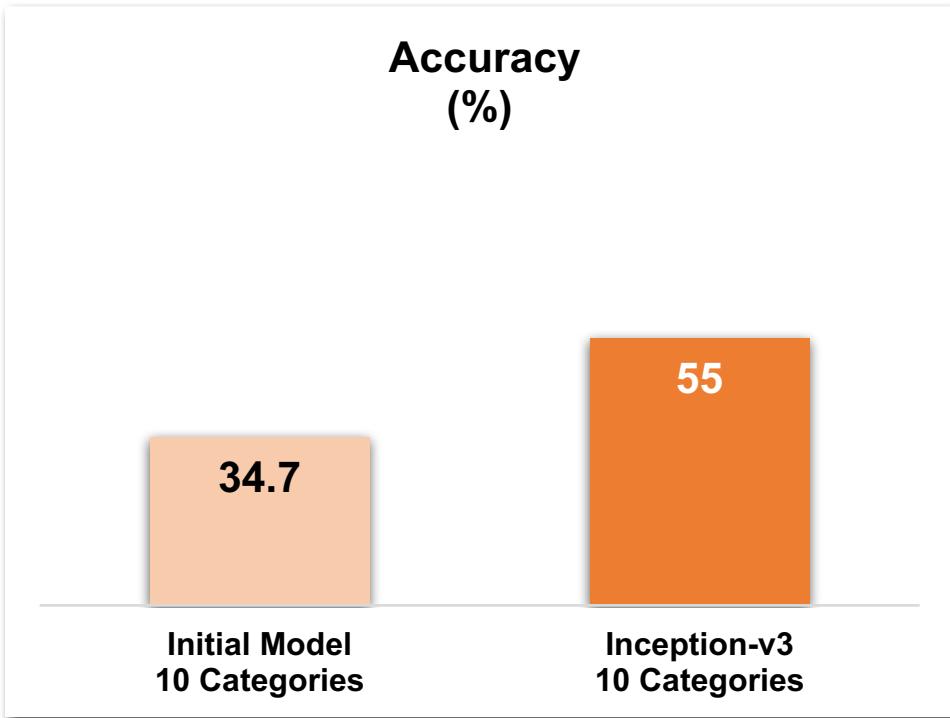


Model

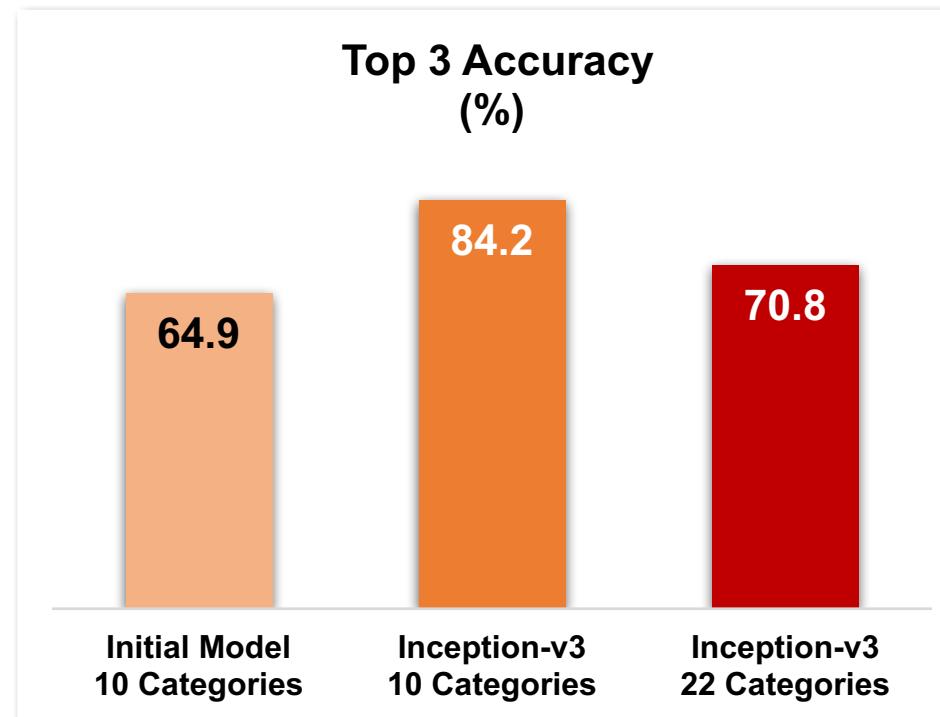
Inception -v3



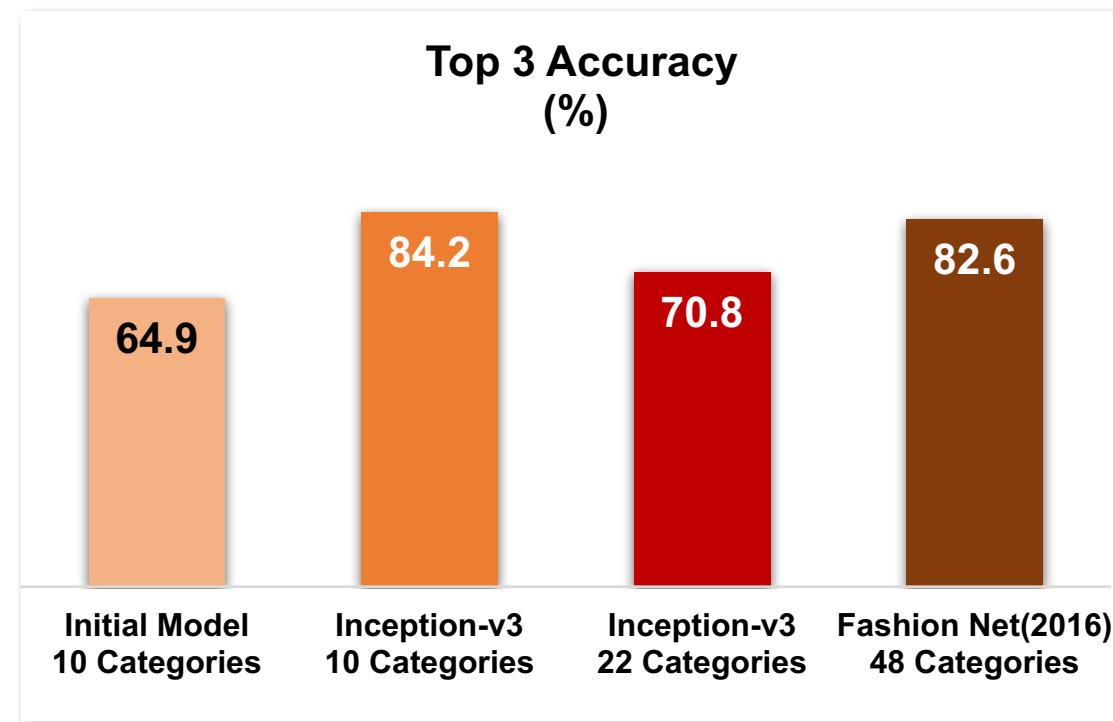
Model Performance – 10 Categories



Model Performance – 22 Categories



Model Performance – Expand to 22 Categories





What do you see?

Women

Trench Coat

Trousers

Building

Trees



What do you see?

Women

Trench Coat

Trousers

Building

Trees



Model Sees

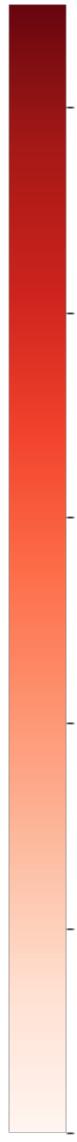
Top 3 Predictions	Probability
Coat	42. 1 %
Parka	13. 87 %
Jacket	7. 24 %

What do you see?

Category Wise Performance

Confusion Matrix - Model 1 (%in each label)

True Label	('Blouse', 0)	('Blazer', 1)	(('Tank', 2)	(('Sweater', 3)	(('Hoodie', 4)	(('Cardigan', 5)	(('Jacket', 6)	(('Poncho', 7)	(('Parka', 8)	(('Skirt', 9)	(('Shorts', 10)	(('Jeans', 11)	(('Joggers', 12)	(('Cutoffs', 13)	(('Leggings', 14)	(('Culottes', 15)	(('Dress', 16)	(('Romper', 17)	(('Coat', 18)	(('Kimono', 19)	(('Jumpsuit', 20)	(('Tee', 21)
Predicted Label																						
('Blouse', 0)	27	4.5	5.5	6.5	4.5	4	2.5	4	0	3	2.5	1	15	1	2	15	5.5	6.5	2	3.5	2	9.5
('Blazer', 1)	3.5	35	1	4.5	3.5	6.5	8.5	2	2.5	2.5	0.5	3	3	1	0.5	15	2.5	1	10	3	3	1.5
(('Tank', 2)	3	2	46	2.5	2	0.5	1	0.5	0	2	2.5	15	0.5	1	1.5	0.5	5.5	7.5	0	1	0.5	18
(('Sweater', 3)	8	2	2	48	6.5	6.5	1	3	0	6	0.5	2.5	0.5	0	1	1	1.5	1	2.5	0.5	1	5.5
(('Hoodie', 4)	6	5.5	7	12	36	3	8.5	5	15	15	0	0.5	1	0.5	1.5	0	0	0.5	0.5	1.5	0.5	8
(('Cardigan', 5)	7.5	10	2.5	14	6.5	10	5	6.5	15	0.5	0	2	1	0	1	1.5	1	2	8.5	9.5	2	7
(('Jacket', 6)	4.5	12	0.5	2	7	5.5	28	3	4.5	3	0	1.5	1	1	0.5	0.5	0.5	15	14	3.5	2	4
(('Poncho', 7)	7.8	0	0	8.4	17	5.6	11	50	11	2.2	0	0	0.56	0.56	11	0.56	11	0.56	0.56	12	2.2	3.4
(('Parka', 8)	-0.58	2.3	0	12	2.9	2.3	7.6	0.58	55	0	0	0	0	0	0	0	0	0	23	0.58	2.3	12
(('Skirt', 9)	3	0.5	2	2	0	0.5	0	2.5	0.5	50	6	0.5	0	2	1.5	7.5	9	2.5	1.5	2.5	5.5	1
(('Shorts', 10)	4	0	6	2.5	0	0.5	0	0.5	0	16	36	3.5	3	14	3	2.5	0.5	3.5	1	1.5	0.5	3
(('Jeans', 11)	0.5	0.5	0	15	0	0	1	0.5	0	2	2	56	10	4	12	1	1	0	25	1	4.5	0
(('Joggers', 12)	0	0.5	0.5	0	0	1	0.5	0	0.5	4	2	20	42	0	12	0.5	3	1	1.5	1.5	7	1
(('Cutoffs', 13)	2	0	35	0	15	0	0	1	0	4.5	20	1	2.5	55	1	0	0.5	2	0.5	0.5	0.5	45
(('Leggings', 14)	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0	9.5	1	7.5	4.5	0.5	60	15	2	1	0	0	7.5	15
(('Culottes', 15)	19	0	0.64	0.64	0.64	0	0.64	0	0	27	3.8	13	19	0.64	13	43	3.8	0	2.6	1.3	7.1	19
(('Dress', 16)	6	0	4	15	0	1	0	15	0	8	0	0.5	0.5	0	1	2.5	36	18	2.5	6	9	2
(('Romper', 17)	-5.5	1.5	6.5	0	0.5	1	1	1	0.5	5	0.5	1	0	0.5	1	0.5	12	51	1.5	2.5	5.5	1.5
(('Coat', 18)	1	6	0	3.5	0.5	5	4.5	1.5	6	3	0	2	1.5	0.5	0	2	1	1.5	55	2.5	2.5	1
(('Kimono', 19)	-8.5	2	15	0	2	8	0.5	5.5	1	2.5	0.5	0.5	0.5	0	1	4.5	6.5	3.5	46	5	0.5	
(('Jumpsuit', 20)	-15	0	2	2	0	15	0	0.5	0	3	0	6	2.5	0	2	3	11	7.5	2.5	5.5	48	1
(('Tee', 21)	-8.5	0.5	16	8.5	3	1	0.5	3	0	4.5	2	0.5	1	3	0	0.5	1.5	1.5	0	42		



Predict = Actual

Scores

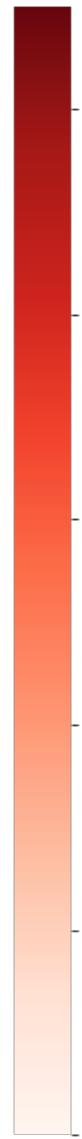
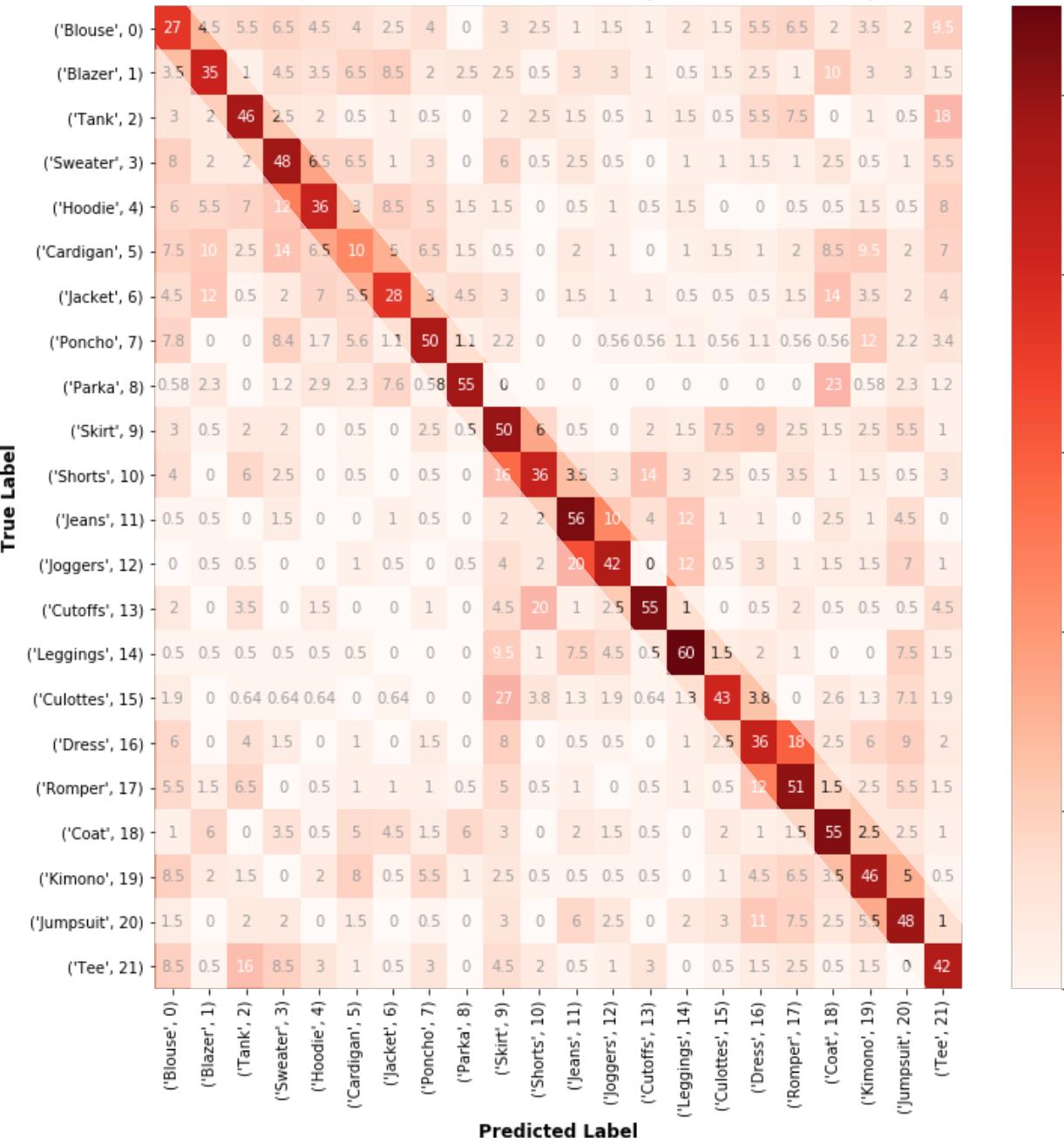
Accuracy

43.1 %

Top 3

70.8 %

Confusion Matrix - Model 1 (%in each label)



Predict = Actual

Scores

Accuracy

43.1 %

Top 3

70.8 %

22 Categories

Full Body



Lower Body



Upper Body



Outer Wear



Outer Wear

Moderate Accuracies

Hoodies



Blazers



Jacket



36%

35%

28%

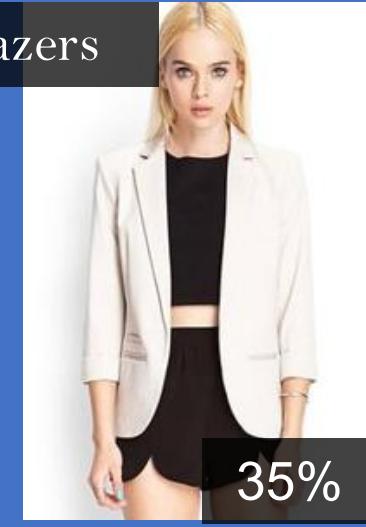
Outer Wear

Moderate Accuracies

Hoodies



Blazers



Jacket



Parka



55%

Coat



55%

Good Accuracies

Upper Body

Tank



46%

Poncho



50%

Kimono



46%

Sweater



48%

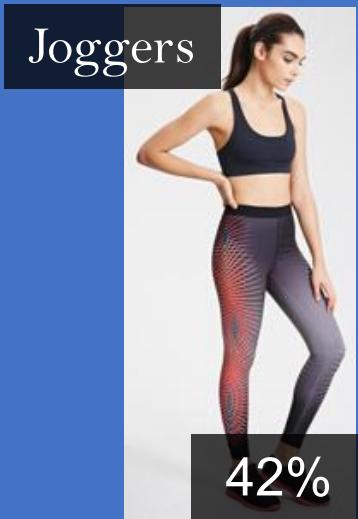
Tee



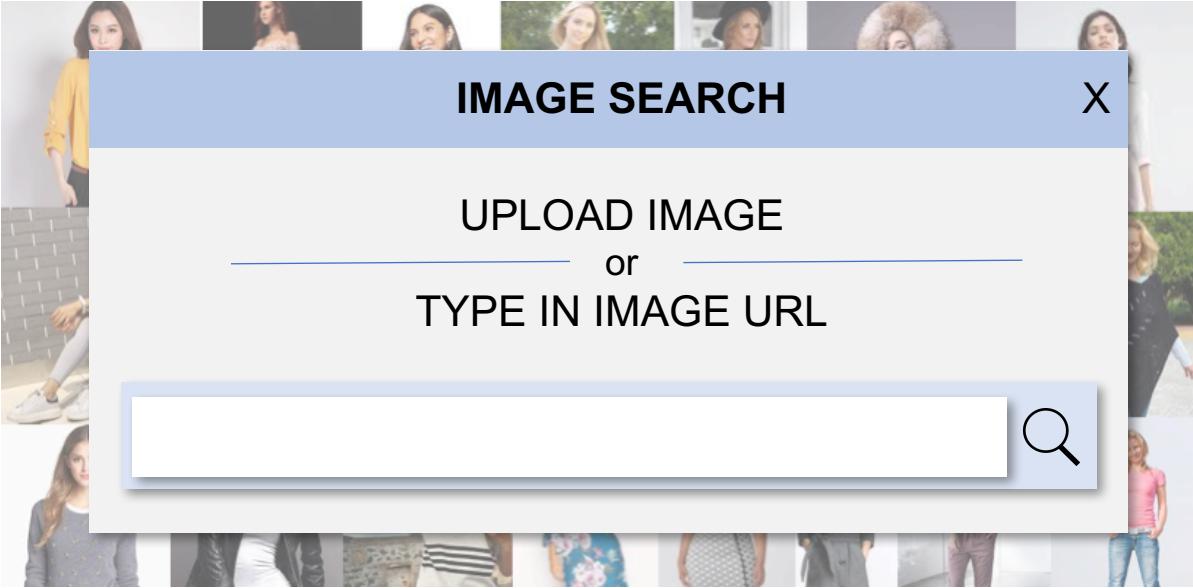
42%

Good Accuracies

Lower Body

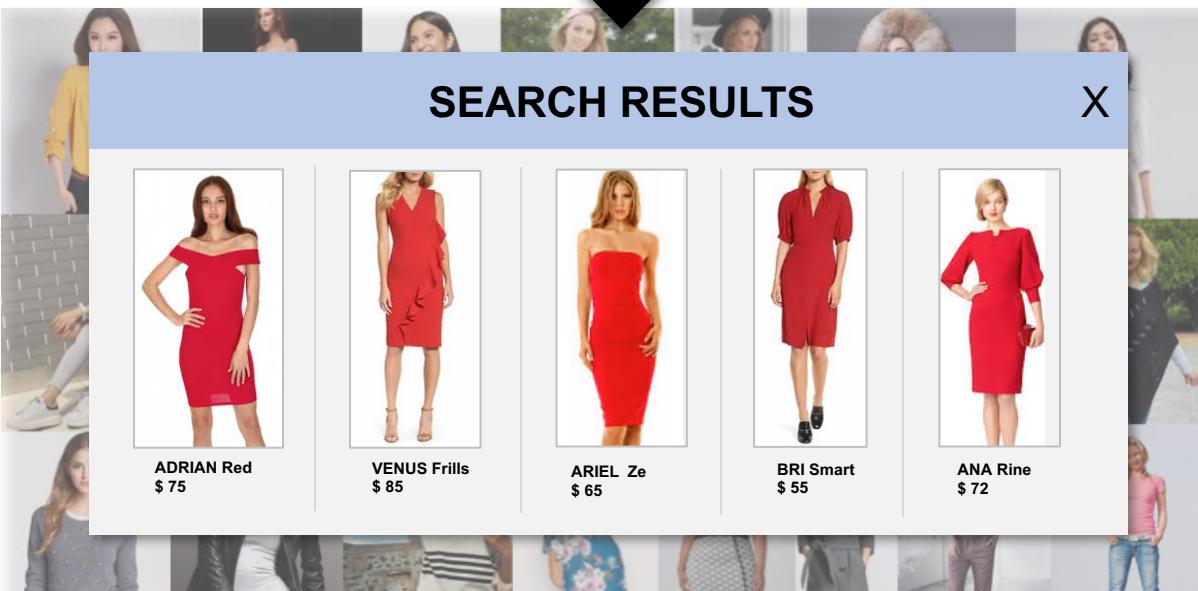
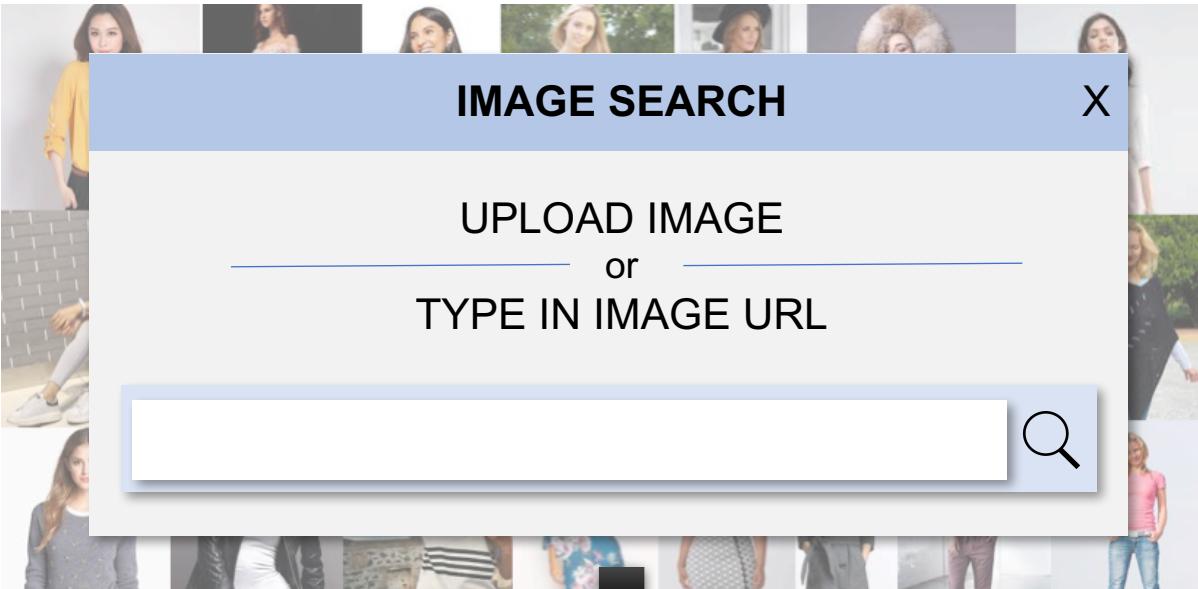


Good Accuracies



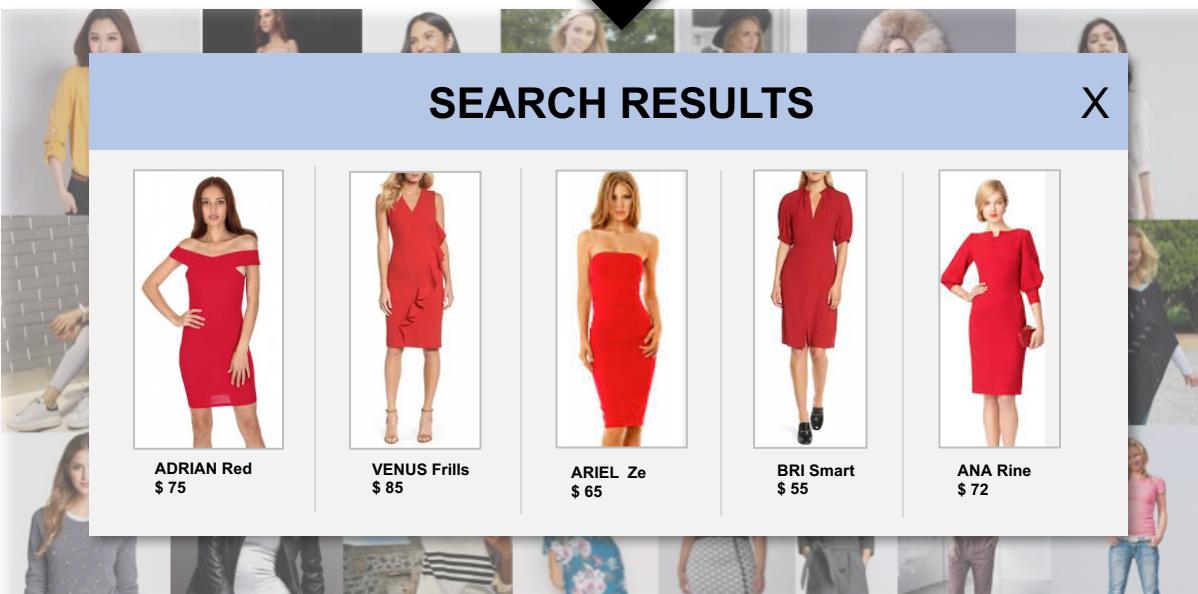
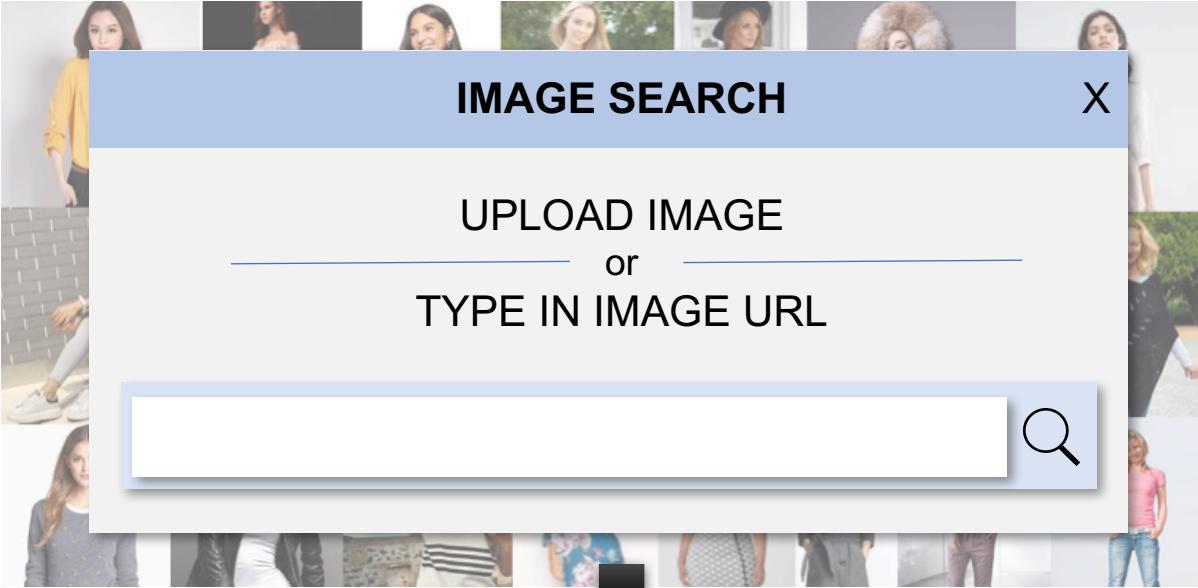
Application

- Online clothing retailers can enhance their searches with option for image search



Application

- Online clothing retailers can enhance their searches with option for image search



Application

- Online clothing retailers can enhance their searches with option for image search
- Improve recommendation systems based on image analysis in addition to textual description

Thank You!

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