

K Youth GA-DSBC-23-003


Shopee Bike Sales Product Classification

Presented by Amir Hamzah Bin Mohd Nasir

"bicycle" "online shop" site:shopee.com.my


All Shopping Images Maps Videos More Tools


About 5,030 results (0.39 seconds)

 shopee.com.my
https://shopee.com.my › seowkongkooi

Bicycle World SDN BHD, Online Shop


Bicycle World Welcome to "Bicycle World Malaysia". Here is a place for ... Our shop has a very complete **bicycle** system and major types of **bicycle**/accessories.




 shopee.com.my
https://shopee.com.my › ysbicycle

Ys Bicycle, Online Shop


Bicycle shop in klebang,perak All Ready Stock ship out within 24hours Welcome visit our Facebook page Ys **Bicycle** [https://www.facebook.com/Ysbicycle/].



 shopee.com.my
https://shopee.com.my › ls.bicycle.shop

ls bicycle shop

LS **BICYCLE** SHOP ; [100%SIAP PASANG] 20 inch CROSSMAC HAAGEN 10 Folding Bike With Shimano Deore 10 speed FREE GIFT · 1,900.00.



shopee.com.my/seowkongkooi
• shopID: 151042127

shopee.com.my/ysbicycle
• shopID: 423415991

shopee.com.my/ls.bicycle.shop
• shopID: 193585755

“https://shopee.com.my/api/v4/shop/rcmd_items” Params = {shop_id : 151042127}

Seller Centre | Start Selling | Download | Follow us on

Notifications | Help | English | Sign Up | Login

Shopee

Search in this shop

In This Shop

iPhone 14 Pro Max | Rm0 | Kasut Sukan | Rodeo Sweater | One Set Women Outfit | Baju Perempuan | Outfit Korean Style Woman | Digi Free | Casing iPhone

Bicycle World SDN BHD

Active 12 hours ago

+ FOLLOW

CHAT

Products: 335

Following: 2

Chat Performance: 15% (Within Hours)

Followers: 158

Rating: 4.8 (112 Rating)

Joined: 4 Years Ago

Home

All Products

Basikal & Meluncur

Pakaian Aktif

Perkhidmatan

Lain-lain

More

Inspector | Console | Debugger | Network | Style Editor | Performance | Memory | Storage | Accessibility | Application

Filter URLs

Status	Method	Domain	File	Initiator	Type	Transferred	Size	Headers	Cookies	Request	Response	Timings	Security
200	GET	deo.shopeemobil...	en.col134.1696238465.json	fetch	json	cached	4.50 kB						
200	GET	shopee.com.my	is_show?shopid=151042127&show_type=2	fetch	json	1.09 kB	51 B						
200	GET	shopee.com.my	get_shop_seo?shopid=151042127	fetch	json	1.07 kB	36 B						
200	POST	dt.infra.shopee.co...	report	xhr	json	489 B	192 B						
200	GET	shopee.com.my	/backend/CMS/footer/1/	fetch	json	232 B	80 B						
200	POST	shopee.com.my	get_shop_tab	fetch	json	9.43 kB	41.28 kB						
200	GET	shopee.com.my	get_user_voucher_by_time?after_collection_time=1696174245	fetch	json	402 B	39 B						
200	GET	deo.shopeemobil...	en.col196.1695195392.json	fetch	json	cached	44 B						
200	GET	shopee.com.my	rcmd_items?bundle=shop_page_category_tab_main&limit=3	fetch	json	11.50 kB	64.7 kB						
200	POST	shopee.com.my	_t_	fetch	gif	2.33 kB	0 B						
200	GET	shopee.com.my	search_prefills	fetch	json	1.85 kB	80 B						
200	GET	shopee.com.my	search_suggestion?bundle=popsearch&limit=8&offset=0	fetch	json	6.59 kB	37.5 kB						
200	GET	shopee.com.my	get_footer_layout	fetch	json	2.87 kB	5.14 B						
200	GET	deo.shopeemobil...	en.col134.1695786333.json	fetch	json	cached	2.19 kB						
200	GET	shopee.com.my	get_shop_seller_show?shopid=151042127	fetch	json	1.09 kB	51 B						
200	GET	shopee.com.my	search_items?filter_sold_out=1&limit=30&offset=0&order=de	fetch	json	9.57 kB	58.14 kB						
200	GET	shopee.com.my	elements?set_ids=2	fetch	json	3.52 kB	11.40 kB						
200	GET	shopee.com.my	elements?set_ids=13	fetch	json	3.03 kB	8.62 kB						
200	POST	dem.shopee.com	json	xhr	json	306 B	51 B						
200	POST	dem.shopee.com	json	xhr	json	306 B	51 B						
200	POST	dem.shopee.com	json	xhr	json	306 B	51 B						

39 requests | 266.42 kB / 64.19 kB transferred | Finish: 29.99 s | DOMContentLoaded: 469 ms | load: 1.25 s

Filter properties

JSON

items: [{ ... }, { ... }, { ... }, { ... }, { ... }, { ... }, { ... }, { ... }, { ... }, ...]

0: Object { itemid: 13366186031, shopid: 151042127, name: "Kid Adult Bicycle Caliper Brake Set Basic bike old bike BMX Brek Basikal", ... }

1: Object { itemid: 13464876538, shopid: 151042127, name: "[Services] Customized services - bicycle installation, bicycle modification, after-sales service, specific accessories", ... }

2: Object { itemid: 12372818140, shopid: 151042127, name: "Kenda Tube 14-26, 27.5" Tubes RB Road Racing MTB Mountain Bike Folding Bike Inner Tube", ... }

3: Object { itemid: 14647618796, shopid: 151042127, name: "Bicycle Tire tube Air Valve Cap Cover Plastic Plastic cap For FV Presta Valve /AV Schrader Valve", ... }

4: Object { itemid: 13774285857, shopid: 151042127, name: "[Professional Services] Bicycle Front Fork Head Tube Replacement Services Bike Steerer Tube Handlebar Fork Measurement", ... }

5: Object { itemid: 13174229734, shopid: 151042127, name: "Bicycle Crank Bolt Nut Bearing for Basikal MTB Fixie Crank mounting Bottom Bracket fitting", ... }

6: Object { itemid: 15841238966, shopid: 151042127, name: "Hidden Bike Bell Slim design Bicycle bell Roller bell Bike Ring Invisible cycling Ringing Horn Loud Sound Accessories", ... }

7: Object { itemid: 12072749929, shopid: 151042127, name: "Bicycle Inner Tube Black Cat MTB Tubes Tiub Mountain / Touring / Folding Bike Tyre Butyl Rubber Schrader AV Presta FV", ... }

8: Object { itemid: 10385566160, shopid: 151042127, name: "Single Speed bicycle chain pin Chain Connect Links Pin Rantai Pin Basikal for - BMX/ Basikal Lajak/Kid bike/ FIXIE", ... }

9: Object { itemid: 16604215004, shopid: 151042127, name: "BnB Rack Bike Beam Plus BIKE INSTALLATION OF BIKES ON TRUNK RACKS Bicycle car holder", ... }

10: Object { itemid: 14230411659, shopid: 151042127, name: "Brake Shifter Gear Cable Inner End Cap Alloy Inner End Cap for Bicycle Road Bike BMX Basikal Penutup Kabel", ... }

11: Object { itemid: 15447030641, shopid: 151042127, name: "[Services] Bicycle Front Fork Head Tube Cutting Services Bike Steerer Tube Handlebar Fork Measurement and cut", ... }

12: Object { itemid: 15143804514, shopid: 151042127, name: "Bicycle Inner Tube 29" Black Cat MTB Tubes Tiub Mountain /Touring /Folding Bike Tyre Butyl Rubber Schrader AV Presta FV", ... }

13: Object { itemid: 13373376624, shopid: 151042127, name: "Super B TB-7812 Internal nipple wrench 110 mm with 5.5 mm hex socket", ... }

14: Object { itemid: 15130162914, shopid: 151042127, name: "Bicycle Front Fork Star Nut Fork Bowl Group Headset Flower Nuts Core Replace Bike Parts Cycling Starnut 28.6mm", ... }

15: Object { itemid: 15350911583, shopid: 151042127, name: "Bicycle Tube all size 12, 20, 24,26,27.5"- 29" 700x23C Tires inner Basikal MTB BMX RB City Bike Classic Bike tiub", ... }

16: Object { itemid: 15943958599, shopid: 151042127, name: "Bicycle Inner Tube 700c Black Cat Tubes Tiub Raod Bike Tyre Butyl Rubber Presta FV", ... }

17: Object { itemid: 16503367196, shopid: 151042127, name: "Da Bomb Cross Schrader Valve Cap Black 2 Pcs bicycle tyre cap", ... }

18: Object { itemid: 14530221199, shopid: 151042127, name: "Bicycle V Brake Set Alloy Basikal V Brake AloI full bike set MTB Lady Bike Children Bike Brake system", ... }

19: Object { itemid: 14545133583, shopid: 151042127, name: "Super B 110 mm with 3.2 mm square socket TB 7814 Internal nipple wrench", ... }

20: Object { itemid: 15029488742, shopid: 151042127, name: "Arteck Front Lamp Bicycle light", ... }

21: Object { itemid: 1847216806, shopid: 151042127, name: "6/7/8/9/10/11/12 Speed Bicycle link Magic Quick Chain Connector Master Link Joint Missing Chain Fix Pins magic buckle", ... }

22: Object { itemid: 10277... , shopid: 151042127, name: "TIIGA Biogrip handlebar", ... }

“https://shopee.com.my/api/v4/pdp/get_pc”

```
Params = {shop_id : 151042127,
          item_id : 16604215004}
```


Seller Centre | Start Selling | Download | Follow us on

Shopee


Sign Up & Get RM18 Off Voucher!


Powerbank | Sandal Perempuan | Sling Bag Women | Kasut Perempuan | Jersey | Jam Tangan Perempuan | Kasut Lelaki | Tote Bag


Shopee > Sports & Outdoor > Cycling & Skates > Parts & Components > BnB Rack Bike Beam Plus BIKE INSTALLATION OF BIKES ON TRUNK RACKS Bicycle car holder



Rack For Life!







BnB Rack Bike Beam Plus BIKE INSTALLATION OF BIKES ON TRUNK RACKS Bicycle car holder

5.0★★★★★ | 6 Ratings | 13 Sold

RM88.00

Protection Damage Protection New Learn More


Shipping Free shipping Shipping To KL City, Kuala Lumpur Shipping Fee RM0.00

Quantity - 1 + 11 pieces available

Add To Cart Buy Now

Shopee Guarantee Get the items you ordered or get your money back.

Share: Favorite (6)

Bicycle World SDN BHD
Active 12 Hours Ago

Chat Now View Shop

Ratings 112 Response Rate 15% Joined Products 335 Response Time within hours Follower

Inspector Console Debugger Network Style Editor Performance

Filter URLs

All HTML CSS JS XHR Fonts Images Media WS Other

Sta	Me	Dom...	File	Initia...	Ty	Trans...	Size	Headers	Cookies	Request	Response	Timings	Security
200	GET	de...	en.col58.1695873069.js	fetch	j...	cached	20...						
200	GET	de...	en.col44.1695195389.js	fetch	j...	cached	310...						
200	GET	de...	en.col59.1695195392.js	fetch	j...	cached	523...						
200	GET	de...	en.col63.1695195392.js	fetch	j...	cached	3.5...						
200	GET	sh...	search_prefills	fetch	j...	1.85 k...	801...						
200	GET	sh...	elements?set_ids=1	fetch	j...	2.22 k...	...						
200	GET	sh...	get_payment_info	fetch	j...	402 B	39...						
200	GET	sh...	get_payment_info	fetch	j...	402 B	39...						
200	GET	de...	asset-MY-live.1505e2f0	fetch	j...	cached	2.0...						
200	GET	de...	asset-MY-live.295b90a	fetch	j...	cached	2.7...						
200	GET	sh...	trending_search?bund	fetch	j...	2.3 KB	6.8...						
200	GET	sh...	get?item_id=16604215	fetch	j...	4.2 KB	18.4...						
200	GET	de...	en.col616.json	fetch	j...	cached	83...						
200	GET	sh...	all_abtest	fetch	j...	1.1 KB	74 I...						
200	POS	df...	report	xhr	j...	485 B	192...						
200	GET	sh...	get_ratings?exclude_fi	fetch	j...	6.0 KB	27.5...						
200	GET	sh...	get_pc?shop_id=15104	fetch	j...	4.48 KB	9.3...						
200	GET	de...	en.col71.1695195392.js	fetch	j...	cached	8.7...						
200	GET	de...	en.col544.1695195392.js	fetch	j...	cached	1.0...						
200	GET	sh...	select_variation_pcrw	fetch	j...	1.49 kB	15...						
200	GET	sh...	get_user_address_list	fetch	j...	402 B	39...						
200	GET	sh...	select_variation_pcrw	fetch	j...	1.49 kB	1.15...						
200	POS	sh...	get_web_experiments	fetch	j...	2.21 kB	2.8...						
200	GET	sh...	get_installment_plans	fetch	j...	2 kB	8.3...						
200	GET	sh...	get_installment_plans	fetch	j...	2 kB	8.3...						
200	POS	sh...	_t_	fetch	gif	2.61 kB	0 B						
200	OP1	ub...	event_batch	fetch	pla	304 B	0 B						
200	OP1	ub...	event_batch	fetch	pla	304 B	0 B						
200	POS	ub...	event_batch	fetch	gif	355 B	7 B						
200	POS	ub...	event_batch	fetch	gif	355 B	7 B						
200	POS	de...	json	xhr	j...	306 B	51 I...						
200	POS	de...	json	xhr	j...	306 B	51 I...						
200	OP1	ub...	event_batch	fetch	pla	304 B	0 B						
200	POS	ub...	event_batch	fetch	gif	355 B	7 B						

60 requests 628.93 kB / 49.83 kB transferred Finish: 1

Filter properties

JSON

is_partial_fulfilled: false

_presale: false

is_presale_deposit_item: null

is_presale_deposit_made: null

description: "BnB Rack Bike Beam Plus BIKE INSTALLATION OF BIKES ON TRUNK RACKS Bicycle car holder"

categories: [{ ... }, { ... }, { ... }, { ... }]

0: Object { catid: 100637, display_name: "Sports & Outdoors", no_sub: false, ... }

1: Object { catid: 100725, display_name: "Sports & Outdoor Recreation Equipments", no_sub: false, ... }

2: Object { catid: 101272, display_name: "Cycling", no_sub: false, ... }

3: Object { catid: 101825, display_name: "Bicycle Parts & Accessories", no_sub: true, ... }

fe_categories: [{ ... }, { ... }, { ... }]

0: Object { catid: 11001273, display_name: "Sports & Outdoor", no_sub: false, ... }

1: Object { catid: 11001291, display_name: "Cycling & Skates", no_sub: false, ... }

2: Object { catid: 11001293, display_name: "Parts & Components", no_sub: true, ... }

item_has_video: false

presale_dday_start_time: null

models: [{



Google Scraper

- Get each shop selling bicycle related products
- Get each shopID



Shop API

- Get shop details
- Get inventory data
- Get each productID

Product API

- Get details of each individual product



Google Scraper

- Get each shop selling bicycle related products
- Get each shopID



Shop API

- Get shop details
- Get inventory data
- Get each productID

Product API

- Get details of each individual product

Privatized!

Shop Scraper vs Product Scraper

Inventory Data (Shop Scraper)

- Product Name
- Price
- Stock
- Main Category

Product Data (Product Scraper)

- Product Name
- Product Description
- Price
- Stock
- Main Category
- Sub Category 1
- Sub Category 2

Among others..

Problem Statement

- Not having subcategories provide little to no insight in data analysis
- Not being able to derive meaningful insights from scraped future bikes sales data

Inventory Data (Shop Scraper)

- Product Name
- Price
- Stock
- Main Category

Product Data (Product Scraper)

- Product Name
- Product Description
- Price
- Stock
- Main Category
- Sub Category 1
- Sub Category 2

**SHOPEE**

Category: Bicycles

Overview

Store Analysis

Total Revenues

RM2,706,927.66

Number of Stores

208

Number of Unique Products

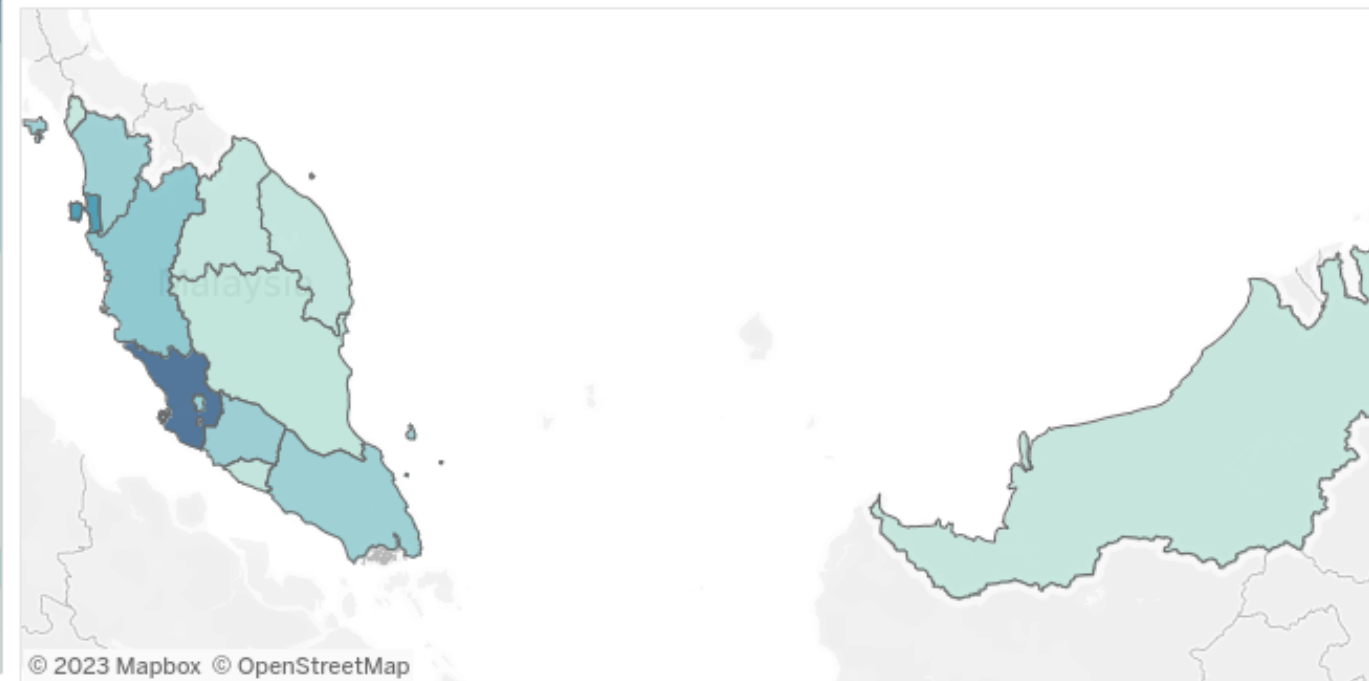
8,139

Total Products Sold

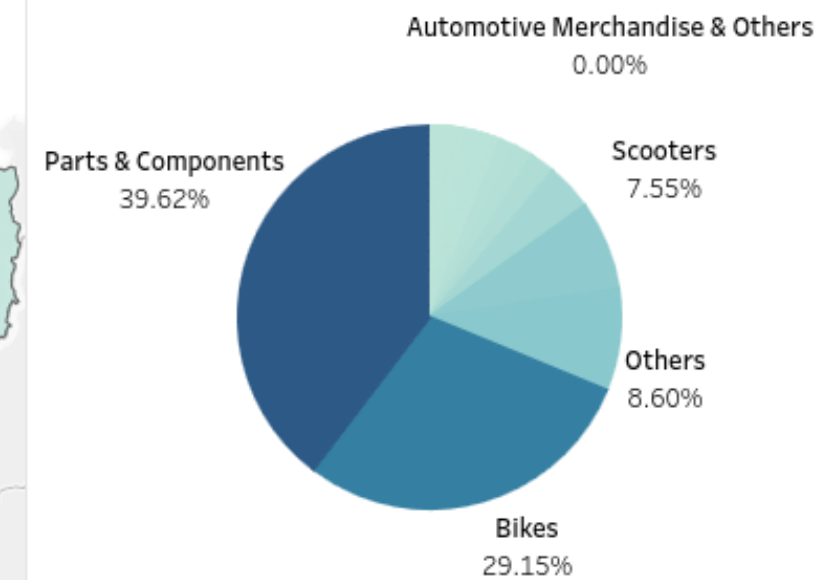
82,529

Country	State/..	
Malaysia	Selangor	RM885,034.23
	Penang	RM565,242.67
	Perak	RM252,005.82
	Negeri Sem..	RM200,890.85
	Kuala Lump..	RM191,833.05
	Kedah	RM188,681.42
	Johor	RM187,803.43
	Melaka	RM20,580.85
	Pahang	RM19,546.01
	Pulau Pinang	RM18,406.07
	Kelantan	RM12,601.06
	Terengganu	RM9,352.00
	Sarawak	RM822.00
	Perlis	RM358.00
Mainland China	Mainland C..	RM146,981.38
Taiwan	Taiwan	RM6,685.52
Indonesia	Indonesia	RM103.30

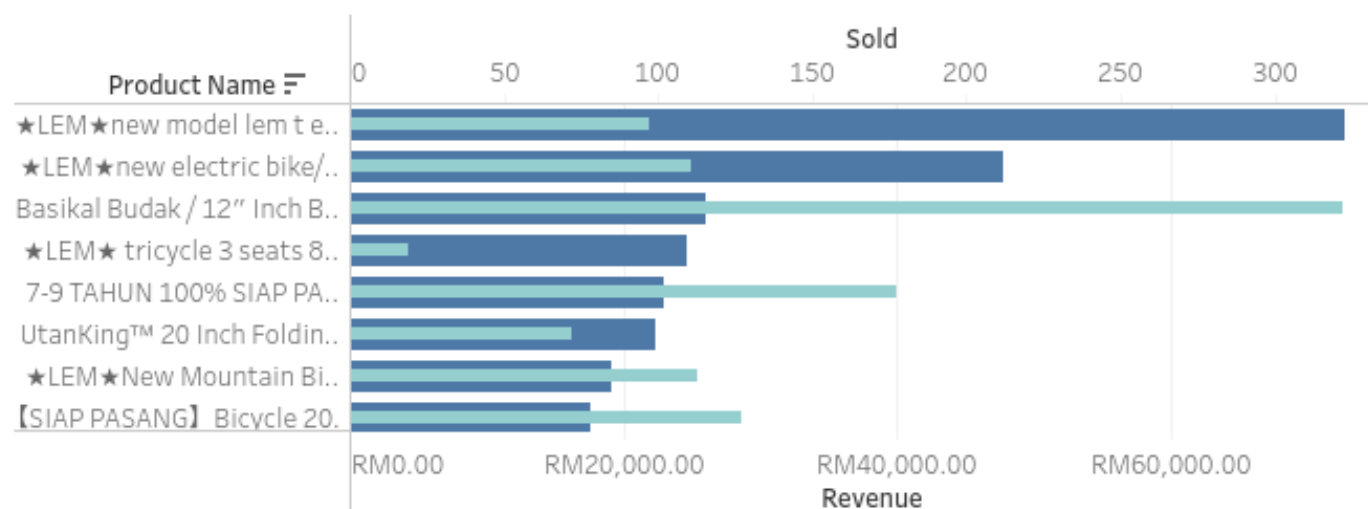
Total Revenue Per Region



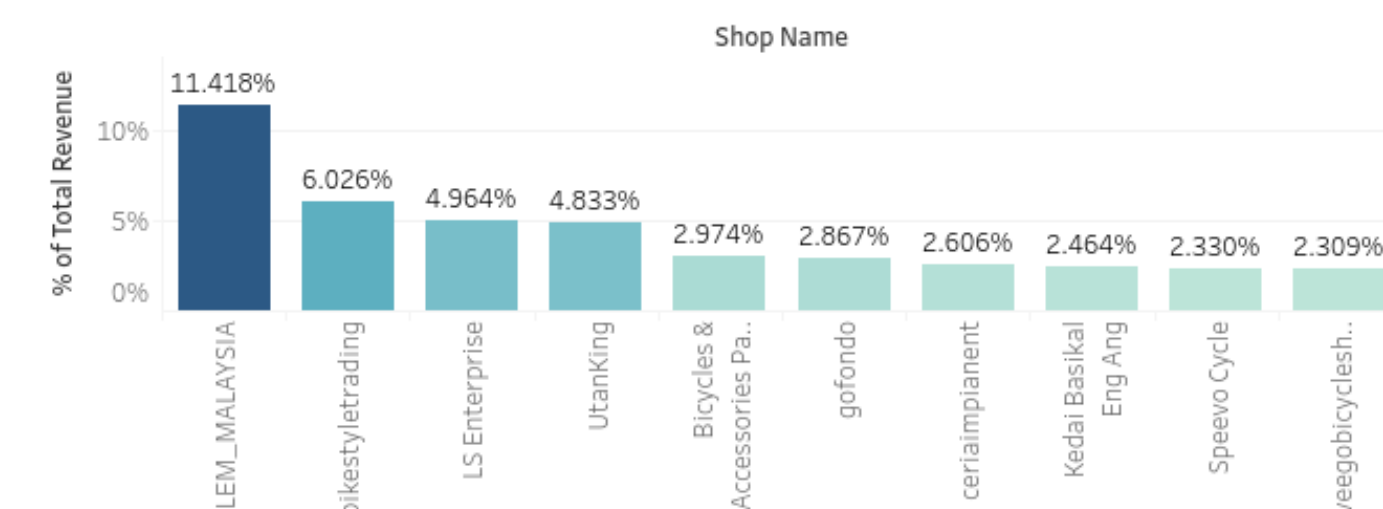
Market Share by Category



Best sellers by Revenue/Sold



Market Share by Shops Revenue





EDA

Some Considerations

01

Data can't be filtered further much to help in modeling

02

Only able to train on product name not product description

03

Main category is filterable

04

F1-score to be target metric due to likely class imbalance

05

There will be a lot of noise, nothing we can do about it

06

Flat approach

Present Data

- Product Name
- Product Description
- Main Category
- Sub Category 1
- Sub Category 2

Future Data

- Product Name
- Price
- Stock
- Main Category

Flat Approach



Category

[Shopee](#) > [Sports & Outdoor](#) > [Cycling & Skates](#) > [Safety Equipment](#)

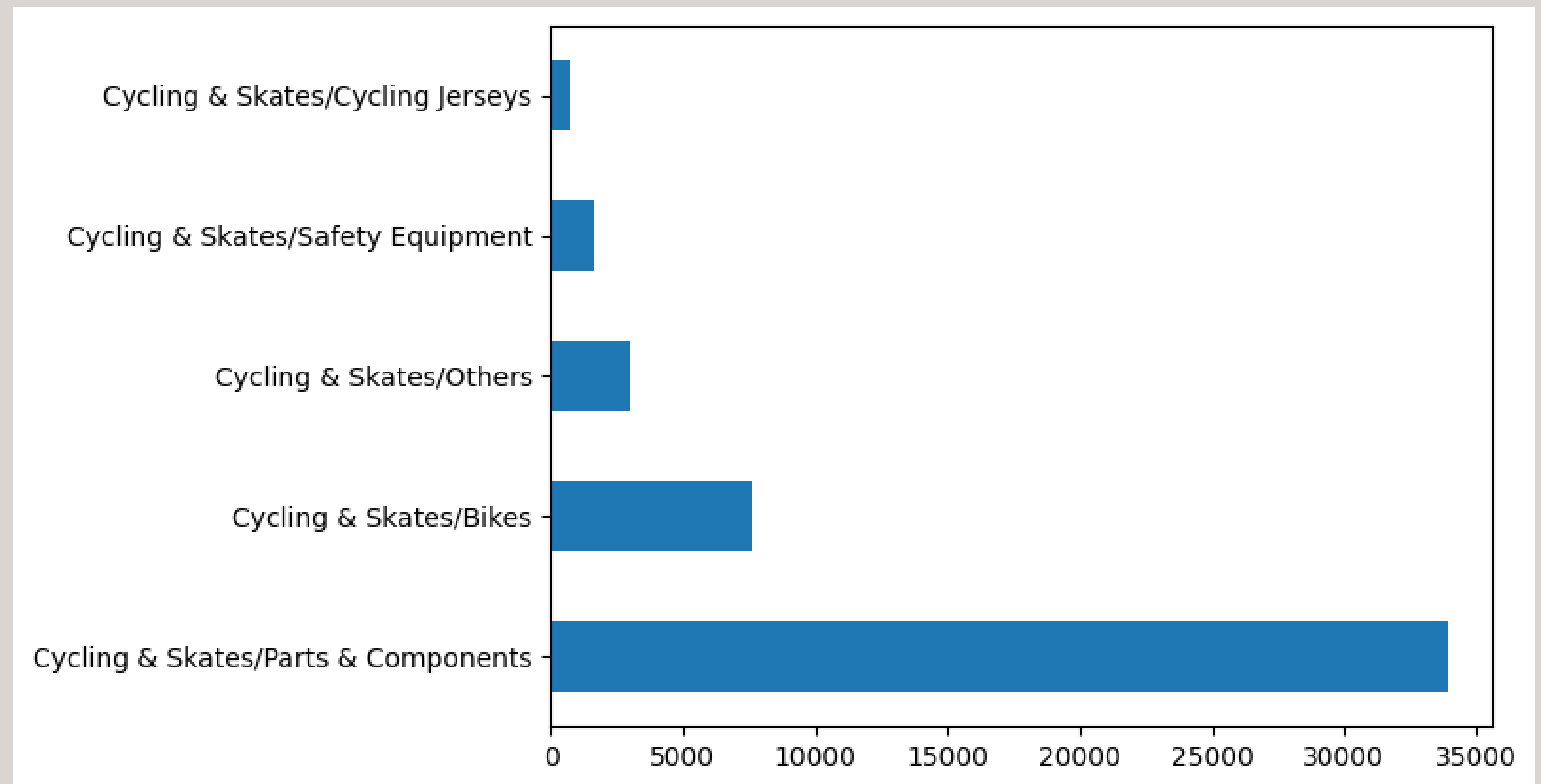
Brand

[Bell Helmets](#)

X=Categories
y=Product Name

- Imbalanced Dataset
- Has 6:1 ratio from the 1st and 2nd class.
- Data required a lot of converting.
- Cleaning was kept to a minimum to retain info
- Total no. of categories: 54
- Total no. of samples: 54041

Top 5 categories



```
fe_categories
Cycling & Skates/Parts & Components    0.627450
Cycling & Skates/Bikes                  0.140689
Cycling & Skates/Others                 0.056124
Cycling & Skates/Safety Equipment       0.029718
Cycling & Skates/Cycling Jerseys        0.012491
Name: proportion, dtype: float64
```

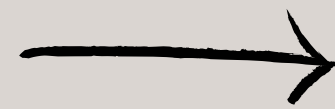
Modelling

Base model evaluation

Various algorithms trained on data with base parameters.

Algorithms used:

1. Logistic Regression
2. LinearSVC
3. Random Forest
4. MultinomialDB
5. XGBoost



Hyperparameter Tuning

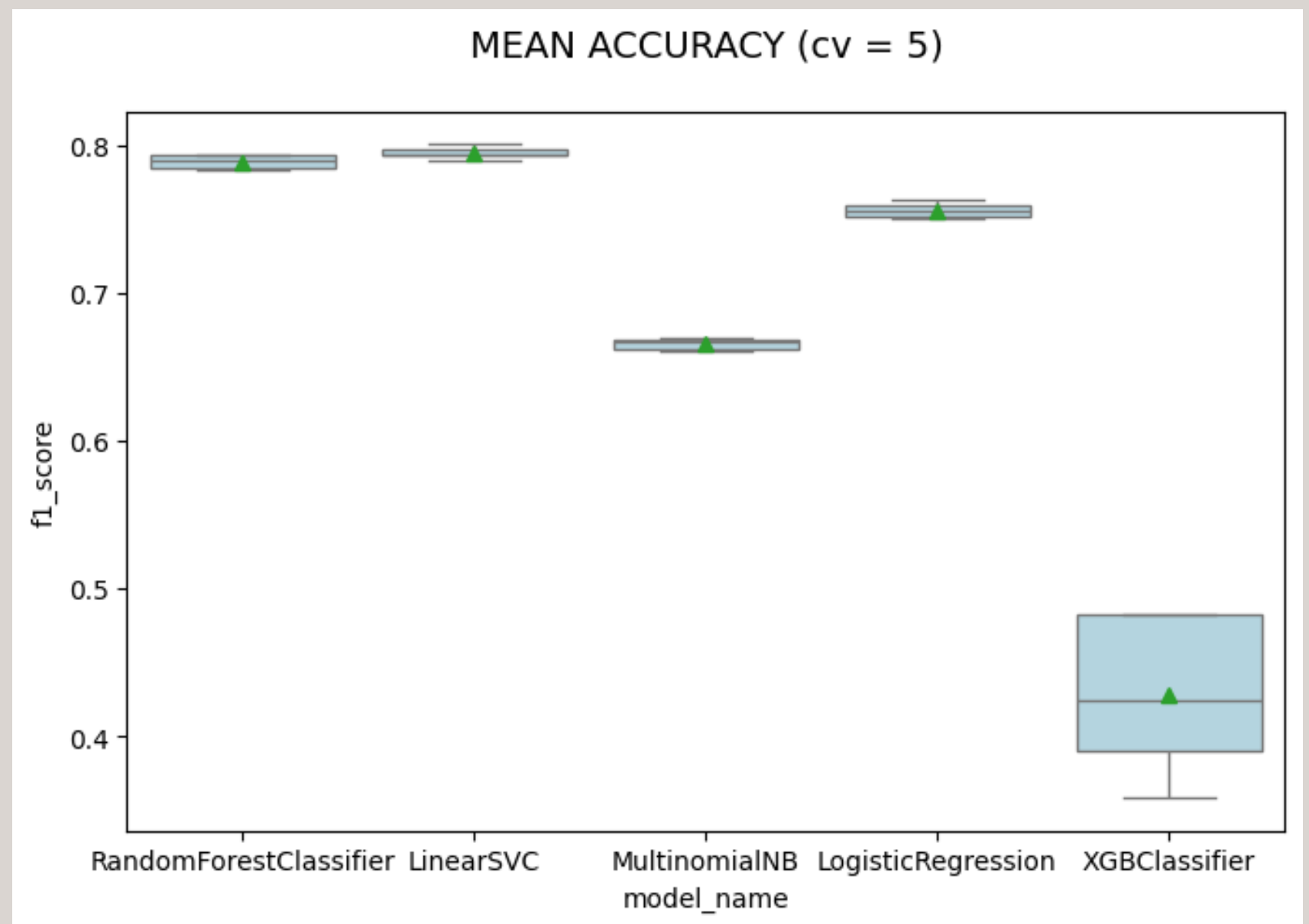
Hyperparameter tuning is done on the best base models to improve scores.

Well.. supposed to :)

```
Best Hyperparameters: {'C': 1.2989993092595722, 'class_weight': None}
Best Score: 0.7936280309801937
CPU times: user 48 s, sys: 45.7 s, total: 1min 33s
Wall time: 36min 25s
```

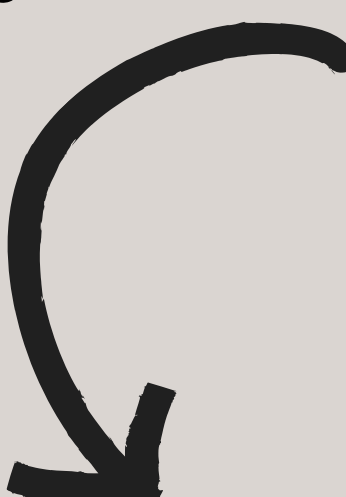
Base Model Evaluation

	Mean F1-Score		Standard deviation
model_name			
LinearSVC	0.794682	✓	0.004338
LogisticRegression	0.755511	✓	0.005381
MultinomialNB	0.665578		0.004049
RandomForestClassifier	0.788467	✓	0.004751
XGBClassifier	0.427763		0.055041



Hyperparameter “Tuning”

After “Tuning”



	Mean F1-Score	Standard deviation
model_name		
LinearSVC	0.794682	0.004338
LogisticRegression	0.755511	0.005381
MultinomialNB	0.665578	0.004049
RandomForestClassifier	0.788467	0.004751
XGBClassifier	0.427763	0.055041

	Model_Name	Accuracy	Precision	Recall	F1-Score
0	LinearSVC	81.019401	79.664053	81.019401	79.480852
1	Random Forest	81.182012	80.120763	81.182012	79.311302
2	Logistic Regression	79.140967	77.256282	79.140967	76.487908

+0.02

+0.47

+0.93

Reducing Dataset

- “Tuning” didn’t provide much improvement.
- Reduced dataset to minimize noise
- Removed all categories with < 450 samples

Base Dataset

```
fe_categories
Cycling & Skates/Parts & Components    33908
Cycling & Skates/Bikes                  7603
Cycling & Skates/Others                  3033
Cycling & Skates/Safety Equipment       1606
Cycling & Skates/Cycling Jerseys        675
Performance Wear/Sets                   520
Water Sports/Others                     520
Sports Wear/Jerseys                     486
Men's Sports Shoes/Others                468
Cycling & Skates/Scooters                454
Performance Wear/Pants & Shorts          399
Performance Wear/Others                  371
Outdoor & Adventure/Camping & Hiking     353
Kids Sports & Outdoor Play/Sport Shoes  313
Outdoor & Adventure/Others               302
Racket Sports/Others                     224
Fishing/Others                           178
Outdoor & Adventure/Outdoor Bags         177
Exercise & Fitness Equipment/Exercise Bikes & Treamills 173
Performance Wear/Hats                    166
Fishing/Hooks                            152
Outdoor & Adventure/Lights & Lanterns    145
Fishing/Baits, Lures & Flies             141
Exercise & Fitness Equipment/Others      116
Fishing/Rod & Reels                       115
Stick & Ball Games/Golf                  100
Running/Running Accessories              98
Exercise & Fitness Equipment/Weight Training Equipment 95
Sports Wear/Training Wear                94
Exercise & Fitness Equipment/Supports, Tapes & Braces 92
Acrobatic & Martial Arts/Training Equipment 85
Exercise & Fitness Equipment/Yoga & Pilates 76
Exercise & Fitness Equipment/Accessories 75
Performance Wear/Compression Tops        75
```

Reduced Dataset

```
fe_categories
Cycling & Skates/Parts & Components    33908
Cycling & Skates/Bikes                  7603
Cycling & Skates/Others                  3033
Cycling & Skates/Safety Equipment       1606
Cycling & Skates/Cycling Jerseys        675
Performance Wear/Sets                   520
Water Sports/Others                     520
Sports Wear/Jerseys                     486
Men's Sports Shoes/Others                468
Cycling & Skates/Scooters                454
Name: count, dtype: int64
```

	precision	recall	f1-score	support
Cycling & Skates/Bikes	0.82	0.62	0.71	2535
Cycling & Skates/Cycling Jerseys	0.71	0.78	0.75	213
Cycling & Skates/Others	0.56	0.27	0.36	999
Cycling & Skates/Parts & Components	0.85	0.95	0.90	11184
Cycling & Skates/Safety Equipment	0.91	0.85	0.88	538
Cycling & Skates/Scooters	0.84	0.72	0.77	134
Men's Sports Shoes/Others	0.73	0.77	0.75	146
Performance Wear/Sets	0.73	0.70	0.71	179
Sports Wear/Jerseys	0.84	0.64	0.73	168
Water Sports/Others	0.99	0.86	0.92	165
accuracy			0.84	16261
macro avg	0.80	0.71	0.75	16261
weighted avg	0.83	0.84	0.83	16261

	precision	recall	f1-score	support
Bikes	0.82	0.62	0.71	2535
Cycling Jerseys	0.71	0.78	0.75	213
Jerseys	0.84	0.64	0.73	168
Others	0.70	0.42	0.52	1310
Parts & Components	0.85	0.95	0.90	11184
Safety Equipment	0.91	0.85	0.88	538
Scooters	0.84	0.72	0.77	134
Sets	0.73	0.70	0.71	179
accuracy			0.84	16261
macro avg	0.80	0.71	0.75	16261
weighted avg	0.84	0.84	0.83	16261

Classification Report

- Diminishing returns the more the dataset is reduced
- Subcategory2 - Others have significantly lower scores than other subcategories
- Others is too vague of a subcategory.

```
reduced_df_noothers = df[df['fe_category2'] != 'Others']
```

= Bye Others!

	Model_Name	Accuracy	Precision	Recall	F1-Score
0	LinearSVC	81.019401	79.664053	81.019401	79.480852
1	Random Forest	81.182012	80.120763	81.182012	79.311302
2	Logistic Regression	79.140967	77.256282	79.140967	76.487908
3	LinearSVC Reduced	84.023123	82.984387	84.023123	82.776058
4	Random Forest Reduced	84.853330	84.212341	84.853330	83.379299
5	Logistic Regression Reduced	83.481951	82.575642	83.481951	81.684274
6	LinearSVC No Others	87.110420	86.721738	87.110420	86.371617
7	Random Forest No Others	87.110420	87.018846	87.110420	86.116059
8	Logistic Regression No Others	85.256610	84.595317	85.256610	83.767911
9	LinearSVC No Others Reduced	89.179055	88.913741	89.179055	88.621916
10	✨ Random Forest No Others Reduced	89.748226	89.634477	89.748226	89.116105
11	Logistic Regression No Others Reduced	88.489353	88.365208	88.489353	87.668393

Much better metrics

Model winner: 

RF No Others Reduced

Base + No others

+ 4%~

Reduced + No others

+ 7%~

Model Evaluation

ROC Curve

- Brawling between classes
- Model's ability to distinguish between predictions

Coefficient Analysis

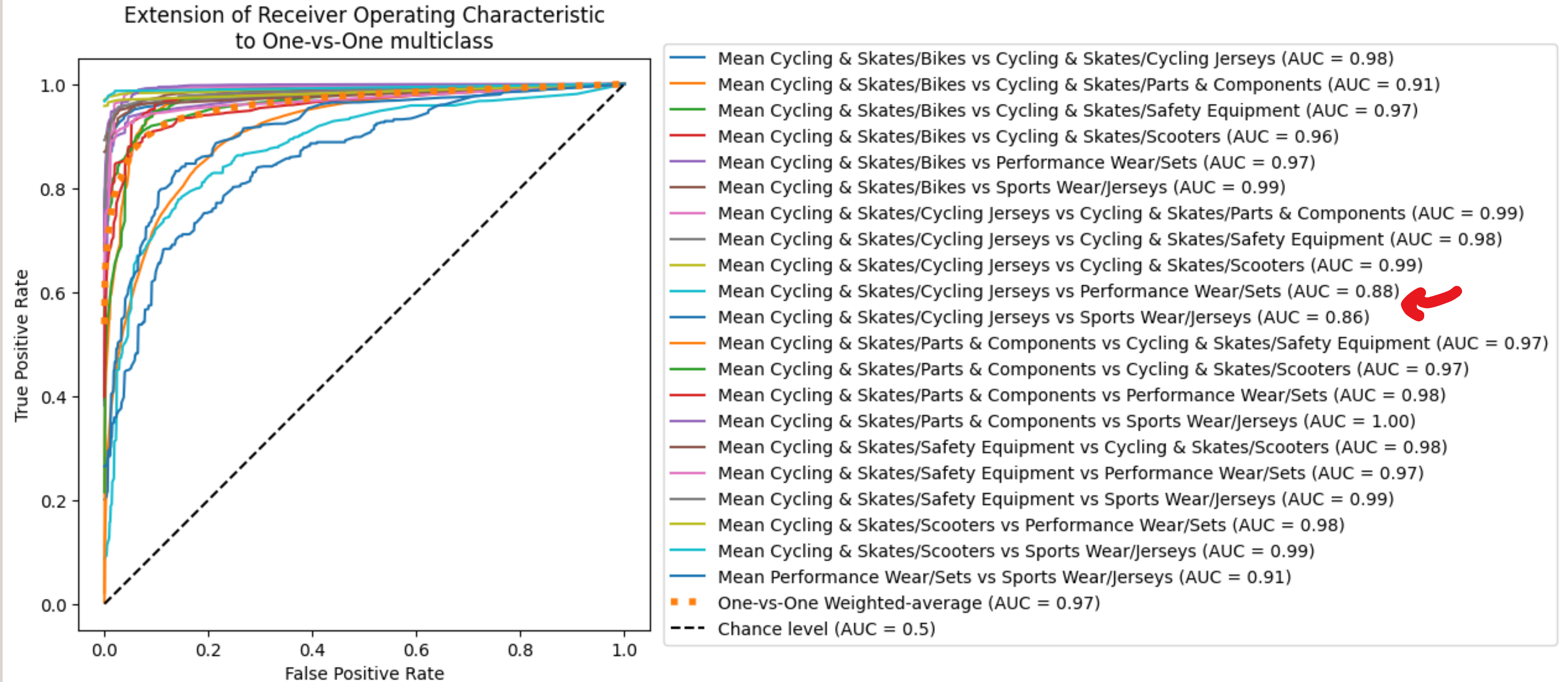
- See what features are important in classifying each class

Predict New Data

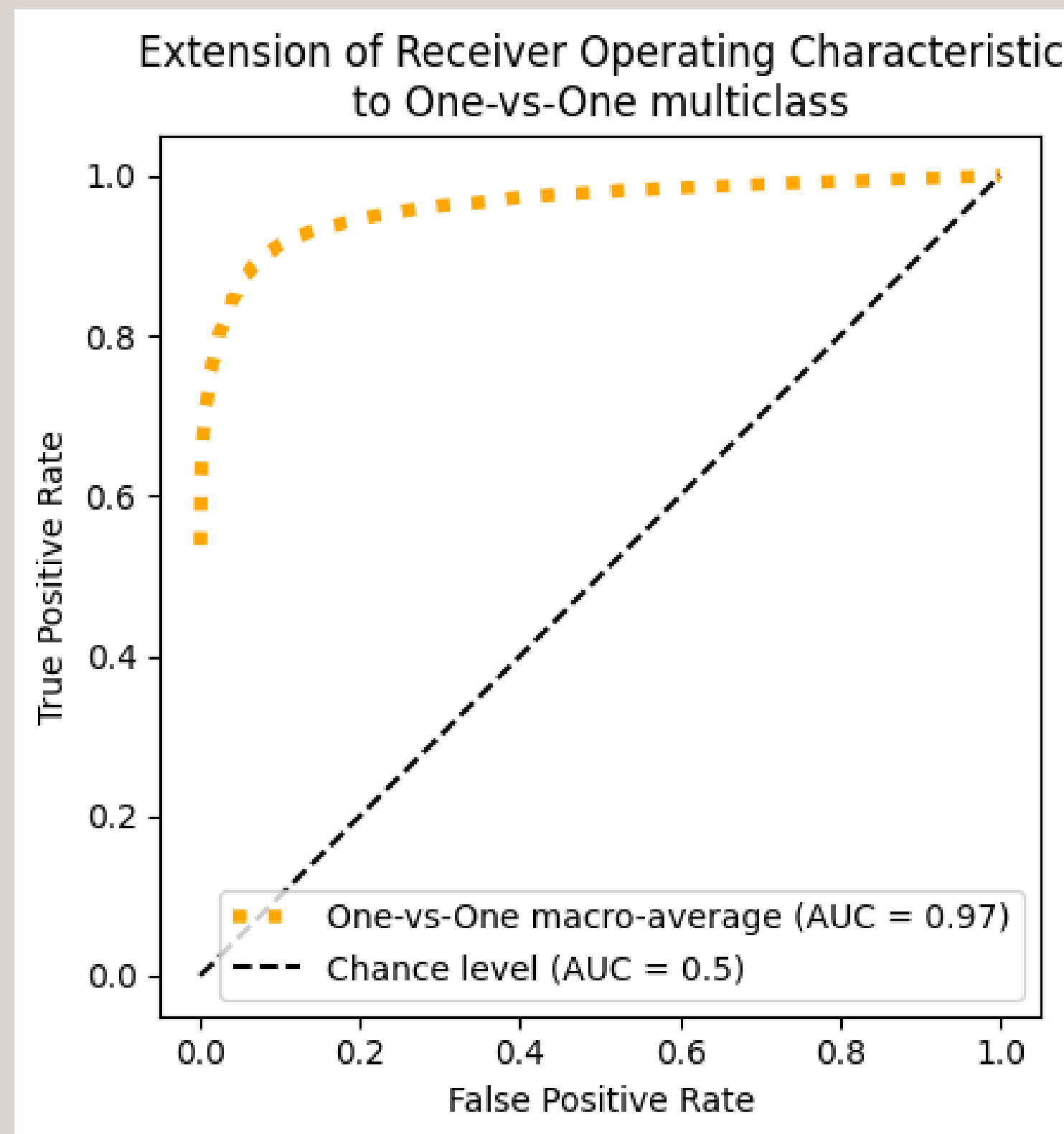
- Predict with fresh new data and see firsthand if predictions are reasonable



Random Forest Classifier Reduced No Others



AUC not factored by
class imbalance



Coefficient Analysis

Top features for class Cycling & Skates/Parts & Components (Weight: 33908):

bicycle: 3.8438
fender: 3.5730
handlebar: 3.1309
saddle: 3.0796
chain: 2.8801
brake: 2.7803
seat: 2.6406

Top features for class Cycling & Skates/Bikes (Weight: 7603):

bike: 4.1272
speed: 2.9157
20: 2.8534 ✖
shimano: 2.6000
bicycle: 2.5065
gomax: 2.3541
camp: 2.3046 ✖

Top features for class Cycling & Skates/Safety Equipment (Weight: 1606):

helmet: 10.3053
helmets: 4.4488
knee: 2.4509
mips: 2.4477
abus: 2.3603 ✖
park: 2.3076 ✖
frontier: 2.2981

Top features for class Cycling & Skates/Cycling Jerseys (Weight: 675):

jersey: 7.8840
cycling: 3.5513
cyclepro: 1.7784
shirts: 1.6969
clothing: 1.6627
downhill: 1.6165 ✖
ykywbike: 1.5804 ✖ Huh?

New predictions

	product_name	categories_decoded
51792	YKYWBIKE Pro Cool Mesh Superlight Bike Cycling Base Layers Bicycle Short Sleeve Shirt Breathable Cycling Jerseys Cycling Clothin	Cycling & Skates/Cycling Jerseys
72185	Swivels Connectors Copper And Pvc Feeder Hook Small About 13mm/Large About 15mm	Cycling & Skates/Parts & Components
30176	[Speed Park] Fixed Line Tube For Frame C-Shaped Buckle Outer Fixing Set Price Is One C	Cycling & Skates/Parts & Components
46783	BSC Women Essentials TOUR Jersey 2.0 Sand	Sports Wear/Jerseys
31222	FKR 16X1.75/1.95 AV BICYCLE BUTYL TUBE	Cycling & Skates/Bikes
41462	3T Full Carbon Road Bike Handlebar Matte/Gloss Black Top Carbon Fiber Road Bicycle Handlebar 31.8mm*400/420/440mm	Cycling & Skates/Parts & Components
19253	BikeDIY [LOCAL] MTB Bike Hydraulic Brake Needle Compressing Bushing Brake Hose Bicycle Parts SLX XT XTR Deore 446 T01	Cycling & Skates/Parts & Components
17731	gofondo® Minpoc MAGNETIC clip-on small bag for your Brompton	Cycling & Skates/Bikes
26194	Time Road Pedal Xpro 10 (Black/Grey)	Cycling & Skates/Parts & Components
34337	[MARIN] FAIRFAX 3 700C V URBAN BIKE (2022)	Cycling & Skates/Bikes



It works! Kinda

Recommendation

1

Training Data from one month only won't be able to reliably predict future unseen categories.

Ideally, obtain a larger dataset that spans multiple months for reliable predicting.

2

Future data can't reliably validate model. Only Current data can be validated as they have real categories.

3

Utilize pre-trained models such as BERT or further tuning once a better machine is obtained.

K Youth GA-DSBC-23-003

Thank You

Presented by Amir Hamzah Bin Mohd Nasir