# Generating 50 product categories

For this task, I will ask a LLM model, chatgpt for more specifically, to generate a product categories list for the toolshop. And the question I would ask will be

"given a relation table name "Categories"
id (id of a category)
parent\_id (the id of the parent category)
name (name of the category)
slug (category slug)
created\_at (always be null)
updated\_at (always be null)
generating for me 50 new category in mysql code, and filling
parent id in some rows"

The generated code is on **50-categories.sql** in the submitted folder. Because there are already 12 categories in the database, so the sql code, we start inserting items from index 13th.

Then I will use dbeaver to connect to our toolshop database, and run the script.

```
USE toolshops;

INSERT INTO `categories` (`id`, `parent_id`, `name`, `slug`, `created_at`, `updated_at`)

VALUES

(13, NULL, 'Tool Storage and Organization', 'tool-storage-and-organization', NULL, NULL),

(14, NULL, 'Safety Equipment', 'safety-equipment', NULL, NULL),

(15, NULL, 'Workwear and Apparel', 'workwear-and-apparel', NULL, NULL),

(16, NULL, 'Paint and Painting Tools', 'paint-and-painting-tools', NULL, NULL),

(17, NULL, 'Measuring Tools', 'measuring-tools', NULL, NULL),

(18, NULL, 'Automotive Tools', 'automotive-tools', NULL, NULL),

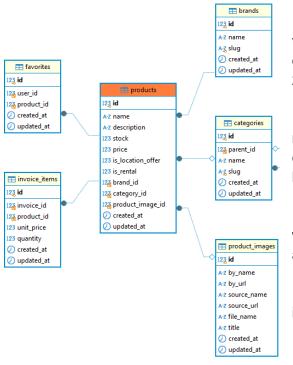
(19, NULL, 'Plumbing Tools', 'plumbing-tools', NULL, NULL),
```

### It's now filled with new categories

	3						
•	123 id 🔻	12 parent_id 🔻	A-z name 🔻	A:Z slug 🔻		∪ updated_at ▼	
1	1	[NULL]	Hand Tools	hand-tools	[NULL]	[NULL]	
2	2	[NULL]	Power Tools	power-tools	[NULL]	[NULL]	
3	3	1 ⊠	Hammer	hammer	[NULL]	[NULL]	
4	4	1 ⊠	Hand Saw	hand-saw	[NULL]	[NULL]	
5	5	1 ⊠	Wrench	wrench	[NULL]	[NULL]	
6	6	1 ⊠	Screwdriver	screwdriver	[NULL]	[NULL]	
7	7	1 ₫	Pliers	pliers	[NULL]	[NULL]	
8	8	2 ⊠"	Grinder	grinder	[NULL]	[NULL]	
9	9	2 ☑	Sander	sander	[NULL]	[NULL]	
10	10	2 ☑	Saw	saw	[NULL]	[NULL]	
11	11	2 ☑	Drill	drill	[NULL]	[NULL]	
12	12	[NULL]	Other	other	[NULL]	[NULL]	
13	13	[NULL]	Tool Storage and	tool-storage-ar	[NULL]	[NULL]	
14	14	[NULL]	Safety Equipmen	safety-equipme	[NULL]	[NULL]	
15	15	[NULL]	Workwear and A	workwear-and-	[NULL]	[NULL]	
16	16	[NULL]	Paint and Paintin	paint-and-pain	[NULL]	[NULL]	
17	17	[NULL]	Measuring Tools	measuring-too	[NULL]	[NULL]	
18	18	[NULL]	Automotive Tool	automotive-too	[NULL]	[NULL]	
19	19	[NULL]	Plumbing Tools	plumbing-tool:	[NULL]	[NULL]	
20	20	[NULL]	HVAC Tools	hvac-tools	[NULL]	[NULL]	
21	21	[NULL]	Woodworking To	woodworking-	[NULL]	[NULL]	
22	22	[NULL]	Metalworking To	metalworking-	[NULL]	[NULL]	
23	23	[NULL]	Masonry Tools	masonry-tools	[NULL]	[NULL]	
24	24	13 ☑	Tool Boxes	tool-boxes	[NULL]	[NULL]	
25	25	13 ☑	Tool Cabinets	tool-cabinets	[NULL]	[NULL]	

## Generating 1000 products

There are many related relations in the products table, here is the description graph:



- There is brand id which is from brands table, but there are only 2 brands currently on the database, so we can randomize between range [1, 21
- For categories, the products have to related to a categories, there are 62 categories currently in the database, so the random range will be [1, 62]
- For product\_image\_id and product names, we will use a web scraper to get image urls from amazon.
- For the other attributes, we will randomize in an available range.

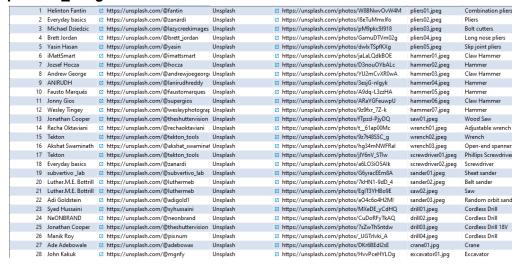
To scrape name and product images, I will visit the Amazon site in this url https://www.amazon.com/s?k=tools&crid=X89T1N59CQZE&sprefix=tools%2Caps%2C651&ref= nb sb noss 1

With tool-info-scraper.py script sent with the document, here is the scraper output:

```
PHALNON Mini 3.7V Electric Screwdriver - Precision Screwdriver Set with 60-in-1 Magnetic Bits, Magnetic Rotatable Rack, 5/32' Hex, Electric Screwdriver Cordless for Phone, Camera, La DEWALT 20V MAX Cordless Drill and Impact Driver, Power Tool Combo Kit with 2 Batteries and Charger (DCX240C2); https://m.media-amazon.com/images/1/8108032vdyt. AC_UL320_jpg
DEWALT 20V MAX RO Scillating Tool Kit, 3 Speed, With Blades, Battery and Charger Included (DCS356C1); https://m.media-amazon.com/images/1/8108032vdyt. AC_UL320_jpg
CRAFTSMAN 262-Piece Mechanic Tool Set, Master Socket Set with 3-Drawer VERSASTACK Tool Box, SAE/Metric Set (CMMT45809); https://m.media-amazon.com/images/1/8108032vdyt. AC_UL320_jpg
RREAGYST219-ASS Light Indent Crimping Tool Kit NT R25520 2 of series crimper with 37 Power VERSASTACK Tool Box, SAE/Metric Set (CMMT45809); https://m.media-amazon.com/images/1/8106NVSIII. AC_UL320_jpg
RREAGYST219-ASS Light Indent Crimping Tool Kit NT R25520 2 of series crimper with 37 Power Tool NO GO GAGAGE 6125 for Avaidation Aerospace and miniature electrical connector; http
Spectra Precision LTS8G Green Laser Level Tool, 3 x 360°, Ultra Bright Technology, Laser Class 2 (1mW, Best for Ceiling Work; https://m.media-amazon.com/images/1/61A3jhGFGal. AC_UL320
MORKPRO Drywall Knife Set, Stainless Steel Taping Knife Putty Knife with 4", 6", 8", 10", 12" Blades and Alloy Metal Hammer End, Spackle Tools for Drywall Repairing and Finishing
Digital Caliper Measuring Tool, Stainless Steel Vernier Caliper Digital Micrometer with large LOD Screen, Easy Switch from Inch Metric Fraction, 6 Inch Caliper Tool for DIV/Housebold/
RReady ST2060-ASSC N2250 2 01 Indent Crimper Kit NEW-AS26 615717 Aviation Crimp Tool and 7 Positioner and G125 Gauge for Solid Barrel Contact of Miniature Connector in Electronic S
DEWALT 20V MAX Power Tool Combo Kit, 10-Tool Cordless Power Tool Set with 2 Batteries and Charger (DCK102002); https://m.media-amazon.com/images/1/81m19V403XL. AC_U1320_jpg
DEWALT 20V MAX Cordless Drill, Impact Driver, 2-Tool Power Too
```

For the scraper information automatically inserted into our database, I will write an automation python script using **mariadb pip package**. Here is the result after running **insert-1000-products.py** 

## product\_images table



#### product table

	•••	tabio			
12 <u>3</u> id	•	A-z name	A-z description	123 stock	123 price 🔻
	1	Combination Pliers	Lorem ipsum dolor sit amet, consectetur ad	11	14.15
	2	Pliers	Nunc vulputate, orci at congue faucibus, en	11	12.01
	3	Bolt Cutters	Aliquam viverra scelerisque tempus. Ut vehi	11	48.41
	4	Long Nose Pliers	Phasellus consequat fermentum quam id so	0	14.24
	5	Slip Joint Pliers	Ut cursus dui non ante convallis, facilisis au	11	9.17
	6	Claw Hammer with Shock Reduction Grip	Nam efficitur, turpis molestie bibendum lob	11	13.41
	7	Hammer	Mauris mollis odio est, ac vehicula dui lobor	11	12.58
	8	Claw Hammer	Cras pulvinar nisl a quam fringilla tempus. S	11	11.48
	9	Thor Hammer	Donec malesuada tempus purus. Integer sit	11	11.14
	10	Sledgehammer	Mauris sodales ligula vel mi sagittis, vel lobo	11	17.75
	11	Claw Hammer with Fiberglass Handle	Lorem ipsum dolor sit amet, consectetur ad	11	20.14
	12	Court Hammer	Interdum et malesuada fames ac ante ipsum	11	18.63
	13	Wood Saw	Quisque quis fermentum ligula. Aenean vul	11	12.18
	14	Adjustable Wrench	Praesent ullamcorper suscipit arcu eget inte	11	20.33
	15	Angled Spanner	Cras convallis, eros vitae laoreet cursus, lore	11	14.14
	16	Open-end Spanners (Set)	Donec sit amet auctor ex, non pellentesque	11	38.51
	17	Phillips Screwdriver	Sed posuere libero diam, vel mollis nulla ma	11	4.92
	18	Mini Screwdriver	Pellentesque tristique tortor id nulla accums	11	13.96
	19	Sheet Sander	Suspendisse vel pellentesque tellus, ut lobor	11	58.48
	20	Belt Sander	Nulla id consequat libero. Proin porta purus	11	73.59
	21	Circular Saw	Lorem ipsum dolor sit amet, consectetur ad	11	80.19
	22	Random Orbit Sander	Sed nec luctus sem. Nunc et nibh massa. Cu	11	100.79
	23	Cordless Drill 20V	Nullam id lorem hendrerit, sodales magna e	11	125.23
	24	Cordless Drill 24V	Aenean vel dolor eu erat rutrum dapibus. Ae	11	66.54
	25	Cordless Drill 18V	Maecenas sed maximus dolor, et interdum o	11	119.24

## Explaining source code in custom-built tool

There are two information that needed to explain:

- 1. Amazon Web Scraper tool
- 2. Automation code for inserting 1000 products

## Amazon Web Scraper

There are two dependencies which the code used:

- 1. request
- 2. BeautifulSoup

The code simply first sends an HTTPS request for retrieving html documents displaying a list of tools. Then using BeautifulSoup, I identify the html element displaying the single tool slot in **tool-scraper-info.py:30** 

```
soup.find_all("div", class_="a-section a-spacing-base")
```

The name of the tool resides as a child element of the discovered html element. I will store it in the **title** variable

```
title = tool_section.find("span", class_="a-size-base-plus a-color-base a-text-normal")
```

The same thing will be for the tool images

```
image = tool_section.find("div", class_="a-section aok-relative
s-image-square-aspect")
```

From line 43-45, I will output all information to a single file (ie. tool-list.txt) for later processes.

```
with open(output_file_path, "a", encoding="utf-8") as file:
    for idx, tool_info in enumerate(tool_info_list, start=1):
        file.write(f"{tool_info[0]};{tool_info[1]}\n")
```

Automation code for inserting 1000 products

For inserting 1000 products and processing the web scraper file, there is separate code **insert-1000-products.py** for that purpose.

With cursor.executemany, the first parameter is mySQL syntax and the seconds are values which need to be in the database.

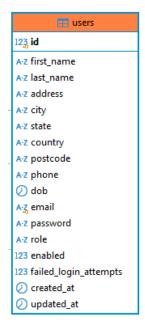
```
cur.executemany("INSERT INTO product_images (id, source_name, source_url,
file_name) VALUES (%s, %s, %s, %s)", sql_product_images)

cur.executemany("INSERT INTO products (name, description, stock, price,
is_location_offer, is_rental, brand_id, category_id, product_image_id)

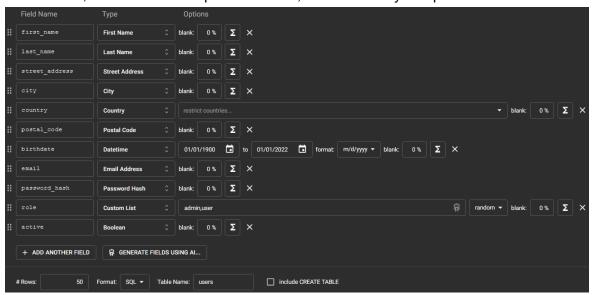
VALUES (%s, %s, %s, %s, %s, %s, %s, %s, %s)", sql_products)
```

# Generating 50 user accounts

User account is stored in users table of toolshop database



For this task, I will need the help of Mockaroo, and here is my setup



Then Mockaroo will generate for me an SQL file which will automatically insert all user into the table

```
insert into users (first_name, last_name, street_address, city, country, postal_code, birthdate, email, password_hash, role, active) values ('Cally', 'Larraway', '4573 Hoepker Avenue', 'Damatou', 'China', null, '8/24/1935', 'Clarraway'@boston.com', '52a3645/wkb0Mgilgddrj2dcsb07.WYNy8UWKNZ8QN95VL8jaEQ855n6m.f0', 'user', false); insert into users (first_name, last_name, street_address, city, country, postal_code, birthdate, email, password_hash, role, active) values ('Randal', 'Longthorne', '9 Anthes Way' 'Caloue', 'Indonesia', null, '31/6/1921', 'nlongthornel@artisteer.com', '52a36945WciylitTNEQRxmgQznecOMX)F6fi6fb0j0d4U52IXJsei9C1W2/6', 'admin', false); insert into users (first_name, last_name, street_address, city, country, postal_code, birthdate, email, password_hash, role, active) values [|'Rebeka', 'Walsh', '290 Rowland [Crossing', 'Liangjing', 'China', null, '12/27/1916', 'rwalsh2@nsw.gov.au', '52#645Kl2173.AUCKx2LWyNdWoVPpQmJbdMxnSATSTTTSLKF880cdXck', 'user', false); insert into users (first_name, last_name, street_address, city, country, postal code, birthdate, email, password hash, role, active) values ('Jude', 'Banklin', '26 Cardinal Court'
```

# Here is the result after running the script

•	123 id 🔻	A-z first_name	A-z last_name	A-z address 🔻	A-z city 🔻	A-Z state ▼	A-z country 🔻	A-z postcode ▼	A-z phone 🔻	⊘ dob 🔻
1	1	John	Doe	Test street 123	Utrecht	[NULL]	The Netherlands	[NULL]	[NULL]	1980-01-01
2	2	Jane	Doe	Test street 98	Vienna	[NULL]	Austria	[NULL]	[NULL]	1980-02-02
3	3	Jack	Howe	Test street 654	Frankfurt	[NULL]	Germany	[NULL]	[NULL]	1980-03-03
4	4	John	Doe	Test street 123	Utrecht	[NULL]	The Netherlands	[NULL]	[NULL]	1980-01-01
5	5	Wilie	Squeers	2444 Towne Park	Stockholm	[NULL]	Sweden	101 22	[NULL]	2003-09-11
6	175	Butch	Sabatier	62741 Crowley Driv	Qiuchuan	[NULL]	China	[NULL]	[NULL]	1951-02-05
7	176	Dianna	MacIlraith	71771 Loomis Pass	Klau	[NULL]	Indonesia	[NULL]	[NULL]	1986-11-03
8	177	Tobias	Lamlin	91262 Eggendart C	Changchun	[NULL]	China	[NULL]	[NULL]	2000-03-19
9	178	Elsa	Kopisch	7669 Muir Point	Pingya	[NULL]	China	[NULL]	[NULL]	1934-05-08
10	179	Roze	Hince	5 Blaine Drive	Acton Vale	[NULL]	Canada	G0E	[NULL]	1942-04-06
11	180	Gabbey	Domanski	29 Donald Way	Taungoo	[NULL]	Myanmar	[NULL]	[NULL]	1949-03-28
12	181	lve	Kitchingman	1008 Grasskamp Dr	Ghormach	[NULL]	Afghanistan	[NULL]	[NULL]	1925-07-10
13	182	Hayes	Hadny	244 Eagle Crest Ter	Cibatu	[NULL]	Indonesia	[NULL]	[NULL]	1915-05-03
14	183	Gaston	Keenleyside	3 Forest Circle	Huangsha	[NULL]	China	[NULL]	[NULL]	1976-07-28
15	184	Jereme	Whatson	03716 Goodland Te	Qarqaraly	[NULL]	Kazakhstan	[NULL]	[NULL]	1958-01-06
16	185	Gregorius	Dressel	096 Hayes Pass	Baykalovo	[NULL]	Russia	184366	[NULL]	1937-08-22
17	186	Klara	Bobasch	86532 Blue Bill Park	Silodakon	[NULL]	Indonesia	[NULL]	[NULL]	2004-03-29
18	187	Orsola	Bischof	726 Shoshone Way	Pereira	[NULL]	Colombia	660017	[NULL]	1979-10-09
19	188	Rachelle	Knellen	47481 Roth Point	Gaofeng	[NULL]	China	[NULL]	[NULL]	1946-01-01
20	189	Sigismundo	Scherme	47 Warner Place	Cikadu	[NULL]	Indonesia	[NULL]	[NULL]	1944-10-03
21	190	Tera	Farraway	74 Saint Paul Drive	Tuguanpu	[NULL]	China	[NULL]	[NULL]	1977-06-04
22	191	Tom	Jacquemy	42387 West Point	San Fernando	[NULL]	Honduras	[NULL]	[NULL]	1978-01-05
23	192	Nestor	Ostler	6 1st Junction	Wedangtemu	[NULL]	Indonesia	[NULL]	[NULL]	1939-01-03
24	193	Bari	Goodby	03155 Anthes Cros	Urung	[NULL]	Indonesia	[NULL]	[NULL]	1906-11-19
25	194	Fannie	Cattermole	479 Lakewood Cro	lmielin	[NULL]	Poland	41-407	[NULL]	1906-08-27
26	195	Risa	Meagh	7 Crescent Oaks Pa	Enköping	[NULL]	Sweden	745 38	[NULL]	2007-09-08
27	196	Albertina	McCotter	01 Hagan Parkway	Mandalgovi	[NULL]	Mongolia	[NULL]	[NULL]	1941-05-19
28	197	Jacquie	Jimes	3763 Victoria Cente	Cachadinha	[NULL]	Portugal	4800-858	[NULL]	1944-02-06
29	198	Wilmar	Guile	518 Ryan Circle	Cimara	[NULL]	Indonesia	[NULL]	[NULL]	1971-05-27
30	199	Esra	Puckring	72152 Fieldstone To	Lebedyn	[NULL]	Ukraine	[NULL]	[NULL]	1945-10-07
31	200	Arlee	Sherel	3 Amoth Road	Presidente Epit	[NULL]	Brazil	19470-000	[NULL]	1914-04-21
32	201	Neysa	Blondin	90 Pine View Court	Corona	[NULL]	United States	92878	[NULL]	1967-08-07
33	202	Angelia	Bramble	85 Amoth Park	João Pessoa	[NULL]	Brazil	58000-000	[NULL]	2010-04-20
34	203	Mab	Weakley	80803 Clemons Jur	Bentengjawa	[NULL]	Indonesia	[NULL]	[NULL]	1906-06-19
35	204	Gillan	Giacomoni	014 Farmco Avenu	Chang'an	[NULL]	China	[NULL]	[NULL]	2020-08-05
36	205	Laurent	Joinson	6 Sutteridge Lane	Carolina	[NULL]	Puerto Rico	00987	[NULL]	1900-04-06
37	206	Candis	Butte	82 Rusk Court	Vanino	[NULL]	Russia	682860	[NULL]	1978-09-30
38	207	Lois	Kits	62 Jackson Trail	Lakinsk	[NULL]	Russia	662133	[NULL]	1994-11-10
39	208	Rog	Tomkinson	88 Algoma Plaza	Niepos	[NULL]	Peru	[NULL]	[NULL]	1918-07-27
		-								

# Self-Assessment Report

Criteria	Outcomes (Brief description about what you get/trouble from each requirement)	Grade	Self-Assessment Grade
1	Category Data (50)	20	20
2	Product Data (1000)	30	30
3	User Account Data (50)	20	20
4	Transaction Data (1000)	30	30
	Total	100	100