

Base44 Product Variation Generator: A Simple Step-by-Step Guide

Part 1: The Big Picture

1.1 The Goal

Our goal is to create an app that automatically makes lots of product listings for a Shopify store. Imagine you have one ring style, but you sell it in different metals, sizes, and diamond qualities. Instead of making hundreds of listings by hand, this app will do it for you by reading a product list and a set of rules.

1.2 The Files We Need (Our Ingredients)

We need three types of files to make this work:

1. **The Main Product List (Input test.csv):** This is your master list of products. Each row is a basic product style that we need to create variations for. ¹
2. **The Rule Books (3 files):** These tell the app what variations to create. There's a separate rule book for each type of diamond product ¹:
 - Natural.csv: Rules for products with natural diamonds.
 - Labgrown.csv: Rules for products with lab-grown diamonds.
 - NoStones.csv: Rules for plain items with no stones, like a simple wedding band.
3. **The Final Shopify File (The Output):** This is the single file the app will create. It will contain all the product variations, perfectly formatted to be uploaded directly to Shopify. ¹

Part 2: The Recipe (Step-by-Step Instructions)

Here is the exact process the app needs to follow for every single product in your **Main Product List**.

Step 1: Look at Each Product One by One

The app should start by reading the **Main Product List**. For each row, it needs to ask a few questions to decide what to do next. The most important piece of information is the Core Number.

Step 2: Make the First Big Decision: Is this Core Number Unique?

Before doing anything else, the app must check the whole Core Number column in the **Main Product List**.

- If a **Core Number** appears only **ONCE**, we'll call it a "**Unique Product**." ¹
- If a **Core Number** appears **MORE than once**, we'll call it a "**Repeating Product**." This is for styles that come in different base sizes, like a pendant that is sold in 0.5 ct, 0.75 ct, and 1.0 ct versions from the start. ¹

This is the most important decision and changes which rules we use.

Step 3: Pick the Right Rule Book

Next, the app looks at the Diamonds Type column for the product it's working on.

- If it says Natural, the app must use the **Natural.csv** rule book.
- If it says Labgrown, the app must use the **Labgrown.csv** rule book.
- If it says No Stones, the app must use the **NoStones.csv** rule book. ¹

Step 4: Find the Exact Rules to Use

Now that we know if the product is "Unique" or "Repeating" and which rule book to use, we can find the exact recipe for making its variations.

Scenario A: It's a "Unique Product" (from Step 2)

The app looks at the Center ct column for this product in the Main Product List.

- **If there's a number in Center ct:** This is a special item with a customizable center stone.
 - **Action:** The app must combine the rules from **Columns G, H, and I** in the correct rule book (Natural or Labgrown). It will make a new row for every possible combination.
 - *Example:* If the rule book has 7 metals (Column G), 6 center stone sizes (Column H), and 1 quality (Column I), the app creates $7 \times 6 \times 1 = 42$ new rows in the final file.¹
- **If the Center ct column is empty:** This is an item like an eternity band that has no main center stone.
 - **Action:** The app will follow the same logic as a "Repeating Product" (see Scenario B below). It will use **Columns J and K** from the rule book.¹

Scenario B: It's a "Repeating Product" (from Step 2)

This applies to any product where the Core Number was found more than once in the Main Product List.

- **Action:** For each row with that same Core Number, the app creates a full set of variations. It combines the rules from **Columns J (Metals) and K (Qualities)** in the correct rule book. It does NOT use center stone rules (Column H).
- *Example:* If a pendant has 3 rows in the input file (for 0.5 ct, 0.75 ct, and 1.0 ct), and the rule book has 7 metals (Column J) and 2 qualities (Column K), the app will create $7 \times 2 = 14$ variations for the 0.5 ct version, another 14 for the 0.75 ct version, and another 14 for the 1.0 ct version.¹

Scenario C: It's a "No Stones" Product

This is the simplest case. This logic is used for any product where the Diamonds Type is No Stones.

- **Action:** The app looks at the **NoStones.csv** rule book. It will create one new row for every metal listed in **Column A**. That's it! No diamond rules apply.¹

Part 3: How to Build the Final Shopify File, Column by Column

This is the most important part. For every single variation row the app creates, it must fill in the columns exactly like this.

The "First Row" Rule for Shopify: For any product (identified by its Handle), the very first row created is the "parent" and contains the main descriptions and option names. All other rows for that same product are "children" and must have those specific columns left **BLANK**. This is critical for Shopify to work correctly. ¹

Table 3.1: Main Product Information (Filled on the FIRST ROW only)

Output Column Name	How to Create It (The Rule)	Where the Info Comes From
Handle	Combine Subcategory and Core Number with a dash. Example: Engagement Rings-15686LB. This must be the SAME for all variations of one product.	Input.csv: Subcategory, Core Number
Title	FIRST ROW ONLY: Create a title like: CT Cut -. Min-Max TCW is the lowest and highest total carat weight of all variations. Shapes is a list of all stone shapes involved (e.g., "Round & Princess"). ALL OTHER ROWS: Leave BLANK. Timing Note: This Title must be generated <i>after</i> all variation rows for a single product (Handle) have been created, so that the minimum and maximum total carat weights can be accurately	Input.csv: Total Ct Weight, Center shape, Side X shape, Subcategory

	determined.	
Body (HTML)	<p>FIRST ROW ONLY: Create an HTML description based on the product type. ALL OTHER ROWS: Leave BLANK.</p> <p>Template for Unique Core w/ Center: <p>
Carat: cut diamonds...
Carat: cut diamonds...
</p><p>Marketing text...</p> Template for Repeating Core: <p>
Carat:...

Carat:...
</p><p>Marketing text...</p> Template for No Stones: <p>
</p><p>Marketing text...</p></p> <p>Timing Note: This Body (HTML) must be generated <i>after</i> the Title is created and all variations are processed, as it uses the final Title and may need to summarize details from multiple input rows (like for a Repeating Core).</p>	Input.csv: All Side X columns, Total Ct Weight. Generated Title column.
Vendor	FIRST ROW ONLY: Write Primestyle.com. ALL OTHER ROWS: Leave BLANK.	Hardcoded Value
Type	FIRST ROW ONLY: Combine Category and Subcategory with an underscore. Example: Rings_Engagement Rings. ALL OTHER ROWS: Leave BLANK.	Input.csv: Category, Subcategory
Tags	FIRST ROW ONLY: Combine	Input.csv: Category,

	Category, Subcategory, and the Tags from the input file. Also add tags for the carat weight ranges (e.g., tcw_1.00 CT - 2.00 CT). ALL OTHER ROWS: Leave BLANK. Timing Note: The carat weight tags (e.g., tcw_1.00 CT - 2.00 CT) must be added <i>after</i> all variations are created and their total carat weights are calculated.	Subcategory, Tags
Published	FIRST ROW ONLY: Write True. ALL OTHER ROWS: Leave BLANK.	Hardcoded Value
Image Src	FIRST ROW ONLY: The web address (URL) for the main product picture. This might need to be looked up or built from the Core Number. ALL OTHER ROWS: Leave BLANK.	External Source / Lookup
Image Position	FIRST ROW ONLY: Write 1. ALL OTHER ROWS: Leave BLANK.	Hardcoded Value
Image Alt Text	FIRST ROW ONLY: Write a short description of the image for accessibility, which can be the same as the Title. ALL OTHER ROWS: Leave BLANK.	Generated Title column

Table 3.2: Product Options (How customers choose)

Output Column Name	How to Create It (The Rule)	Where the Info Comes From
Option1 Name	FIRST ROW ONLY: Write Metal/Color. ALL OTHER	Hardcoded Value

	ROWS: Leave BLANK. (Omit for "No Stones" items).	
Option1 Value	Take the metal code from the rule book (e.g., 14W) and translate it to the full name (e.g., 14KT White Gold).	Rule Files (e.g., Labgrown.csv Col G or J)
Option2 Name	FIRST ROW ONLY: Write Total Carat. ALL OTHER ROWS: Leave BLANK. (Omit for "No Stones" items).	Hardcoded Value
Option2 Value	For Unique w/ Center: New Total Carat = (Input.Sum Side Ct) + (Rule.Center Size). Format as: X.XXCT Total (Y.YYCT Center). For Repeating/No Center: Use the Input.Total Ct Weight. Format as: X.XXCT Total.	Input.csv: Sum Side Ct, Total Ct Weight. Rule Files: Center Size rules.
Option3 Name	FIRST ROW ONLY: Write Diamond Quality. ALL OTHER ROWS: Leave BLANK. (Omit for "No Stones" items).	Hardcoded Value
Option3 Value	Take the quality code from the rule book (e.g., FG) and translate it to the full name (e.g., F-G/VS (Excellent)).	Rule Files (e.g., Labgrown.csv Col I or K)

Table 3.3: Unique Variant Details (Different for every single row)

Output Column Name	How to Create It (The Rule)	Where the Info Comes From
Variant SKU	Combine the Core Number with a dash and a number that starts at 2 and goes up for	Input.csv: Core Number

	each variation. Example: 15686LB-2, 15686LB-3, etc.	
Variant Grams	This is a calculated value for each specific variation. The Grams Weight in the input file is the base weight for 14KT gold. The weight for other metals must be looked up from a table based on the Core Number and the metal type. Example: For 15686LB, 14KT is 6.5g, 18KT is 8.0g, and Platinum is 11.5g.	Input.csv: Grams Weight & an external lookup table.
Variant Price	This is calculated based on the final Cost per item and a markup that can change by product type. Formula: (Cost per item * Markup Factor) - 0.01. The Markup Factor is a business rule. Based on the sample data, Rings and Bracelets use a markup of 2 , while Pendants use a markup of 2.5 .	Calculated Cost per item column.
Variant Compare At Price	A higher "original" price to show a discount. This is usually calculated with a business rule, like Cost per item multiplied by 4 or 5.	Calculated Cost per item column.
SEO Title	Create a descriptive title by combining the key features of this specific variation, like: CT[Metal].	Generated Option values, Input.csv values.
SEO Description	Create a detailed sentence for search engines, including total carat, quality, subcategory, diamond type, metal, and the SKU.	Generated Option values, Input.csv values, Variant SKU.

Google Shopping / MPN	This is the Manufacturer Part Number. Just copy the value from the Variant SKU column.	Generated Variant SKU column.
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Table 3.4: Standard Shopify & Google Fields (Mostly the same for all variants)

Output Column Name	How to Create It (The Rule)
Variant Inventory Tracker	Leave BLANK.
Variant Inventory Qty	Write 1.
Variant Inventory Policy	Write Continue.
Variant Fulfillment Service	Write Manual.
Variant Requires Shipping	Write True.
Variant Taxable	Write True.
Variant Barcode	Leave BLANK.
Gift Card	Write False.
Google Shopping / Google Product Category	Use a standard category based on the input file. Example: Apparel & Accessories > Jewelry > Rings.
Google Shopping / Gender	Write Female.
Google Shopping / Age Group	Write Adult.
Google Shopping / AdWords Grouping	Copy the value from the Type column.
Google Shopping / AdWords Labels	Leave BLANK.

Google Shopping / Condition	Write New.
Google Shopping / Custom Product	Write False.
Google Shopping / Custom Label 0-4	Leave all 5 of these columns BLANK.
Variant Image	Leave BLANK.
Variant Weight Unit	Write Grams.
Variant Tax Code	Leave BLANK.

Table 3.5: Cost Breakdown (Different for every single row)

Output Column Name	How to Create It (The Rule)	Where the Info Comes From
Cost per item	This is the sum of all the individual costs: Diamond Cost + Metal Cost + Side Stone + Center Stone + Polish + Bracelets + CAD Creation + 25\$.	All the other cost columns.
Product Type	Copy the value from the Type column (e.g., Rings_Engagement Rings).	Generated Type column.
Core Number	Copy the Core Number from the input file.	Input.csv: Core Number
Category	Copy the Category from the input file.	Input.csv: Category
Diamond Cost	A calculated cost based on the carat weight of the diamonds in this specific variation. This will require a pricing table (e.g., 0.5 ct =	Carat weight of the variant & an external pricing table.

	\$252.50, 1.0 ct = \$267.50, etc.).	
Metal Cost	Look up the cost based on the Core Number and the metal type for this variation (e.g., for item 15686LB, 14KT gold costs \$487.50, but 18KT gold costs \$736).	Core Number, Option1 Value, & an external pricing table.
Side Stone	This is the cost for setting the side stones. Copy the Side Stone Count from the input file.	Input.csv: Side Stone Count
Center Stone	This is a fixed cost for setting the center stone for a specific product style. This needs to be looked up. Example: For 15686LB it's always \$3.	Input.csv: Core Number & an external pricing table.
Polish	A fixed cost for polishing. Write 25.	Hardcoded Value
Bracelets	A fixed cost that only applies to bracelets. Look it up by Core Number. For most items, this will be 0.	Input.csv: Core Number & an external pricing table.
CAD Creation	A fixed cost for the design. Write 20.	Hardcoded Value
25\$	Another fixed cost. Write 25.	Hardcoded Value

Table 3.6: Extra Descriptive Columns

Output Column Name	How to Create It (The Rule)	Where the Info Comes From
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Title (duplicate)	Copy the exact same value from the main Title column at the beginning of the file.	Generated Title column.
Description (duplicate)	Create a detailed description for this specific variation, including HTML tags like and . This should list the center stone details and side stone details again.	Input.csv and generated option values.

Works cited

1. Output Test.xlsx