

Beta Design Document

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Includes supplemental documents with examples of bicycle frames by gender

Statement of Purpose

Since its advent, the bicycle has been a popular mode of transportation and recreation for commuters and health enthusiasts alike. Throughout its history, the bicycle has taken on new designs, terrains, and intended uses. Today, as the amateur cycling community grows, a cyclist can enjoy biking through the world's cities, forests, beaches, and parks. They can commute to work or trek up mountains with the aid of electric power. Bikes have been praised for their many benefits as studies have shown that this form of transportation eliminates carbon emissions, lowers risk for certain diseases like heart disease and diabetes, helps improve mental health issues, and it allows more social interactions between communities (Green, Levitt, & Sakhuls, 2021). And as more people engage and learn about the benefits of cycling, it's no wonder, the bicycle market is currently valued at \$59.33 billion dollars and is expected to increase in the coming years (McMahon, 2022).

Bicycles attract a large demographic of bike enthusiasts. For our database, our demographics are geared towards recreational or amateur users who are new to the world of bicycles, as well as more seasoned enthusiasts who are seeking out a bike that is tailored to their needs. Enthusiasts and amateurs alike can utilize this information due to the broad categories that are provided in the database. However, this database is not designed for athletes or professional users as their needs in selecting a bicycle can be too niche when compared to the average enthusiast. In addition, the information presented in the database is also not designed for

children, as children's bicycles have a greater variety of sizes and uses depending on how experienced a child is on a bicycle.

Amateurs and enthusiasts may not have a clear idea of where to start their research, so it is important for the database to include a broad range of categories to provide the best selections for our users. To meet the needs of our target audience, specific categories are included that are crucial in helping our users select a bicycle. These categories are type, gender, price range, size, bike brand, color, gears, electric, and fixed. The first three categories (type, gender, and price range) are important because they are most often considered for choosing a bicycle. By selecting the "type" category, the user will be able to filter bikes based on their intended usage, such as bikes designed for commuting or BMX bikes that are made for racing and stunts. "Gender" defines the design of the bicycle frame. Though the bicycle industry is made up of more frames designed for specific use (mountain, road, BMX, and electric) and less with an assigned gender (commuter and cruiser), the enthusiast holds antiquated knowledge from the bicycle's history, making it a priority to select a bike based on gender. Traditionally, a step-through bike frame had a "lower frame than usual along with a low-stepping pedal" that was primarily targeted towards women. The lower frame allowed women to mount the bike without lifting their leg as they typically wore dresses (O, 2021). The step over bike, or the diamond frame bike, was traditionally designed for men. Per manufacturer convention, we elected step through frames as a women's style of bicycle. Step-over bicycles will be elected as a men's bicycle. All other bicycles that do not assign a gender will be categorized as unisex. Another important category listed is the price range. "Price" is one of the key determining factors of a purchase, as an amateur or an enthusiast may not want to spend a generous sum of money on a hobby that they are just getting into. McMahon (2022) explains that the average cost for a bicycle ranges from

\$100 to \$300 in order to remain affordable for the average user (“26 Bicycle Industry Statistics”). For our price range category, the database has preselected different price ranges for the bicycles. However, the user can enter their own minimum and maximum price range that is exact for their budget.

To summarize, the rising interest in cycling has caused a new wave of amateurs and enthusiasts to enter this field of cycling. Because of this, their knowledge of bicycles may be limited or insufficient to make a formal decision on what kind of bike they need. This database is designed to help shorten that gap and allow users to make a more informed decision regarding their needs and uses for a bicycle.

Rules

Field: Type

Type: List

Required: Yes

Definition: A classification assigned by the manufacturer that describes the intended use of the bicycle.

Rule: Enter the bicycle type per manufacturer’s definition that correlates with the list values of Cruiser, Commuter, BMX, Road, Mountain and Other.

Field: Gender

Type: List

Required: Yes

Definition: A gender assigned to the bicycle describing the center design of its frame, defining whether the rider needs to step-through or over the center of the frame to mount the seat.

Rule: Enter gender assigned by the manufacturer: Women, Men, and Unisex. If gender is not assigned but a frame style is, the following frame styles will correlate to gender. Step-through = Women. Diamond, Triangle, Step-over = Male. If the bicycle is assigned a frame style that is not listed in this rule, the bicycle should be entered as Unisex. If there is no gender or frame style assigned to the bicycle, enter Unisex.

Field: Price

Type: Currency

Required: Yes

Definition: The retail price of the bicycle in US Dollars.

Rule: Use this field to record information about the price of the bicycle. Use online resources to determine its retail price. Enter the price rounded up to the nearest dollar and without using the dollar sign (example: 539.99 would be 540). If the price is in a different currency, then convert to US dollars. If no price can be easily determined, enter \$0.00.

Field: Size

Type: List

Required: Yes

Definition: The size of the bicycle determined by the rider's height.

Rule: Select the option that corresponds to the appropriate height range provided below. The range of sizes consists of the most general representation of bicycle sizes available. There are no universal sizes, per se. Bicycle size can vary depending on brand and bicycle type, therefore each entry must be made only after consulting with the manufacturer or retailer's website. If there is no size provided, select "unknown". The size/height ranges are as follows:

XS- Up to 5'3"

S- 5'4"- 5'7"

M- 5'8- 5'11"

L- 6'0" and up

Field: Brand

Type: Text

Required: Yes

Definition: The name given to the bicycle by the manufacturer.

Rule: Enter the full name of the bicycle brand given by the manufacturer.

Field: Color

Type: List

Required: Yes

Definition: The predominant color of the bicycle.

Rule: Use this field to record information about the color of the bicycle using only simple color names. For this field, the color options are red, orange, yellow, green, blue, purple, white, black, gray, silver, and gold. Determine the most prominent color as there is likely to be more than one color on the bicycle. If the color is not visually apparent, review the product web page to find the color as described by the manufacturer or retailer. If the color does not fit neatly under one color that has been listed, enter “other”.

Field: Gears

Type: Numerical

Required: Yes

Definition: A number that represents the amount of speeds a cyclist can choose from on the bicycle’s drivetrain.

Rule: Enter the number of gears defined by the manufacturer of the bicycle with the following correlating number: 1,3,7, 21. If any other gear is assigned, enter “other”. If no gear number is assigned to the bicycle enter 1.

Field: Electric

Type: Yes/No

Required: No

Definition: The bicycle is propelled using electricity.

Rule: Use this field to indicate whether the bicycle utilizes electricity to move forward, rather than with traditional gears and pedals. If it is a bicycle that is a hybrid, meaning that it is capable of both electric and human-driven propulsion, select “Yes”.

Field: Fixed Gear

Type: Yes/No

Required: No

Definition: A single speed bicycle without brakes that has a drivetrain with no free-wheel mechanism.

Rule: Enter yes or no if the manufacturer defines the bicycle or the drivetrain of the bicycle, as fixed-gear, fixed or as a fixie.

Database URL

Submission Page: <https://c8amf163.caspio.com/dp/a43cb000af832ba519ae4b81a946>

Search Page: <https://c8amf163.caspio.com/dp/a43cb000a161a39d7b164874b891>

Supplemental Documents

Male Frame: Diamond, Step-over, Triangle



Female Frame: Step-through



References

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McMahon, C. (2022). *26 Bicycle Industry Statistics [2022]: Market Size, Share, Growth, And Trends*. Zippia.com. Apr. 30, 2022

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