**Application Name**: Creating variant Bill of Material (BOM) for a Product

**Example**: <http://build-motorcycle.multitaskdesign.com/>

**Requirement Details:**

A Bill of Material (BOM) consists of list of Raw Material or Semi-Finished Materials with quantity required to build one unit of Finished Good.

There can be scenarios, where same Finished Good can be manufactured from two different processes, and entirely different sets of Raw Materials or Semi-Finished Goods. For example, Ethyl Alcohol can be manufactured from Molasses by fermentation process, or it can also be manufactured from syngas by thermo-chemical reaction. As the end product from either of the processes are same, normally the end product is treated as same Material. However, as the manufacturing process and Raw Materials are different, the Bill of Materials and Production processes are different, the Bill of Materials for these two processes are called “Alternate BOMs”.

Another scenario could be, where the same product is manufactured using a list of components, where some of the component variants are changed (colour, size, shape etc.), but remaining components remain same, and the production process flow also remains same. In such situation, different BOM’s are called variant BOM’s. It needs to be noted that, the Cost of Good Manufactured would vary depending on the component variants used, though the manufacturing cost remains same.

The requirement of this application is, the user is allowed to select each component (size, colour, shape) would vary, once section is finalized he is allowed to save a “Variant BOM” for the Finished Good (with his own specifications).

**Data Creation on SAP:**

For each of the components identified, a “Material Type” needs to be created, and for each variant of the component a “Material” needs to be created. For example, for manufacturing a Bi-Cycle, let’s consider components identified are Handle, Wheel Assembly, Fork and Pedal Assembly. Therefore, the Material Master Data would look like:

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl No.** | **Material Description** | **Price** | **Material Type** |
| 1 | Handle Bar Steel – Long | INR 753.00 | Handle |
| 2 | Handle Bar Steel – Short | INR 638.00 | Handle |
| 3. | Handle Bar Iron – Black Long | INR 325.00 | Handle |
| 4. | Handle Bar – Iron Black – Short | Rs. 280.00 | Handle |
| 5 | Tubeless Wheel Assembly 24” | INR 750.00 | Wheel |
| 6 | Tubeless Wheel Assembly 22” | INR 725.00 | Wheel |
| 7 | Wheel Assembly with Tube 24” | INR. 650.00 | Wheel |
| 8. | Wheel Assembly with Tube 22” | INR 600.00 | Wheel |

**Master Data Bill of Material**

**Finished Good Name:** Bi-Cycle

**BOM Type:** 1 (Production BOM) \*\*

**Material Components**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl No.** | **Material Description** | **Quantity** | **Unit of Measure** |
| 1 | Handle Bar Steel – Long | 1 | PC |
| 2 | Tubeless Wheel Assembly 24” | 2 | PC |
| 3 | Fork – Steel Black | 1 | PC |
| 3 | Pedal Assembly | 1 | PC |

\*\* Any BOM created afterwards for the same material would be created as BOM Type 2 (Design BOM), while manufacturing the required BOM needs to be changed to Production BOM.

**Front End Display:**

As the component types are known, for each of the component a pull down list can be designed. List header would be “Material Type” already created. For example:

|  |
| --- |
| **Handle** |
| Handle Bar – Steel Short  Handle Bar – Steel Long  Handle Bar – Iron Black Long  Handle Bar – Iron Black Short |

Based on the Material Selected, a Variant BOM needs to be saved for the Material “Bi-Cycle”