**Introduction**

Welcome to Inventory Manager. The purpose of this program is to create and maintain a small database of inventory items. The inventory items are stored in text files, which are organized by a key value. How, exactly, does a database function?

In a relational database, everything is organized in tables. A table is divided into rows and columns. A row represents a single entity in a database, and the columns represent the attributes of the entity. Each column represents a specific characteristic. A row in a database is a collection of values in each column. Each characteristic is a descriptor of an entity. In a relational database, the first column is known as the primary key. The primary key value for an entity must be unique, because it is the identifier for an entity in a relational database.

This program is used to maintain an incredibly basic relational database of inventory items. The columns for the database are limited to pre-defined characteristics. Each item in the database has an SKU, which acts as the primary key, a name, a department, a quantity, a price per unit of quantity, and a value that is based upon quantity and the price per unit of quantity. Let us begin by explaining the interface for the program.

**File Location**

Inventories are contained with text files (i.e., notepad files). The files are located in a sub-folder that is contained within the main folder of the Inventory Manager program. The sub-folder is called “Inventory Files.” For the program to function properly, the name of this folder must not be changed.

**Interface**

The interface of Inventory Manager is made of two windows: an output window and an input window. The output window displays the inventory for a file in a formatted table. At the bottom of each formatted table is the total value of all inventory items within a file. Error messages will also be displayed in the output window. Error messages will appear when the input for the program is invalid.

The input window contains everything that is needed for maintaining a basic inventory database. The first two lines are for file names. The first line is for the main file, from which the inventory will be collected and saved, and the second line is for a copy file, for when the main file is copied to a secondary file. The next five lines are used for inventory item values. The first line is for the SKU of the inventory item, which is the primary key of the database. It must be four characters long. The second line is for the name of the inventory item. The third line is for the department of the inventory item. The fourth line is for the quantity of the inventory item. The fifth line is for the price per unit of quantity of the inventory item. The sixth inventory value, which is the total monetary value of the inventory item, is calculated by multiplying the quantity of the inventory item by the price per unit of quantity of the inventory item.

Beneath the input lines are the buttons. The buttons cover the vital functions of the program. The “New File” button creates a new file. The “Copy File” button creates a copy of file. The “Open File” button displays the inventory of a file in the output window. The “Add To File” button adds a new inventory item to a file while also displaying the changed inventory in the output window. The “Delete From File” button removes an inventory item from a file while also displaying the changed inventory in the output window. The “Close Program” button closes both windows of the program. Each button will be explained below.

**Button Functions**

**New File**

This button creates a new file for inventory items. To create a new file, enter the desired name of the file in the main file entry field. Click the “New File” button to create a new file with the filename in the entry field. The main file entry field must not be left empty. The main file entry field must also not contain spaces or the following characters:

/ \ ? % \* : | " < > . , ; =

Do not add an extension to the desired filename. The correct file extension is automatically added by the program.

**Copy File**

This button copies the contents of a file to a different file. To create a copy, enter the name of the original file in the main file entry field, then enter the desired name of the copy file in the copy file entry field. If a copy file with the desired filename does not exist, a new file with the filename will automatically be created. The same limitations for the main file entry field also apply to the copy file entry field. Once the name of the original file is in the main file entry field, and once the desired name of the copy file is in the copy file entry field, click the “Copy File” button to copy the contents of the original file to the copy file. The filename in the main file entry field must match the filename of a file that actually exists for the function to work properly.

If a copy filename is identical to the filename of a pre-existing file, the copy file will replace the pre-existing file. Be sure to check the “Inventory Files” sub-folder for filenames that are already used, and be sure to use distinctive filenames.

**Open File**

This button obtains the inventory from a file and displays the inventory to the output window. The total value of the inventory from the file is displayed in the final line of the output window. The inventory is displayed as a formatted table.

To display the inventory of a file, enter the name of the file in the main file entry field. The previous limitations for the main file entry field are still relevant. The file must also actually exist, meaning that main file entry field must contain the name of an actual file. Once the name of the desired file is entered into the main file entry field, click the “Open File” button.

**Add To File**

This button adds an inventory item to a file and displays the changed inventory to the output window. The total value of the inventory from the file is displayed in the final line of the output window. The inventory is displayed as a formatted table.

To add to the inventory of a file, enter the name of the file in the main file entry field. The previous limitations for the main file entry field are still relevant. The file must also actually exist, meaning that main file entry field must contain the name of an actual file.

The entry fields for the inventory item values of SKU, name, department, quantity, and price per quantity must also be filled. As with the file entry fields, there are limitations to valid input for each inventory value entry field. The inventory value entry fields must contain no spaces. The inventory value entry fields for quantity and price must contain digits only, meaning that all entered values must be rounded to the nearest whole number. The SKU must be four characters long. The name must be less than 11 characters, as does the department. Quantity and price must be fewer than 11 digits.

If an inventory item with the same SKU as a previous inventory item is added to the file, it will automatically the replace the previous inventory item. To avoid replacing inventory items in a file, it is advised to open an inventory file before adding an inventory item to the file. Check the SKU values in the file to ensure that an SKU value is unique for a new inventory item.

After the main file entry field and inventory value entry fields are correctly filled, click the “Add To File” button to add the new inventory item to the file. The changed inventory will be displayed in the output window, to confirm the change in the file.

**Delete From File**

This button removes an inventory item from a file and displays the changed inventory in the output window. The total value of the inventory from the file is displayed in the final line of the output window. The inventory is displayed as a formatted table.

To remove an item from the inventory of a file, enter the name of the file in the main file entry field. The previous limitations for the main file entry field are still relevant. The file must also actually exist, meaning that main file entry field must contain the name of an actual file.

The SKU of the item must be in the SKU entry field. The SKU must exist in the file for the inventory item to be removed. After the main file entry field and SKU entry field are correctly filled, click the “Delete From Inventory” button to remove the item from the file. The changed inventory will be displayed in the output window, to confirm the change in the file.

**Close Program**

This button closes the program. To close both windows of the program simultaneously, click the “Close Program” button.