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# Introduction

Managing inventory effectively is crucial for the smooth operation of any retail business. This computer science project aims to develop a robust inventory management system for a clothing store, leveraging the capabilities of MySQL for database management and Python for backend processing and user interface.

The system is designed to handle several key functions essential for the day-to-day operations of a clothing store. Including:

* **Product Sorting Based on User Preferences**: Users can sort products according to their preferences such as size, color, price, and brand. This functionality enhances the shopping experience by allowing customers to quickly find items that match their criteria.
* **Cart Management**: A secondary table in the MySQL database is used to manage user carts. Customers can add products to their cart, update the cart by inserting or deleting items, and proceed to checkout when they are ready to make a purchase.
* **Checkout Process**: During the checkout process, the system verifies the availability of the products in the inventory. Upon successful checkout, the inventory in the primary table is updated by decrementing the quantity of each purchased item by one.

# Features:

1. **Inventory Management**:

* A table in MySQL stores product details including ID, name, size, color, price, brand, and availability.
* Queries allow for sorting products based on various attributes, ensuring customers can easily find items that match their preferences.

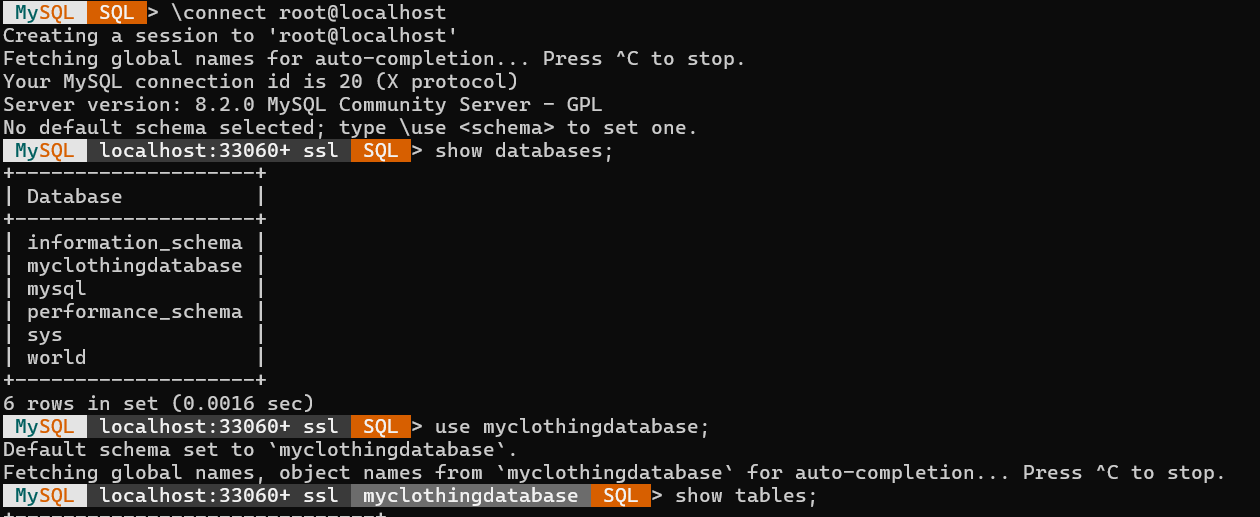
1. Add to Cart feature:

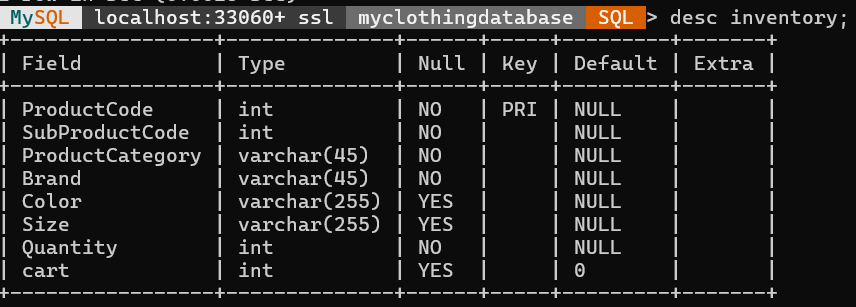
* A secondary table in MySQL manages user carts.
* Users can add items to their cart, remove items, and update quantities as needed.
* The system ensures data consistency and integrity by synchronizing the cart with the inventory in real-time.

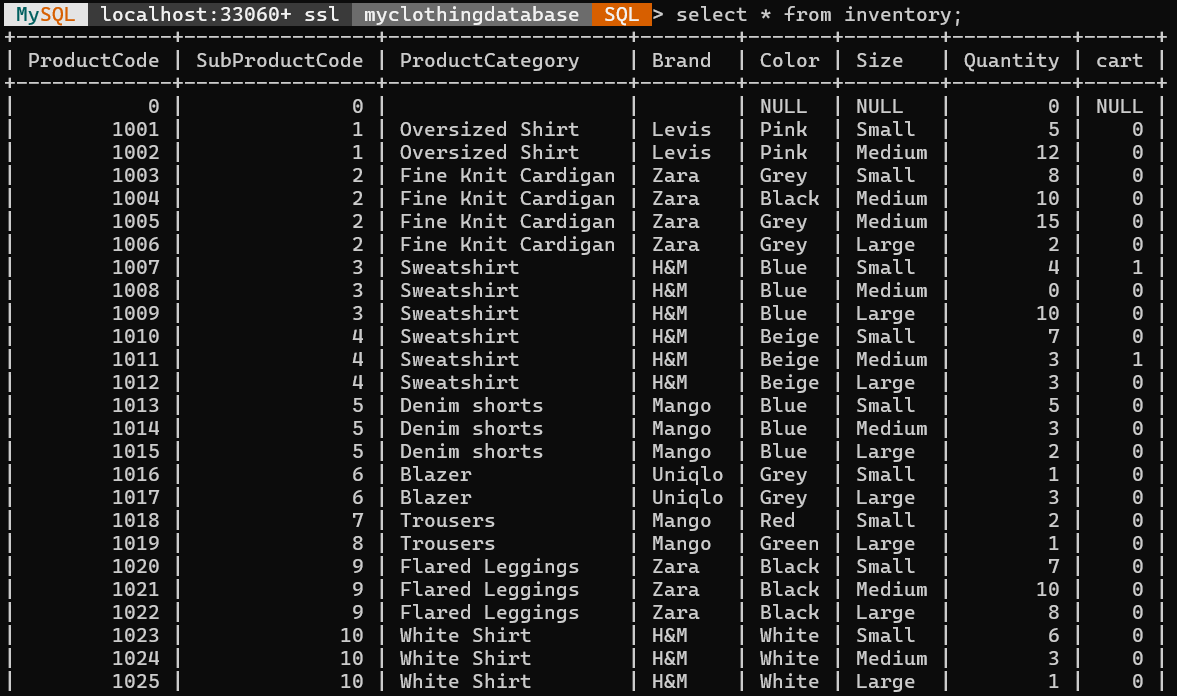
1. **Checkout Process**:

* During checkout, the system checks the availability of each item in the user’s cart.
* If all items are available, the purchase is processed, and the inventory table is updated.
* The quantity of each purchased item is reduced by one, ensuring accurate inventory tracking.

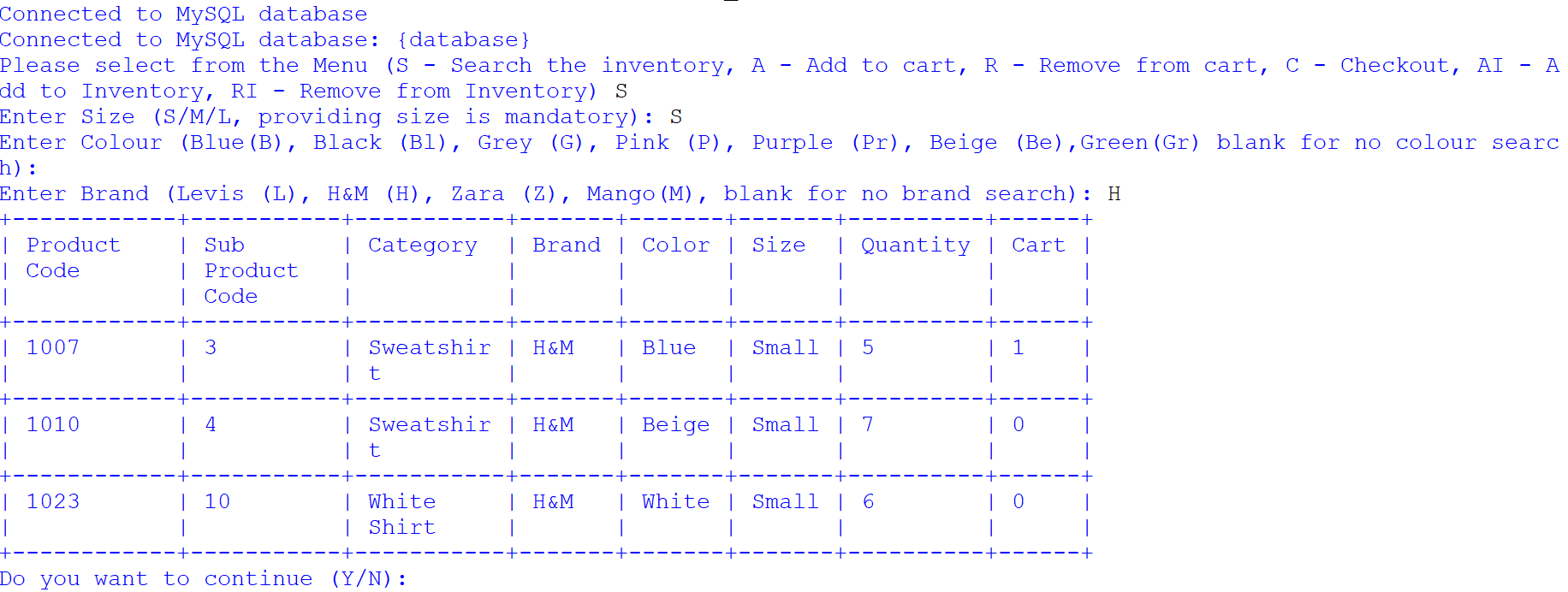
# Mysql tables

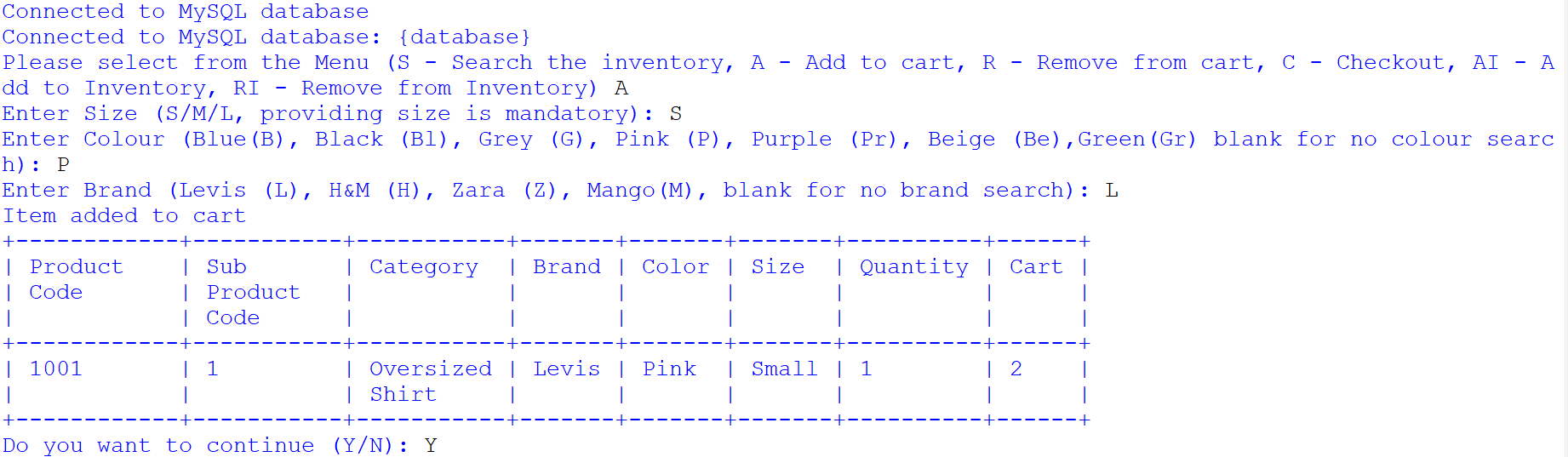


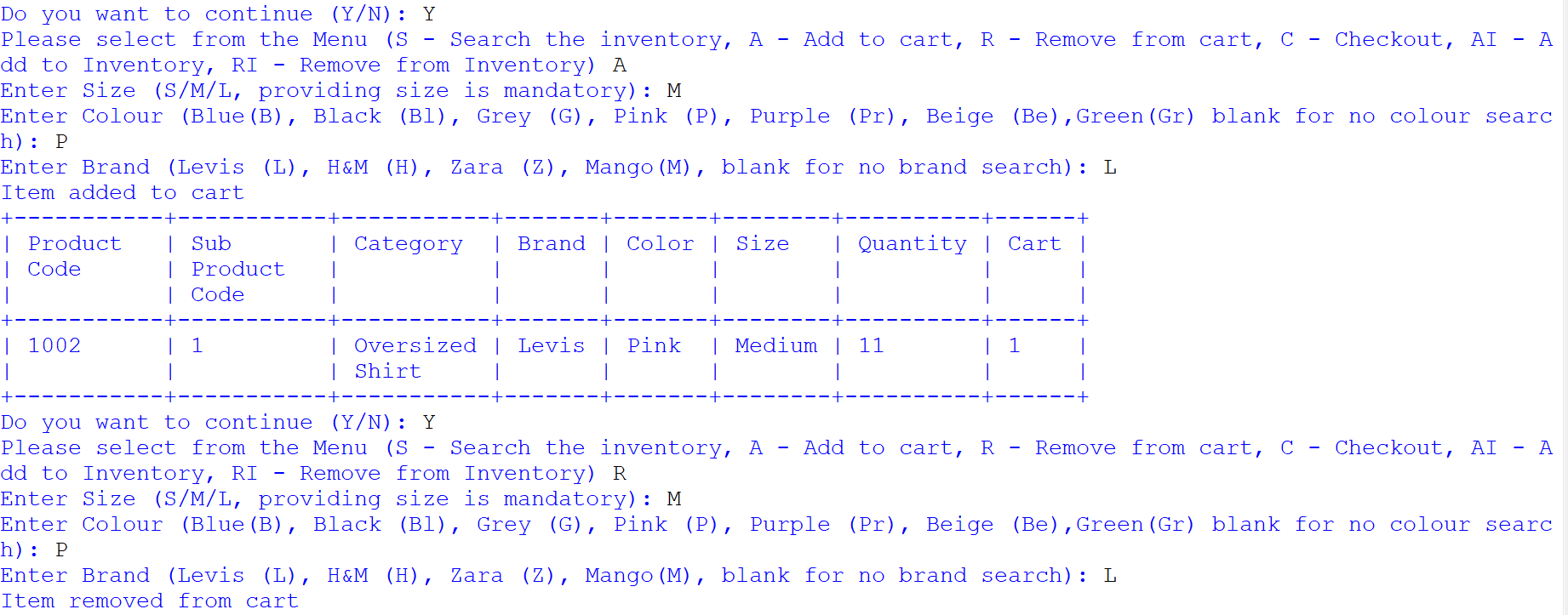


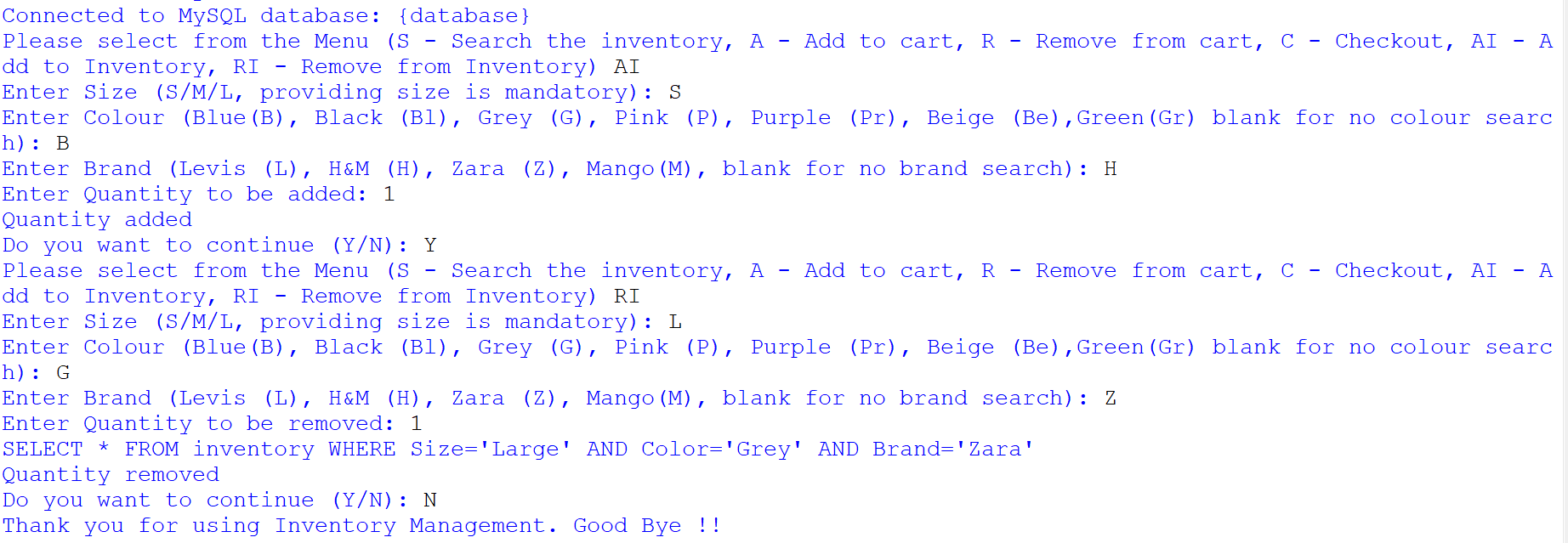


# Output

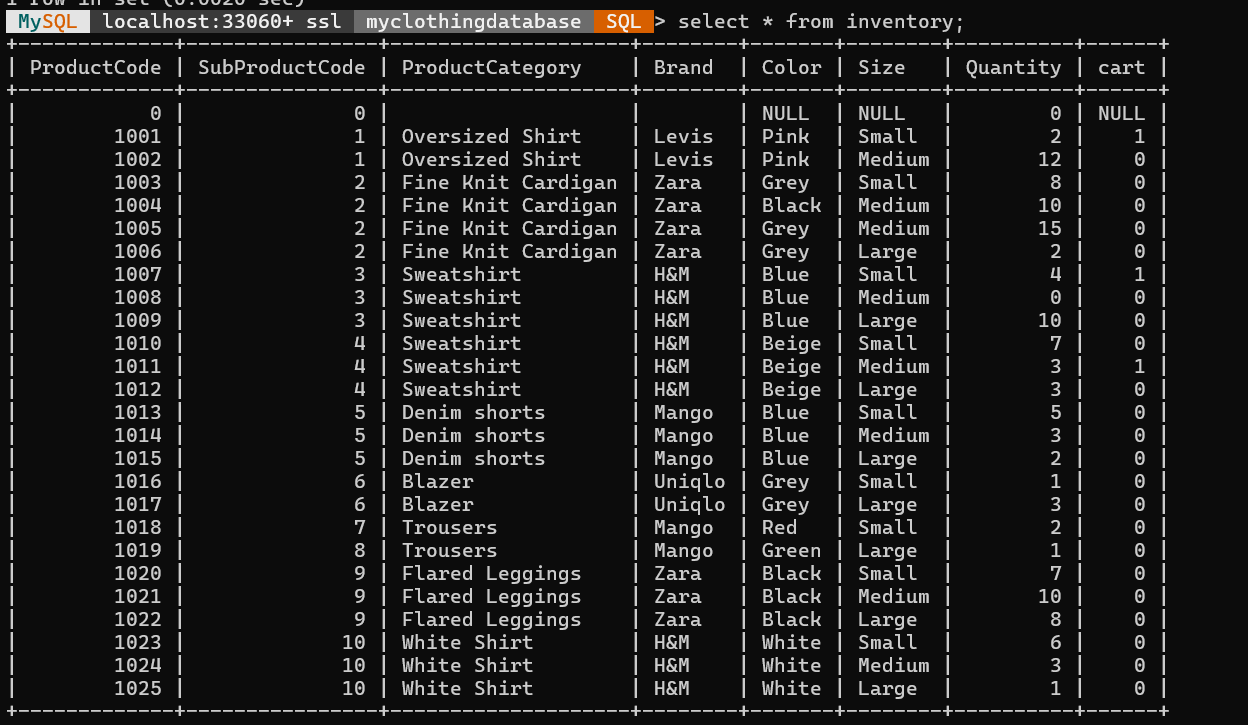




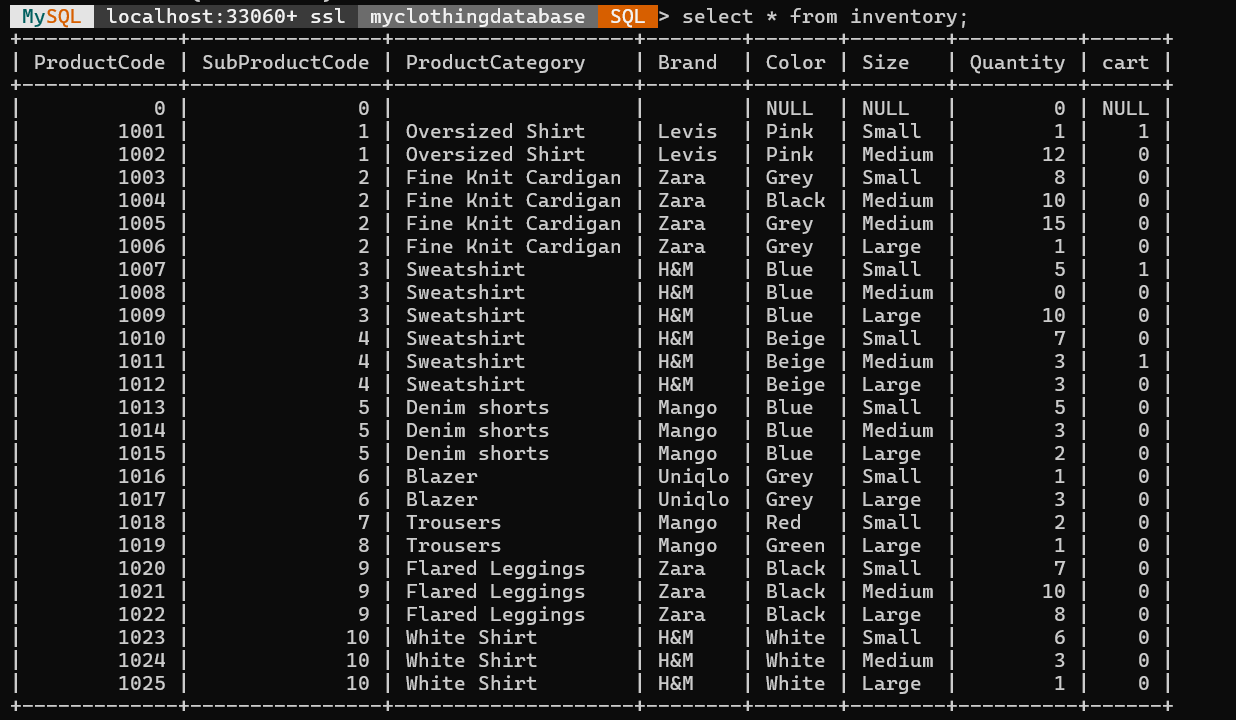




Before this prompt:



After:



# Project Code

Python:

import mysql.connector

import pandas as pd

# Entering SQL info

host = 'localhost'

user = 'root'

password = 'Amit$1609'

database = 'myclothingdatabase'

continueloop = "Y"

try:

connection = mysql.connector.connect(

host=host,

user=user,

password=password,

database=database

)

if connection.is\_connected():

print("Connected to MySQL database")

if connection.is\_connected():

print("Connected to MySQL database: {database}")

# Interacting with database

#SQuery = "SELECT \* FROM inventory"

# cursor = connection.cursor()

while (continueloop =="Y" or continueloop =="y"):

# Interacting with database

SQuery = "SELECT \* FROM inventory"

cursor = connection.cursor()

inputmenu = input("Please select from the Menu (S - Search the inventory, A - Add to cart, R - Remove from cart, C - Checkout, AI - Add to Inventory, RI - Remove from Inventory) ")

if (inputmenu == "S" or inputmenu == "s"):

inputsize = input("Enter Size (S/M/L, providing size is mandatory): ")

inputcolour = input("Enter Colour (Blue(B), Black (Bl), Grey (G), Pink (P), Purple (Pr), Beige (Be),Green(Gr) blank for no colour search): ")

inputbrand = input("Enter Brand (Levis (L), H&M (H), Zara (Z), Mango(M), blank for no brand search): ")

#size

if (inputsize =="S" or inputsize =="s"):

isize = "Small"

elif (inputsize=="M" or inputsize =="m"):

isize="Medium"

elif (inputsize=="L" or inputsize =="l"):

isize="Large"

elif (inputsize==""):

isize=""

#colour

if (inputcolour=="B" or inputcolour=="b"):

icolour="Blue"

elif (inputcolour=="Bl" or inputcolour=="b1"):

icolour="Black"

elif (inputcolour=="G" or inputcolour=="g"):

icolour="Grey"

elif (inputcolour=="P" or inputcolour=="p"):

icolour="Pink"

elif (inputcolour=="Pr" or inputcolour=="pr"):

icolour="Purple"

elif (inputcolour=="Be" or inputcolour=="be"):

icolour="Beige"

elif (inputcolour=="Gr" or inputcolour=="gr"):

icolour="Green"

elif inputcolour=="":

icolour=""

# Brand

if (inputbrand=="L" or inputbrand=="l"):

ibrand="Levis"

elif (inputbrand=="H" or inputbrand=="h"):

ibrand="H&M"

elif (inputbrand=="Z" or inputbrand=="z"):

ibrand="Zara"

elif (inputbrand=="M" or inputbrand=="m"):

ibrand=="Mango"

elif inputbrand=="":

ibrand=""

if (isize!=""):

SQuery = SQuery + " WHERE Size='"+isize+"'"

if (icolour!=""):

SQuery = SQuery + " AND Color='"+icolour+"'"

if (ibrand!=""):

SQuery = SQuery + " AND Brand='"+ibrand+"'"

# SELECT QUERY

cursor.execute(SQuery)

# Fetching all the rows

results = cursor.fetchall()

if (len(results)==0):

print("No match found for the given search")

# Printing the result

else:

from texttable import Texttable

t = Texttable()

t.add\_row(["Product Code","Sub Product Code","Category","Brand","Color","Size","Quantity","Cart"])

for row in results:

t.add\_row(row)

print(t.draw())

elif (inputmenu == "A" or inputmenu == "a"):

SQuery = "SELECT \* FROM inventory"

UQuery = "UPDATE inventory SET cart = cart + 1, Quantity = Quantity - 1"

cursor = connection.cursor()

inputsize = input("Enter Size (S/M/L, providing size is mandatory): ")

inputcolour = input("Enter Colour (Blue(B), Black (Bl), Grey (G), Pink (P), Purple (Pr), Beige (Be),Green(Gr) blank for no colour search): ")

inputbrand = input("Enter Brand (Levis (L), H&M (H), Zara (Z), Mango(M), blank for no brand search): ")

#size

if (inputsize =="S" or inputsize =="s"):

isize = "Small"

elif (inputsize=="M" or inputsize =="m"):

isize="Medium"

elif (inputsize=="L" or inputsize =="l"):

isize="Large"

elif (inputsize==""):

isize=""

#colour

if (inputcolour=="B" or inputcolour=="b"):

icolour="Blue"

elif (inputcolour=="Bl" or inputcolour=="b1"):

icolour="Black"

elif (inputcolour=="G" or inputcolour=="g"):

icolour="Grey"

elif (inputcolour=="P" or inputcolour=="p"):

icolour="Pink"

elif (inputcolour=="Pr" or inputcolour=="pr"):

icolour="Purple"

elif (inputcolour=="Be" or inputcolour=="be"):

icolour="Beige"

elif (inputcolour=="Gr" or inputcolour=="gr"):

icolour="Green"

elif inputcolour=="":

icolour=""

# Brand

if (inputbrand=="L" or inputbrand=="l"):

ibrand="Levis"

elif (inputbrand=="H" or inputbrand=="h"):

ibrand="H&M"

elif (inputbrand=="Z" or inputbrand=="z"):

ibrand="Zara"

elif (inputbrand=="M" or inputbrand=="m"):

ibrand=="Mango"

elif inputbrand=="":

ibrand=""

if (isize!=""):

SQuery = SQuery + " WHERE Size='"+isize+"'"

UQuery = UQuery + " WHERE Size='"+isize+"'"

if (icolour!=""):

SQuery = SQuery + " AND Color='"+icolour+"'"

UQuery = UQuery + " AND Color='"+icolour+"'"

if (ibrand!=""):

SQuery = SQuery + " AND Brand='"+ibrand+"'"

UQuery = UQuery + " AND Brand='"+ibrand+"'"

# SELECT QUERY

cursor.execute(SQuery)

# Fetching all the rows

results = cursor.fetchall()

if (len(results)==1):

for row in results:

quantity = row[6]

cart = row[7]

if (quantity > cart):

cursor.execute(UQuery)

connection.commit()

print ("Item added to cart")

# Printing the result

cursor.execute(SQuery)

results = cursor.fetchall()

from texttable import Texttable

t = Texttable()

t.add\_row(["Product Code","Sub Product Code","Category","Brand","Color","Size","Quantity","Cart"])

for row in results:

t.add\_row(row)

print(t.draw())

else:

print ("No available quantity to add to cart !!")

else:

print("Multiple/No matches found. No action taken !!")

elif (inputmenu == "R" or inputmenu == "r"):

SQuery = "SELECT \* FROM inventory"

UQuery = "UPDATE inventory SET cart = cart - 1, Quantity = Quantity + 1"

cursor = connection.cursor()

inputsize = input("Enter Size (S/M/L, providing size is mandatory): ")

inputcolour = input("Enter Colour (Blue(B), Black (Bl), Grey (G), Pink (P), Purple (Pr), Beige (Be),Green(Gr) blank for no colour search): ")

inputbrand = input("Enter Brand (Levis (L), H&M (H), Zara (Z), Mango(M), blank for no brand search): ")

#size

if (inputsize =="S" or inputsize =="s"):

isize = "Small"

elif (inputsize=="M" or inputsize =="m"):

isize="Medium"

elif (inputsize=="L" or inputsize =="l"):

isize="Large"

elif (inputsize==""):

isize=""

#colour

if (inputcolour=="B" or inputcolour=="b"):

icolour="Blue"

elif (inputcolour=="Bl" or inputcolour=="b1"):

icolour="Black"

elif (inputcolour=="G" or inputcolour=="g"):

icolour="Grey"

elif (inputcolour=="P" or inputcolour=="p"):

icolour="Pink"

elif (inputcolour=="Pr" or inputcolour=="pr"):

icolour="Purple"

elif (inputcolour=="Be" or inputcolour=="be"):

icolour="Beige"

elif (inputcolour=="Gr" or inputcolour=="gr"):

icolour="Green"

elif inputcolour=="":

icolour=""

# Brand

if (inputbrand=="L" or inputbrand=="l"):

ibrand="Levis"

elif (inputbrand=="H" or inputbrand=="h"):

ibrand="H&M"

elif (inputbrand=="Z" or inputbrand=="z"):

ibrand="Zara"

elif (inputbrand=="M" or inputbrand=="m"):

ibrand=="Mango"

elif inputbrand=="":

ibrand=""

if (isize!=""):

SQuery = SQuery + " WHERE Size='"+isize+"'"

UQuery = UQuery + " WHERE Size='"+isize+"'"

if (icolour!=""):

SQuery = SQuery + " AND Color='"+icolour+"'"

UQuery = UQuery + " AND Color='"+icolour+"'"

if (ibrand!=""):

SQuery = SQuery + " AND Brand='"+ibrand+"'"

UQuery = UQuery + " AND Brand='"+ibrand+"'"

# SELECT QUERY

cursor.execute(SQuery)

# Fetching all the rows

results = cursor.fetchall()

if (len(results)==1):

print("Item removed from cart")

cursor.execute(UQuery)

connection.commit()

# Printing the result

cursor.execute(SQuery)

results = cursor.fetchall()

from texttable import Texttable

t = Texttable()

t.add\_row(["Product Code","Sub Product Code","Category","Brand","Color","Size","Quantity","Cart"])

for row in results:

t.add\_row(row)

print(t.draw())

else:

print("Multiple/No matches found")

elif (inputmenu == "C" or inputmenu == "c"):

SQuery = "SELECT \* FROM inventory"

UQuery = "UPDATE inventory SET cart = cart - 1"

cursor = connection.cursor()

inputsize = input("Enter Size (S/M/L, providing size is mandatory): ")

inputcolour = input("Enter Colour (Blue(B), Black (Bl), Grey (G), Pink (P), Purple (Pr), Beige (Be),Green(Gr) blank for no colour search): ")

inputbrand = input("Enter Brand (Levis (L), H&M (H), Zara (Z), Mango(M), blank for no brand search): ")

#size

if (inputsize =="S" or inputsize =="s"):

isize = "Small"

elif (inputsize=="M" or inputsize =="m"):

isize="Medium"

elif (inputsize=="L" or inputsize =="l"):

isize="Large"

elif (inputsize==""):

isize=""

#colour

if (inputcolour=="B" or inputcolour=="b"):

icolour="Blue"

elif (inputcolour=="Bl" or inputcolour=="b1"):

icolour="Black"

elif (inputcolour=="G" or inputcolour=="g"):

icolour="Grey"

elif (inputcolour=="P" or inputcolour=="p"):

icolour="Pink"

elif (inputcolour=="Pr" or inputcolour=="pr"):

icolour="Purple"

elif (inputcolour=="Be" or inputcolour=="be"):

icolour="Beige"

elif (inputcolour=="Gr" or inputcolour=="gr"):

icolour="Green"

elif inputcolour=="":

icolour=""

# Brand

if (inputbrand=="L" or inputbrand=="l"):

ibrand="Levis"

elif (inputbrand=="H" or inputbrand=="h"):

ibrand="H&M"

elif (inputbrand=="Z" or inputbrand=="z"):

ibrand="Zara"

elif (inputbrand=="M" or inputbrand=="m"):

ibrand=="Mango"

elif inputbrand=="":

ibrand=""

if (isize!=""):

SQuery = SQuery + " WHERE Size='"+isize+"'"

UQuery = UQuery + " WHERE Size='"+isize+"'"

if (icolour!=""):

SQuery = SQuery + " AND Color='"+icolour+"'"

UQuery = UQuery + " AND Color='"+icolour+"'"

if (ibrand!=""):

SQuery = SQuery + " AND Brand='"+ibrand+"'"

UQuery = UQuery + " AND Brand='"+ibrand+"'"

# SELECT QUERY

cursor.execute(SQuery)

# Fetching all the rows

results = cursor.fetchall()

if (len(results)==1):

print("Item checked out. Thank you for shopping !!")

cursor.execute(UQuery)

connection.commit()

else:

print("Multiple/No matches found")

elif (inputmenu == "AI" or inputmenu == "ai"):

SQuery = "SELECT \* FROM inventory"

inputsize = input("Enter Size (S/M/L, providing size is mandatory): ")

inputcolour = input("Enter Colour (Blue(B), Black (Bl), Grey (G), Pink (P), Purple (Pr), Beige (Be),Green(Gr) blank for no colour search): ")

inputbrand = input("Enter Brand (Levis (L), H&M (H), Zara (Z), Mango(M), blank for no brand search): ")

inputqty = input("Enter Quantity to be added: ")

UQuery = "UPDATE inventory SET Quantity = Quantity + "+inputqty

cursor = connection.cursor()

#size

if (inputsize =="S" or inputsize =="s"):

isize = "Small"

elif (inputsize=="M" or inputsize =="m"):

isize="Medium"

elif (inputsize=="L" or inputsize =="l"):

isize="Large"

elif (inputsize==""):

isize=""

#colour

if (inputcolour=="B" or inputcolour=="b"):

icolour="Blue"

elif (inputcolour=="Bl" or inputcolour=="b1"):

icolour="Black"

elif (inputcolour=="G" or inputcolour=="g"):

icolour="Grey"

elif (inputcolour=="P" or inputcolour=="p"):

icolour="Pink"

elif (inputcolour=="Pr" or inputcolour=="pr"):

icolour="Purple"

elif (inputcolour=="Be" or inputcolour=="be"):

icolour="Beige"

elif (inputcolour=="Gr" or inputcolour=="gr"):

icolour="Green"

elif inputcolour=="":

icolour=""

# Brand

if (inputbrand=="L" or inputbrand=="l"):

ibrand="Levis"

elif (inputbrand=="H" or inputbrand=="h"):

ibrand="H&M"

elif (inputbrand=="Z" or inputbrand=="z"):

ibrand="Zara"

elif (inputbrand=="M" or inputbrand=="m"):

ibrand=="Mango"

elif inputbrand=="":

ibrand=""

if (isize!=""):

SQuery = SQuery + " WHERE Size='"+isize+"'"

UQuery = UQuery + " WHERE Size='"+isize+"'"

if (icolour!=""):

SQuery = SQuery + " AND Color='"+icolour+"'"

UQuery = UQuery + " AND Color='"+icolour+"'"

if (ibrand!=""):

SQuery = SQuery + " AND Brand='"+ibrand+"'"

UQuery = UQuery + " AND Brand='"+ibrand+"'"

# SELECT QUERY

cursor.execute(SQuery)

# Fetching all the rows

results = cursor.fetchall()

if (len(results)==1):

for row in results:

cursor.execute(UQuery)

connection.commit()

print ("Quantity added")

else:

print("Multiple/No matches found. No action taken !!")

elif (inputmenu == "RI" or inputmenu == "ri"):

SQuery = "SELECT \* FROM inventory"

inputsize = input("Enter Size (S/M/L, providing size is mandatory): ")

inputcolour = input("Enter Colour (Blue(B), Black (Bl), Grey (G), Pink (P), Purple (Pr), Beige (Be),Green(Gr) blank for no colour search): ")

inputbrand = input("Enter Brand (Levis (L), H&M (H), Zara (Z), Mango(M), blank for no brand search): ")

inputqty = input("Enter Quantity to be removed: ")

UQuery = "UPDATE inventory SET Quantity = Quantity - "+inputqty

cursor = connection.cursor()

#size

if (inputsize =="S" or inputsize =="s"):

isize = "Small"

elif (inputsize=="M" or inputsize =="m"):

isize="Medium"

elif (inputsize=="L" or inputsize =="l"):

isize="Large"

elif (inputsize==""):

isize=""

#colour

if (inputcolour=="B" or inputcolour=="b"):

icolour="Blue"

elif (inputcolour=="Bl" or inputcolour=="b1"):

icolour="Black"

elif (inputcolour=="G" or inputcolour=="g"):

icolour="Grey"

elif (inputcolour=="P" or inputcolour=="p"):

icolour="Pink"

elif (inputcolour=="Pr" or inputcolour=="pr"):

icolour="Purple"

elif (inputcolour=="Be" or inputcolour=="be"):

icolour="Beige"

elif (inputcolour=="Gr" or inputcolour=="gr"):

icolour="Green"

elif inputcolour=="":

icolour=""

# Brand

if (inputbrand=="L" or inputbrand=="l"):

ibrand="Levis"

elif (inputbrand=="H" or inputbrand=="h"):

ibrand="H&M"

elif (inputbrand=="Z" or inputbrand=="z"):

ibrand="Zara"

elif (inputbrand=="M" or inputbrand=="m"):

ibrand=="Mango"

elif inputbrand=="":

ibrand=""

if (isize!=""):

SQuery = SQuery + " WHERE Size='"+isize+"'"

UQuery = UQuery + " WHERE Size='"+isize+"'"

if (icolour!=""):

SQuery = SQuery + " AND Color='"+icolour+"'"

UQuery = UQuery + " AND Color='"+icolour+"'"

if (ibrand!=""):

SQuery = SQuery + " AND Brand='"+ibrand+"'"

UQuery = UQuery + " AND Brand='"+ibrand+"'"

# SELECT QUERY

cursor.execute(SQuery)

# Fetching all the rows

results = cursor.fetchall()

if (len(results)==1):

for row in results:

cursor.execute(UQuery)

connection.commit()

print ("Quantity removed")

else:

print("Multiple/No matches found. No action taken !!")

continueloop = input("Do you want to continue (Y/N): ")

print("Thank you for using Inventory Management. Good Bye !!")

except mysql.connector.Error as err:

print(f"Error: {err}")

finally:

# Closing the connection in the end

if 'connection' in locals() and connection.is\_connected():

connection.close()

# Hardware & Software Requirements

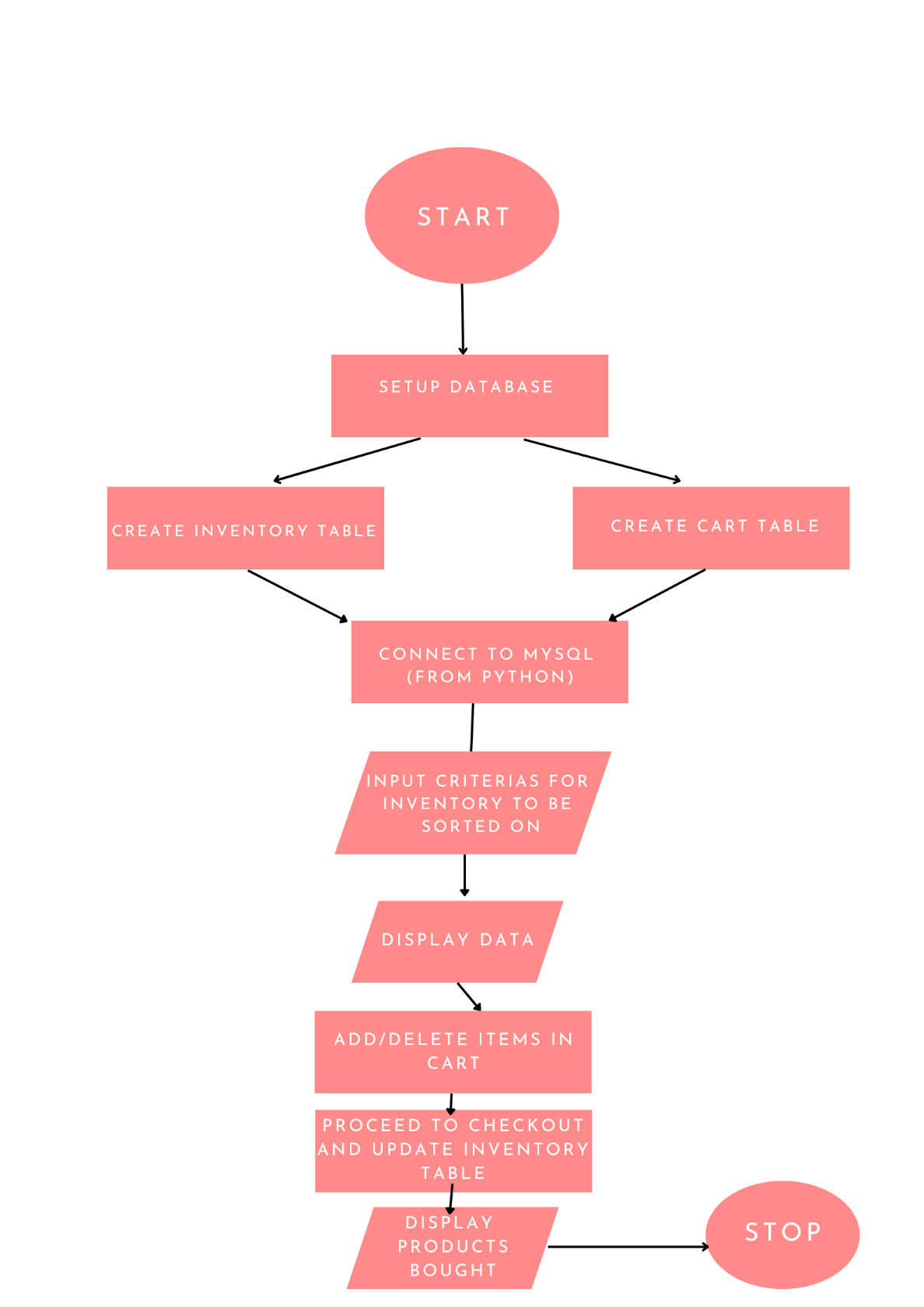
SOFTWARE LINKS:

* Download Link Python: <https://www.python.org/>
* Download Link for MySQL Server: <https://dev.mysql.com/downloads/mysql/>
* Download Link for SQLite: <https://www.sqlite.org/download.html>

MINIMUM SYSTEM REQUIREMENTS:

* Processors: Intel® Core™ i3 processor or above
* Disk space: 1 GB or above
* Operating systems: Windows 8 or above
* Python: Version 3.7.4 or above
* MySQL Server: Version 5.1 or above

# Project flow diagram:

****

# Flow chart detail:

The algorithmic flow chart outlines the development and operation of an inventory management system for a clothing store, utilizing MySQL for database management and Python for backend processing and user interface. The process begins with the initialization of the project (Start) and setting up the MySQL database. The database setup involves creating two essential tables: one for inventory management and another for user carts.

Next, Python is integrated to connect with the MySQL database, followed by the implementation of Create, Read, Update and Delete operations to manage data effectively. A product sorting algorithm is then implemented to allow users to sort products based on their preferences, enhancing the user experience.

The user interface, developed in Python, displays the sorted products and enables users to add or delete items in their cart. Upon proceeding to checkout, the system verifies the availability of the products. If the items are available, the inventory is updated by decrementing the quantity of each purchased item by one, ensuring real-time inventory tracking.

The flow chart ensures a systematic approach to developing the inventory management system, covering all critical aspects from database setup to real-time inventory updates, providing an efficient user experience.

# Bibliography:

ONLINE RESOURCES:

* <https://www.python.org/>
* <https://www.youtube.com/codepython>

REFERENCE BOOKS:

* Computer Science with Python by Preeti Arora
* Computer Science with Python by Sumita Arora