CST1510 – Vending Machine Project

Problem Analysis

Functional Requirements

The system must:

- Provide client with a diverse range of train tickets
- Display products and prices
- Allow client to add multiple products to one transaction and void transaction
- Accept coin and cash payment
- Dispense the products to the client based on transaction if the client has sufficient funds

Non-Functional Requirements

The system should be:

- Available 24/7

Use Cases:

Title: Checks Availability

Primary Actor: Customer

Success Scenario: Customer checks availability of the product. Client system sends availability request to the server. Server queries DBMS and send data back to the client.

Title: Buy Product

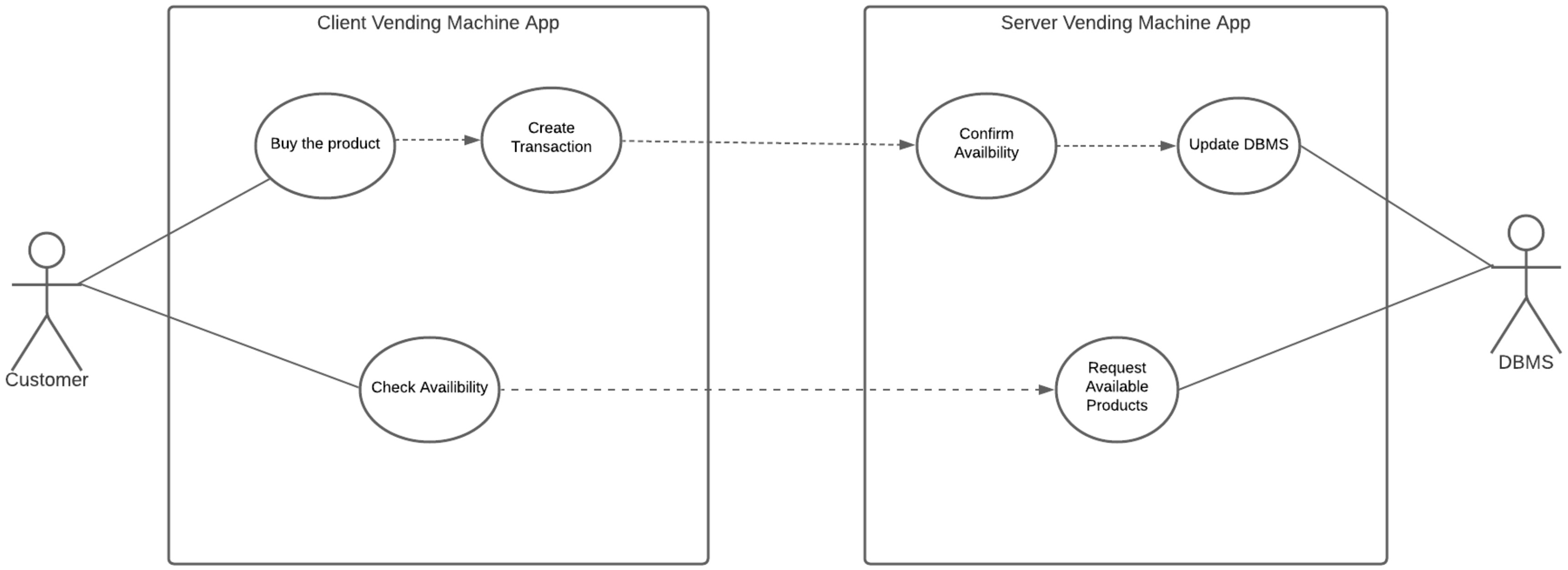
Primary Actor: Customer

Success Scenario: Customer selects the product. Client system identifies the name of the product, quantity, the price and adds the selection to the transaction. Customer approves the transaction, once all required products have been added. Client system sends the transaction to the server system where availability is confirmed, and update is sent back to the client system. Client system processes the payment and sends payment approval to the server system. Sever system updates the stock record and return current stock record to the client system.

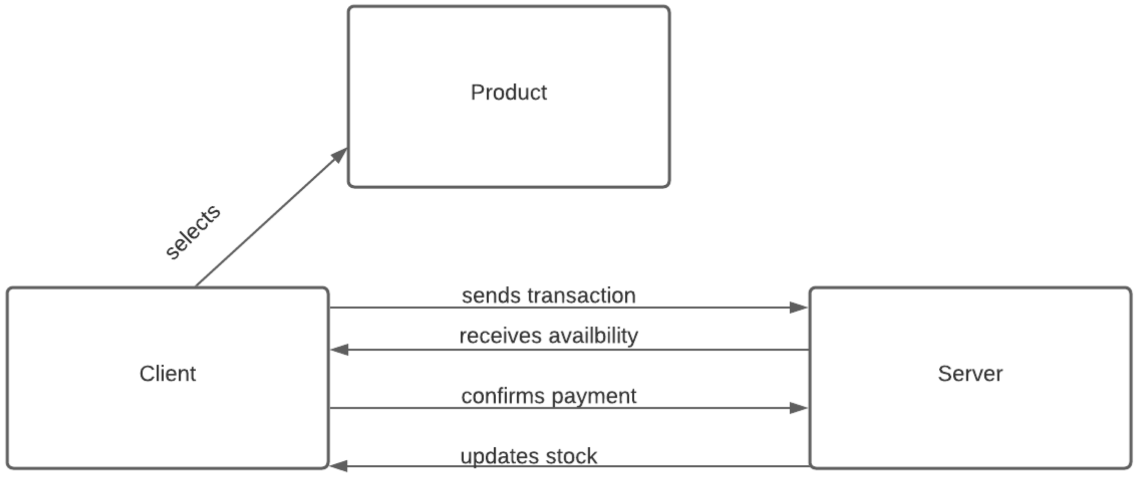
Scenarios:

- Client checks the availability
- Client adds the product(s) to the transaction, pays for the order and product is successfully dispensed
- Clients adds the product(s) to the transaction, but then voids the transaction

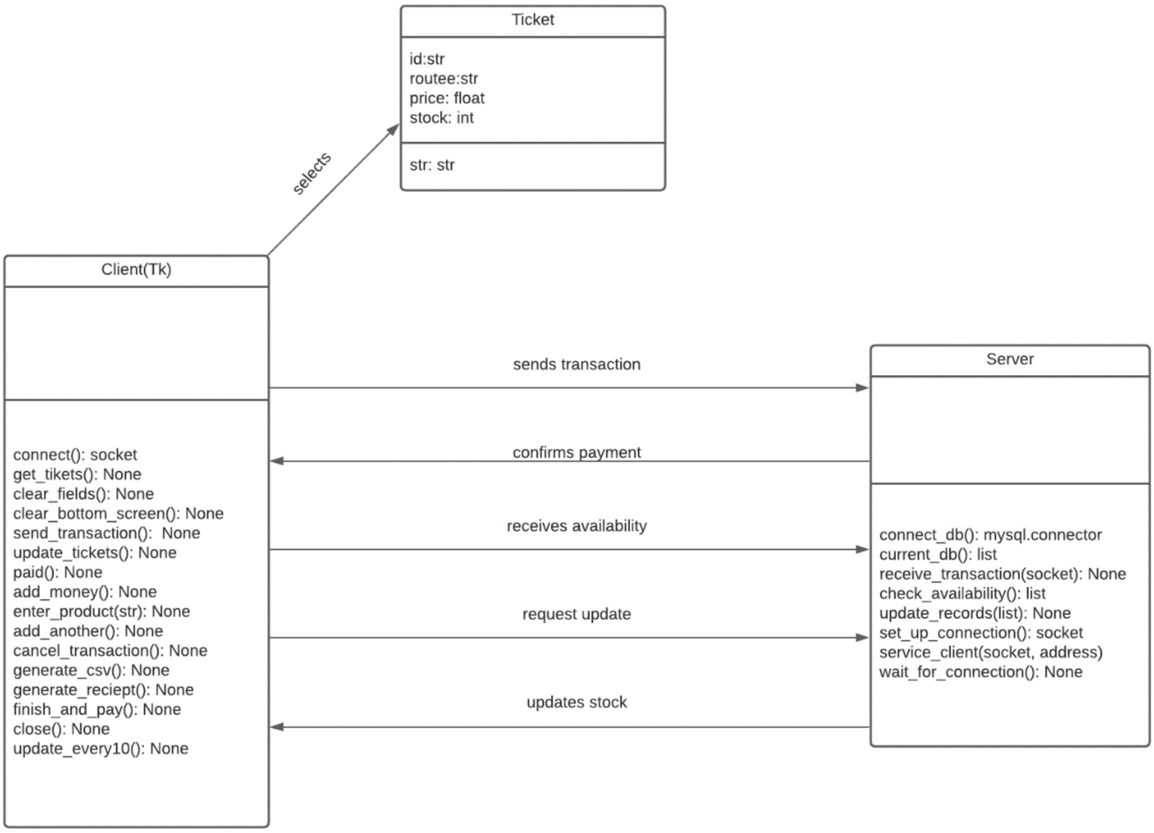
Use cases diagram



Conceptual Model



Class diagram



Requirements:

server.py:

- Python 3.9
- Mysql Ver 8.0.23
- mysql-connector-python 8.0.23
- Port: 65255 open
- Create
  username: **vending**
  password: **vending90?**
  or edit credential in server.py file to match credentials on the local Mysql server
- VENDING schema imported from file database.sql

client.py:

- Python 3.9
- Minimum screen resolution: 1000x600
- Port: 65255 open
- IP address must be edited to match the IP address of the server
- File “ticket.png” must be stored in the “images” folder
- “images” folder must be stored in the same directory as client.py

Although every effort has been made so both client and server application are running on various platforms the client.py has been only tested on Windows 10 and the server.py on Ubuntu Linux 20.10.

References:

Ortega, J., M. (2021) *Mastering Python for Networking and Security - Second Edition : Leverage the Scripts and Libraries of Python Version 3. 7 and Beyond to Overcome Networking and Security Issues*. Packt Publishing, Limited, Birmingham. Available from: ProQuest Ebook Central (Accessed: 6 March 2020)

LinkedIn Learning (2018) *Programming Foundations: Object-Oriented Design*. 27 November 2018. Available at: https://www.linkedin.com/learning/programming-foundations-object-oriented-design-3?u=42408908 (Accessed: 4 March 2021)

LinkedIn Learning (2018) *Advanced Python: Working with Databases*. 9 October 2018. Available at: https://www.linkedin.com/learning/advanced-python-working-with-databases?u=42408908 (Accessed: 4 March 2021)

LinkedIn Learning (2020) *Python Object-Oriented Programming*. 3 June 2020. Available at: https://www.linkedin.com/learning/python-object-oriented-programming?u=42408908 (Accessed: 4 March 2021)

LinkedIn Learning (2019) *Python Parallel and Concurrent Programming Part 1* 29 August 2019. Available at: https://www.linkedin.com/learning/python-parallel-and-concurrent-programming-part-1?u=42408908 (Accessed: 1 March 2021)

Tech With Tim (2020) *Python Socket Programming Tutorial*. 05 April 2020. Available at: https://www.youtube.com/watch?v=3QiPPX-KeSc (Accessed: 06 March 2021)

Train Ticket Cliparts #2685483. Available at: http://clipart-library.com/clipart/1811904.htm (Accessed: 04 March 2021)