CPE 231 Database Systems

Lab Assignment 3 for Lab Weeks 7-8. **Score: _____/30**

Due Lab Week 9 (2020-Oct-12).

Demo to Lab Instructor. Submit code & sample run session on MyLE.

In this lab we will take the 3 classes of Product, Customer, and Invoice we used in Lab 2 to make the data persistent (permanent) via putting them on Postgres Database. This lab instructor will provide you sample code for CRUD and report writing for 3 classes: Product, Customer, and Invoice. Examples for these API calls will be provided where the data will be saved in a relational database; ie., PostgreSQL:

- def create_product(products, code, name, units).
- def read_product(products, code).
- def update_product (products, code, newName, newUnits).
- def delete_product(products, code).
- def create_customer(customers, customerCode, customerName, address, creditLimit, country).
- def read_customer(customers, customerCode).
- def update_customer (customers, customerCode, newCustomerName, newAddress, newCreditLimit, newCountry).
- def delete_customer(customers, customerCode).
- def create_invoice(invoices, invoiceNo, invoiceDate, customerCode, dueDate, invocieLineTuplesList).
- def read_invoice(invoices, invoiceNo).
- def update_invoice(invoices, invoiceNo, newInvoiceDate, newCustomerCode, newDueDate, newInvocieLineTuplesList).
- def delete_invoice(invoices, invoiceNo).
- def update_invoice_line(invoices, invoiceNo, productCode, newQuantity, newUnitPrice).
- def delete_invoice_line(invoices, invoiceNo, productCode).
- def report_list_all_invoices(invoices, customers, products).
- def report_list_all_products(products).
- def report_list_all_customers(customers).
- def report_products_sold(invoices, products, dateStart, dateEnd).
- def report_customer_products_sold_list(invoices, products, customers, dateStart, dateEnd).
- def report_customer_products_sold_total(invoices, products, customers, dateStart, dateEnd).

Your Assignment

Add the Receipt and Payment Method classes to your program. Write the following additional API functions using the SQL database:

- 4 CRUD functions for Payment Method class.
- 4 CRUD functions for Receipt class plus an Update and a Delete function for the receipt line items.
- def report_list_all_receipts(receipts, invoices, customers). Please show customer name in the header and also the invoice date as part of invoice information in line item.
- def report_unpaid_invoices (invoices, customers, receipts). Returns 2 dictionaries of 1) a dictionary list of invoices with amount remaining with these fields: Invoice Number, Invoice Date, Customer Name, Invoice Amount Due, Invoice Amount Received , Invoice Amount Not Paid. And 2) a footer dictionary that shows: number of Invoices not paid and total of Invoice Amount Not Paid. The receipts object will be used to calculate Invoice Amount Received for each invoice.

Submission

Show run during class to lab instructors on the 9th Week of Lab. You will use python scripts to run your API calls to show that your program correctly works in creating, changing, and reporting each class data. Then submit your source code including sample run with scripts used and output created as a PDF file via upload to MyLE under topic "Lab Week 3" before 2020-Oct-12 at time 23:59. Your score will be based on the run demo, but the PDF file will be used to check for copied work.