



**COLLEGE OF NATURAL & APPLIED SCIENCES, ALLIED
HEALTH AND NURSING**

**DEPARTMENT OF COMPUTER & INFORMATION
SCIENCES**

FALL 2022

COURSE NAME: VISUAL PROGRAMMING

CODE: CPTR262

DUE DATE: OCTOBER 11, 2022

CONTENT: CLASSES & OBJECTS

ASSESSMENT TYPE: ASSIGNMENT #1: CONSOLE APPLICATION (INDIVIDUAL)

INSTRUCTIONS: You are required to create a console application for an electricity company to generate bills for their customers. You are required to submit a softcopy version of your assignment. **ALL STUDENTS are required to record a video demonstration showcasing their solution. PLAGIARISED CODING SOLUTIONS WILL RESULT IN A GRADE OF ZERO.** Failure to upload the assignment on the due date will result in a grade of zero. No extension will be given if the assignment is not submitted on the due date.

The attributes of the bill will include the following:

- Premises Number
- Account number
- Account holder's name
- Account holder's address
- Previous balance
- Payments
- Balance brought forward
- Current charges
- Total amount due
- Statement date
- Due date
- Payment date
- Early payment discount
- Taxes
- Current reading
- Previous reading
- Current usage
- Rate
- Current period charges

Charges to be calculated include:

- Subtotal
- F/E Adjustment
- Fuel and IPP Charges
- Total current electricity charges before tax
- Non-taxable charges
- Taxable charges
- GCT @ 16.5% on electricity charges
- Total current charges
- Total amount due

Your application should utilize **classes, properties, and objects** to create a solution to the problem. The electricity company meter reader will be required to input information for the following:

- customer's current meter reading
- previous meter reading
- current usage rate
- Fuel Adjustment rate

1. **Current charges** for the period will be calculated as current usage times rate (current charge = current usage * rate). The rate for each customer is 9.660.
2. There is a fixed customer charge of \$455.
3. **Subtotal** of a customer's bill is calculated as current period charges plus customer charge (subtotal = current period charges + customer charge).
4. **Fuel and IPP Charge** equal current usage times rate of 21.794 (Fuel & IPP charge = current usage * 21.794).
5. **F/E Adjustment** equal subtotal times fuel adjustment rate (F/E Adjust = subtotal * fuel adjustment rate). The fuel adjustment rate will be entered by the meter reader.
6. **Total current electricity charges before tax** = subtotal + F/E Adjustment + Fuel & IPP charges.
7. **Non-taxable charges** are the same as the total current electricity charges before tax.
8. If current usage is less than 150 then no tax will be charged otherwise **GCT** is calculated at a rate of 16.5% on current usage.
9. If the customer pays their bill on or before the due date, they will receive an **early payment incentive** (discount) of \$250 on their next bill.
10. **Total amount due** should be calculated and displayed.

Use appropriate formatting features to neatly display the bill information.

See screenshot below, which can be used as a guide.

Account # 111111-888565
Status: Active
Service Name / Address:
Simone W. Pearwood
Sunshine Park Village LOT 237



TAX INVOICE
ACCOUNT SUMMARY
FOR METER # 77485764

Invoice Date 12-AUG-2014
Invoice # 1118282820900202844840202
Rate RT10
Due Date 27-AUG-2014

Previous Balance	Payments	Adjustments	Balance Brought Forward	Current Charges	Total Amount Due
\$7,680.40	\$7,681.00	\$0.00	-\$0.60	\$6,972.88	\$6,972.28

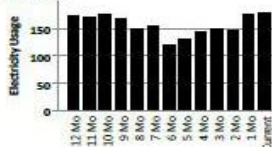
Dear Customer,

As of August 1, 2013, residential customers could get \$250 off your next light if you pay this bill by due date below.
You also avoid a Late Fee of \$250 + GCT being added to your next bill.

If you get disconnected you pay a Disconnection Fee of \$1400 + GCT, if a Late Fee of \$250 has already been charged. (If not, the Disconnection Fee is \$1650 + GCT).

For more details call 1-888-225-5577 or 1-888-935-5577 or contact us on Facebook or Twitter @myJPSonline. Email calljps@jpsco.com and contact us at www.JPSCo.com

ELECTRICITY USAGE TREND



Billing Cycle 02	No. of Days 31	Billing Exchange Rate 112.85		Base Exchange Rate 98.50		Deposit \$3,000.00	Multiplier 1
From: 07/08/2014 To: 08/08/2014							
Register Type	Reading Type	Current Reading	Previous Reading	Description	Current Usage	Rate	Current Period Charges
KWH	Actual	5735	5556	Energy 1st	100.000	6.9800000	\$698.00
				Energy Next	79.000	15.9600000	\$1,260.84

Cust Charge	\$387.00
SUBTOTAL	\$2,345.84
F/E Adjust @ 11.072%	\$259.73
Fuel & IPP Charge	\$4,617.31
Total Current Electricity Charge Before Tax	\$7,222.88

GCT @ 0.0% on Electricity Charges	\$0.00
Early Payment Incentive	-\$250.00
TOTAL CURRENT CHARGES	\$6,972.88
TOTAL AMOUNT DUE	\$6,972.28

Made with

MARK SCHEME

Name of Student:

Areas Assessed	Marks Allocated	Marks Received
Create Class (at least two classes)	6	
Create appropriate Constructor	4	
Use Appropriate Data Types	2	
Instantiate Objects	4	
Create Properties	6	
Correct Inputs	4	
Correct Processing <ul style="list-style-type: none">• Current charge• Sub total• GCT (tax)• Fuel and IPP Charge• F/E Adjust• Total Current Electricity charge before tax• Early Incentive payment• Total Amount due	2 2 3 2 2 3 3 3	
Correct use of control structures (e.g., if, if-else etc.)	4	
Correct Output	5	
Demo Video	5	
Total Marks	60	

Final Grade out of 50 marks:

Lecturer's Remarks
