**CAP 4784 – Introduction to Data Analytics**

Lab 3 – CreditCard Assignment

**Submit Python script for the below-specified assignment description.**

Write a Python script file containing a class named CreditCard that models a credit card. The class constructor method (init) should take the credit card number, person’s name, and the expiration date as inputs. The constructor method should set the credit limit to 1000 and assign a random value below 1000 as the card balance amount. CreditCard class should have a dictionary class variable for supported credit card types. See the below table for the key pair conditions.

|  |  |
| --- | --- |
| Key | Value |
| 1 | Visa |
| 2 | Mastercard |
| 3 | Amex |
| 4 | Discover |

CreditCard class should have get methods for obtaining a person’s name and card type.

CreditCard class should have a method the checks with the dictionary class variable and assign card type to a given credit card number. The method should the fifth element in the credit card number, if the fifth element number matches with the key, then the value is assigned as the card type. If the key does not exist in the dictionary, then “Not Supported Card Type” should be assigned to the card type.

CreditCard class should contain a method name processOrder that checks whether there is sufficient balance on the card for processing an order. The processOrder menu should take a transaction amount as its input. If there is sufficient balance, then the transaction amount is added to the card balance amount and returns True. If there is not sufficient balance, then it returns False. If credit card type is not supported, then it returns False.

CreditCard class should have a str() function that returns information about the credit card number, person’s name, and expiration date.

The below-given transactions Python script should be used as a test application to demonstrate CreditCard class capabilities. Sample output generated by the transaction Python script file upon successful test run is also provided below.

**Code for lab3\_transaction.py file:**

import random

from datetime import date

from lab3\_creditcard\_soln import CreditCard

products = [‘Aztex Coin Medallion Necklace’, ‘Pirate Life Graphic T-shirt’, ‘Treasure Map Tapestry’, ‘Pirates of Carribean Wall Poster’, ‘Davy Jones Music Box’ ]

customers = [‘Jack Sparrow’, ‘Frederick Barbossa’, ‘Will Turner’, ‘Elizabeth Swann’, ‘Joshamee Gibbs’]

for x, prod in enumerate(products):

    print('\n ----------------------')

    print("Welcome Data Analytics Store!!!")

    print("Order Placed: " + date.today().strftime('%B %d, %Y'))

    print("Tortuga Pirate Shop Order Number: " + str(random.randint(500, 5000)))

    price = random.randrange(1, 100)

    print("Order Total: ${:.2f}".format(price))

    cardnum = str(random.randint(1000, 9999)) + " " + str(x) + str(random.randint(100, 999)) + " " + str(random.randint(1000, 9999)) + " " + str(random.randint(1000, 9999))

    ccard = CreditCard(cardnum, customers[x], '10/25')

    if ccard.processOrder(price):

        print('Order successfully processed.')

        print('Thank you, {} for the ordering {}. Your {} credit card will be charged for ${:.2f}.'.format(ccard.get\_cardOwner(), prod, ccard.get\_cardType(), price))

    elif ccard.get\_cardType() == 'Not Supported Card Type':

        print('Your {} credit card is not accepted by the store. Please provide a different type of credit card.'.format(ccard.get\_cardType()))

    else:

        print('Your credit card did not have sufficient amount. Order was not successfully processed.')

    print('\n --- Credit Card Information ----\n')

    print(ccard)

**Output generated by the transaction Python script:**

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Welcome to the Data Analytics Store!!!

Order Placed: January 27, 2021

Tortuga Pirate Shop Order Number: 1697

Order Total: $76.00

Your credit card is not accepted by the store. Please provide a different type of credit card.

--- Credit Card Information ----

Jack Sparrow is the owner of the credit card with number 6772 0533 9361 3053 which expires on 10/25.

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Welcome to the Data Analytics Store!!!

Order Placed: January 27, 2021

Tortuga Pirate Shop Order Number: 2646

Order Total: $65.00

Order successfully processed.

Thank you, Frederick Barbossa for ordering the Pirate Life Graphic T-shirt. Your Visa credit card will be charged for $65.00.

--- Credit Card Information ----

Frederick Barbossa is the owner of the credit card with number 7374 1214 5572 5078 which expires on 10/25.

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Welcome to the Data Analytics Store!!!

Order Placed: January 27, 2021

Tortuga Pirate Shop Order Number: 1357

Order Total: $10.00

Order successfully processed.

Thank you, Will Turner for ordering the Treasure Map Tapestry. Your Mastercard credit card will be charged for $10.00.

--- Credit Card Information ----

Will Turner is the owner of the credit card with number 7499 2788 1321 4702 which expires on 10/25.

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Welcome to the Data Analytics Store!!!

Order Placed: January 27, 2021

Tortuga Pirate Shop Order Number: 3182

Order Total: $74.00

Order successfully processed.

Thank you, Elizabeth Swann for ordering the Pirates of Carribean Wall Poster. Your Amex credit card will be charged for $74.00.

--- Credit Card Information ----

Elizabeth Swann is the owner of the credit card with number 3670 3773 9658 7039 which expires on 10/25.

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Welcome to the Data Analytics Store!!!

Order Placed: January 27, 2021

Tortuga Pirate Shop Order Number: 2339

Order Total: $49.00

Order successfully processed.

Thank you, Joshamee Gibbs for ordering the Davy Jones Music Box. Your Discover credit card will be charged for $49.00.

--- Credit Card Information ----

Joshamee Gibbs is the owner of the credit card with number 5222 4440 7371 2617 which expires on 10/25.