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1  """
2  CS241 Team Activity 09
3  Written by Chad Macbeth
4  """
5
6  class BalanceError(Exception):
7
8      """ Create a BalanceError exception and store the overage amount """
9      def __init__(self, message, overage):
10         super().__init__(message)
11         self.overage = overage
12
13         """ Display error message with overage info """
14         def display(self):
15             print("{} (Overage: {})".format(self, self.overage))
16
17
18  class OutOfChecksError(Exception):
19
20      """ Create OutOfChecksError exception """
21      def __init__(self, message):
22         super().__init__(message)
23
24  class CheckingAccount:
25
26      """ Initialize a Checking Account and verify the starting balance """
27      def __init__(self, starting_balance, num_checks):
28         if starting_balance < 0:
29             raise BalanceError("Initial Balance Cannot Be Negative", starting_balance)
30         self.balance = starting_balance
31         self.num_checks = num_checks
32
33         """ Deposit into the account. Ensure that the deposit amount is valid """
34         def deposit(self, amount):
35             if amount < 0:
36                 raise ValueError("Cannot Deposit Negative Value")
37             self.balance += amount
38
39         """ Attempt to process a check. The amount must be valid and not exceed the balance """
40         """ A check must also be available. """
41         def write_check(self, amount):
42             if amount < 0:
43                 raise ValueError("Cannot Write a Check for a Negative Value")
44             """ Handled by Property below """
45             if self.balance - amount < 0:
46                 raise BalanceError("Insufficient Funds for Check")
47             """
48             if self.num_checks <= 0:
49                 raise OutOfChecksError("No More Checks")
50             self.balance -= amount
51             self.num_checks -= 1
52
53         """ Display account information """
54         def display(self):
55             print("Balance: {} Number Checks: {}".format(self.balance, self.num_checks))
56
57         """ Apply for credit line ... not implemented yet """
58         def apply_for_credit(self, amount):
59             raise NotImplementedError("Credit Application Not Available Today")
60
61         @property
62         def balance(self):
63             return self._balance
64
65         @balance.setter
66         def balance(self, balance):

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67         if balance < 0:
68             raise BalanceError("Insufficient Funds", balance)
69         self._balance = balance
70
71     def display_menu():
72         """
73         Displays the available commands.
74         """
75         print()
76         print("Commands:")
77         print("  quit - Quit")
78         print("  new - Create new account")
79         print("  display - Display account information")
80         print("  deposit - Desposit money")
81         print("  check - Write a check")
82
83
84     def main():
85         """
86         Used to test the CheckingAccount class.
87         """
88         acc = None
89         command = ""
90
91         while command != "quit":
92             display_menu()
93             command = input("Enter a command: ")
94
95             if command == "new":
96                 balance = float(input("Starting balance: "))
97                 num_checks = int(input("Numbers of checks: "))
98
99                 try:
100                     acc = CheckingAccount(balance, num_checks)
101                 except BalanceError as e:
102                     e.display()
103
104             elif command == "display":
105                 acc.display()
106             elif command == "deposit":
107                 amount = float(input("Amount: "))
108
109                 try:
110                     acc.deposit(amount)
111                 except ValueError as e:
112                     print(e)
113
114             elif command == "check":
115                 amount = float(input("Amount: "))
116
117                 try:
118                     acc.write_check(amount)
119                 except BalanceError as e:
120                     e.display()
121                 except ValueError as e:
122                     print(e)
123                 except OutOfChecksError as e:
124                     print(e)
125                 response = input("Do you want to buy more checks? ")
126                 if response == "y":
127                     try:
128                         acc.balance -= 5
129                         acc.num_checks += 25
130                     except BalanceError as e:
131                         e.display()
132

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133         elif command == "credit":
134             amount = float(input("Amount: "))
135             try:
136                 acc.apply_for_credit(amount)
137             except NotImplementedError as e:
138                 print(e)
139
140
141
142 if __name__ == "__main__":
143     main()
144
```