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1  """
2  CS241 Team Activity 07
3  Written by Chad Macbeth
4  """
5
6  from abc import ABC
7  from abc import abstractmethod
8
9  ### Abstract Class for common attributes of any employee
10 class Employee(ABC):
11
12     ### Initialize the Employee object
13     def __init__(self):
14         self.name = ""
15
16     ### Display the employee
17     @abstractmethod
18     def display(self):
19         print(self.name)
20
21     ### Determine the paycheck amount
22     @abstractmethod
23     def get_paycheck(self):
24         pass
25
26
27     ### Hourly Employee that derives from the Employee base class
28     ### Must implement display and get_paycheck
29     class HourlyEmployee(Employee):
30
31         ### Initialize the hourly employee object
32         def __init__(self):
33             super().__init__()
34             self.hourly_wage = 0.0
35             self.hours = 0.0
36
37         ### Display the employee
38         def display(self):
39             print("{} - ${:.2f}/hour" .format(self.name, self.hourly_wage))
40
41         ### Paycheck is based on wage and number of hours worked
42         def get_paycheck(self):
43             return self.hourly_wage * self.hours
44
45
46     ### Salary Employee that derives from the Employee base class
47     ### Must implement display and get_paycheck
48     class SalaryEmployee(Employee):
49
50         ### Initialize the salary employee object
51         def __init__(self):
52             super().__init__()
53             self.salary = 0.0
54
55         ### Display the employee
56         def display(self):
57             print("{} - ${:.2f}/year" .format(self.name, self.salary))
58
59         ### Paycheck is based on being paid twice a month
60         def get_paycheck(self):
61             return self.salary / 24.0
62
63     ### Display employee information including name, pay details, and
64     ### paycheck amount. This demonstrates polymorphisim.
65     def display_employee_data(employee):
66         employee.display()

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67     print("Paycheck ${:.2f}" .format(employee.get_paycheck()))
68
69     ### Provide menu to keep track of a list of employees
70     def main():
71         employees = []
72         selection = ""
73         while selection != "q":
74             print("Menu")
75             print("h) Add hourly")
76             print("s) Add salary")
77             print("q) Quit")
78             selection = input("> ")
79             if selection == "h":
80                 employee = HourlyEmployee()
81                 employee.name = input("Name: ")
82                 employee.hourly_wage = float(input("Hourly Rate: "))
83                 employee.hours = float(input("Hours: "))
84                 employees.append(employee)
85             elif selection == "s":
86                 employee = SalaryEmployee()
87                 employee.name = input("Name: ")
88                 employee.salary = float(input("Salary: "))
89                 employees.append(employee)
90         print()
91         for employee in employees:
92             display_employee_data(employee)
93
94     if __name__ == "__main__":
95         main()
96
```