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| ***Computer Science 2061 -*  ASSIGNMENT #10** | |
| **Program** | **Description** |
|  | This is an exercise in polymorphism. The intent is that you derive three different classes from a base class, have each derived class overload the base class methods and then call those methods polymorphically. Using the starter file Assn 10 Pr 01 Start.py, write a program that completes the classes and produces the output as shown below. **Please note! You cannot delete anything in the starter file. You must add to the starter file and complete the code already there.** Please complete the program to meet the following additional requirements:   * Define an initially empty list and then add objects to the list. * When constructing objects, please input from the user and then initialize all attributes (name, age, address, etc…) even though some of the attributes are not used in this program. * Input data from the user and then use the data to instantiate either Millionare, Teacher or Student objects. * Append those objects to the list. * Continue to add objects until the user types ‘N’ * The Millionare, Teacher and Student are derived classes.   + They need to overload the four methods in the base class (Person)   + The *restaurant()* and *order()* methods merely output a message to the screen (as shown in the output)   + The *pay\_bill()* method has different actions depending on the class:     - Millionare – displays a message and adds a 50% tip     - Teacher – displays the message and adds a 15% tip     - Student – displays the message * Use the test data shown below * Submit your .PY file as well as the Homework Template showing both your source code and output listing. |
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|  | **Execution Listing** |
| *>>>*  *Please enter the name: Scrooge McDuck*  *Please enter the age: 82*  *Please enter the address: 123 Easy Street*  *Please enter the type of person: Millionare*  *How many vacation homes does he/she have? 4*  *Go again?Y*  *Please enter the name: John Miller*  *Please enter the age: 30*  *Please enter the address: Ramelle, France*  *Please enter the type of person: Teacher*  *How much mortgage is remaining? 30000*  *Go again?Y*  *Please enter the name: Susan Stressed*  *Please enter the age: 19*  *Please enter the address: Apt. 101, Faulty Towers*  *Please enter the type of person: Student*  *How much is rent this month? 500*  *Go again?N*  *Millionare Scrooge McDuck*  *Restaurant: Driver, take me to Mannys Steakhouse*  *Order: Caviar, filet mignon, lobster and several bottles of your best wine!*  *What is the bill?300*  *Bill: Here you go $450.0! And keep the change!*  *Teacher John Miller*  *Restaurant: Honey, how about Chilis tonight?*  *Order: Can I have the special? And how much is a tall beer?*  *What is the bill?30*  *Bill: Are you sure 30.0 is correct? OK, here is 34.5*  *Student Susan Stressed*  *Restaurant: MacDonalds or Culvers?*  *Order: Burger and fries please!*  *What is the bill?10*  *Bill: Can I owe you ten bucks or do the dishes?* |

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| **Notes** |
| 1. In the execution listing, numeric values don’t have to appear exactly as shown above. For example, $44.50 is OK instead of $44.5. 2. Make sure that you use good programming style and documentation. 3. **USE VARIABLES FOR ALL VALUES IN THE PROGRAM**. 4. Unless instructed otherwise, always use the test data described in the problem. 5. Unless instructed otherwise, copy and paste your execution and code listings into the *Homework Template* document. Please ensure that:    * Problems are in the order listed on the assignment sheet (I.E. Program #1 first, Program #2 second, etc.)    * The execution listing corresponds with the code listing. In other words, the code listing will produce the execution listing. If it does not, no credit will be received for that problem. 6. The work you submit must be your own. Please note that any of the following actions are considered cheating:    * Electronically copying or inserting any code that you did not create.    * Manually copying or inserting any code that you did not create. |