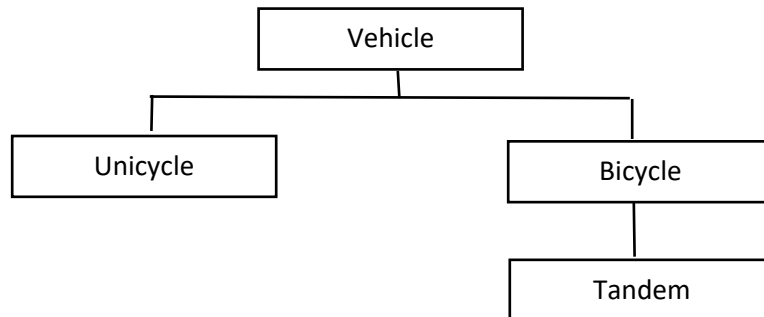

ISTM233P: Lesson 3 Assignment

Creating Classes in Python

Background:

The purpose of this lab is to demonstrate Class creation and Inheritance.

You will create a base class called “Vehicle”. From Vehicle you will create two sub-classes called “Unicycle” and “Bicycle”. You will then create a sub-sub-class from Bicycle called “Tandem”.



Class Properties:

- All Vehicle have the properties “name” and “wheels”
 - name is a string
 - wheels is an integer
- Unicycle adds the property “color”
 - color is a string
- Bicycle adds the property “basket”
 - basket is a Boolean
- Tandem adds the property “riders”
 - riders is an integer

Class Methods (Functions):

All classes will have one `__init__` function to capture input and a second function which contains a print statement.

- In Vehicle, create a function called “description”
 - Print name and wheels
- In Unicycle, create a function called “description”
 - Print name and color

Note: Since Unicycle is a sub-class of Vehicle, the inclusion of a function with the same name as a function in the super-class will “override” the super-class function. This is demonstrated here.

- In Bicycle, create a function called “bike_desc”
 - If the object has a basket, print name and that the bike has a basket
 - If the object does not have a basket, print name and that the bike does not have a basket

- In Tandem, create a function called "tandem_desc"
 - If the object has a basket, print name, riders, and that the bike has a basket
 - If the object does not have a basket, print name, riders, and that the bike does not have a basket

Instructions and Test Data:

Run the following instructions to instantiate objects and input values.

```
print("Vehicle Class")
v1 = Vehicle("Chevy", 4)
v1.description()

print("\nUnicycle Class")
v2 = Unicycle("ClownBike", 1, "blue")
v2.description()

print("\nBicycle Class")
v3 = Bicycle("Schwinn", 2, True)
v3.bike_desc()
v3.description()

print("\nTandem Class")
v4 = Tandem("Columbia", 2, False, 2)
v4.tandem_desc()
v4.bike_desc()
v4.description()
```

Output Results:

The above commands and inputs will display the following results:

```
Vehicle Class
Chevy has 4 wheels
```

```
Unicycle Class
ClownBike is the color blue
```

```
Bicycle Class
Schwinn has a basket
Schwinn has 2 wheels
```

```
Tandem Class
Columbia has 2 rider(s) and no basket
Columbia does not have a basket
Columbia has 2 wheels
```

Submission

Follow the instructions in the video "How to submit homework" to complete your homework solution.

Save this document for your records.

Remember, your Python code MUST have your name and identification banner as described in the lectures.

Value

This assignment is worth 50 points.

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| Note: This document was checked for ADA Accessibility on July 20, 2020. |
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