American University of Science & Technology

Department of Computer Science

**CSI 311L – Java Programming Lab**

**Spring 2011/2012**

**Lab Work 9**

**Problem1:**

Write the classes implementations for the following class specifications.

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| Registered\_Vehicle | |
| Attributes | 1. **Year**: an integer to indicate the registration year. 2. **Plnum**: A String to indicate the license\_plate number. 3. **type**: an integer that can have the value 1(private) or 2(public). |
| Methods | 1. **Constructor** . 2. **toString:** to return the information about a Registered vehicle as follows:   **(08)-(123456) was registered in 1994 and is a private vehicle.**   1. **Get\_type:** returns the type of a registered vehicle. |
| Remark | 1. All attributes should be declared private |

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| Car | |
| Note that all cars are registered vehicles. | |
| Attributes | 1. **Brand**: a string of characters to store the car   brand name.   1. **Color**: a string of characters. 2. **Model:** an integer to specify the car model number. 3. **Cost:** a number to indicate the car basic cost. 4. **Totalprice:**  It should accumulate the value of all cars’ prices. |
| Methods | 1. **Constructor**. 2. **Calculate\_price:**  return the price of a car using the following   Formula:  Price = cost + 300$ if the type = 1.  Price = cost + 200$ if type =2.   1. **Get\_totalprice:** returns the value of Totalprice. 2. **display:** to print the information about acar as follows:     **Mercedes-red-300**  **(08)-(123456) was registered in 1994 and is a private vehicle.**  **Price = $12500.** |

Write an application to test your classes’ implementations.

**Problem 2:**

1. Implement, in Java, the following classes:

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| **Bicycle** | |
| **Attributes** | gear: an integer (from 1 to 5) to specify the gear of the bicycle  cost: an integer to specify the basic cost of the bicycle  count: to count the number of bicycles |
| **Methods** | Constructor  set and get methods  toString: to return information about a bicycle  computePrice: returns the price of the bicycle by adding to the cost:   * $10 for each level of gear |

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| **MountainBike (a bicycle)** | |
| **Attributes** | suspension: a String that has the value “Front” if the bike has a front shock absorber or “Dual” if the bike has a front and back shock absorber. |
| **Methods** | Constructor  set and get methods  toString: to return information about a bike  computePrice: returns the price of the bike by adding to price of a bicycle:   * $100 if the bike has “Front” suspension * $150 if the bike has “Dual” suspension |

1. Write a java application to do the following (Use JOptionPane methods):

* Create N objects of class MountainBike and let the user initialize them
* Display the total number of all bicycles
* Display information about all mountain bikes with dual suspension