Page of

**Car Pooling System - Requirement 4**

You are a very active member of a Nature Club in your organization. In one of the meetings, it was discussed to build a car pooling system to help cut down the pollution. Being very active and tech savvy, you wish to contribute towards the development of system. One of the members being an architect has understood the requirement and would be sharing you with smaller requirements.

**Requirement 4:**

Very soon you discover that there are different classes of Cars that can be pooled. Each class of cars does share some common properties as well as some specific properties. Represent the above requirement in Object Orientation. Mark the base class as abstract.  
  
 a.   Use the Car class created in Requirement 2. Retain attributes id and name. Lets’ ignore rest of the attributes for this requirement. Make the appropriate access modifier change to enable the attributes to be accessible to child classes.  
  
**Car**

|  |  |
| --- | --- |
| **Member Field name** | **Type** |
| id | Long |
| name | String |

  b.   Create 3 child classes with Car as base class and the following attributes.  
  
**HatchBack**

|  |  |
| --- | --- |
| **Member Field name** | **Type** |
| powerWindowsEnabled | Boolean |
| automaticGear | Boolean |

**Sedan**

|  |  |
| --- | --- |
| **Member Field name** | **Type** |
| absEnabled | Boolean |
| bootSpace | Integer |

**UtilityCar**

|  |  |
| --- | --- |
| **Member Field name** | **Type** |
| rearCoolingVents | Boolean |

 c.   Mark the access modifiers appropriately, and create constructors using super keyword.  
  
d.    Create an abstract method calculateDriveCost() which takes a km covered as double and returns the cost in rupees as double. (rounded to 0 decimal places)  
Hint: Use Overriding.  
  
**The formula for computing it as follows:**

|  |  |
| --- | --- |
| **Rule** | **Cost (Rs)** |
| Hatchback without automatic gear | 10 |
| Hatchback with automatic gear | 12 |
| Sedan | 15 |
| Sedan with bootspace > 600 | 15 and 20% additional cost |
| Utility | 18 |

**Input Output Format:**  
  
Refer Sample I/O for formatting specifications.  
  
  
**Sample I/O 1:**  
**[All text in bold corresponds to input and the rest corresponds to output.]**  
  
id  
**1**  
name  
**i20**  
type  
**sedan**  
distance  
**20**  
abs enabled  
**false**  
boot space  
**350**  
Cost is Rs 300  
  
**Sample I/O 2:**  
**[All text in bold corresponds to input and the rest corresponds to output.]**  
  
id  
**2**  
name  
**Verna**  
type  
**hatchback**  
distance  
**10**  
power windows  
**true**  
automatic  
**false**  
Cost is Rs 100  
  
**Sample I/O 3:**  
**[All text in bold corresponds to input and the rest corresponds to output.]**  
  
id  
**3**  
name  
**Mahindra SUV**  
type  
**utility**  
distance  
**10**  
rear cooling vents  
**false**  
Cost is Rs 180