**Prog-1**

**Topic – Access Control / static / classes & objects / Encapsulation**

**Display Shipment Details**

Devi flight is an emerging logistics Company in the City and its evolving the way goods are moved with the power of technology. There are plenty number of Dealers and Customers using Devi Flight for shipping their goods. Therefore it essential to connect their Dealers and Customers to Shipment Management System to know the entire details and status of their Shipments. Write a piece of code strictly following the below specifications to get the shipment details and print the output.

**This Problem will help you understand about Static Variable and static Method.**

Create a class named **Shipment** with the following private member variables /attributes

* Int id
* String shipper name
* String mode of Transportation
* Float totalWeight
* String arrivalPort
* String depaturePort

1.Create a private static variable **nextShipmentId** in Shipment class and initialize it to 1000.

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| **Hint**: static The static variable gets memory only once in class area at the time of class loadiong. We can apply static keyword with variables, methods, blocks and nested class. The static variable can be used to refer the common property of all objects.It makes your program memory efficient. **Eg**: static nextshipmentId=1000; |

2. Create a Constructor which accepts 6 arguments in the argument order**(Id,shipperName,modeOfTransportation,totalWeight,arrivalPort,depaturePort)**

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| **Hint**: Construtor A constructor in Java is a block of code similar to a method that’s called when an instance of an object is created. A constructor doesn’t have a return type.Eg:public Shipment(Id,Shipper Name,mode ofTransportation, totalWeight,arrivalPort,depaturePort). |

3. Create a static method **CreateNewShipment()-**which accepts the shipment details in the parameter and generates the shipment object and assigns the shipment id and return the shipment object. For returning the object pass the values in the constructor and return it.

* **Public static Shipment createNewShipment(String shipperName, string modeofTransportation,Float totalWeight,String arrivalPort,Sring depaturePort)**

The id assigned to each shipment must be unquie and it must be in order. The first dhipment should have the id as 1001, the next shipment should have the id as 1002 and so on.

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| Hint:return Type declare a method’s return type in its method declaration. Within the body of the method, use the return statement to return the value. Any method declared void doesn’t return a value. **Eg**: public static shipment Create new shipment() (return return Value ;) |

4.Dispaly the shipment details by overloading the **tostring()** method in shipment class.

**Use**

**String. format(‘‘%-15d%-15s%-25s%-15s%-20%s”,this.id,this.shipperName,this.modeofTransportation, this.totalWeight.tostring()+”Kg”,this.arrivalPort,this.depaturePort)**to format the string.

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| Hint: tostring() The toString() method is used when we need to string representation of an object.It is defined in Obeject class. This method can be overridden to customize the string representation of the Object. Eg : public string tostring () { // return the formatted string. - override the tostring() method here } |

Create a **Main** class and write a main method in it and test the above class.

**Problem specification:**

The toString() method will overrides the object representation into required format .If we try to the print the object , the tostring()method will be automatically invoked and the changed representation of the string will be printed as shown in sample input and output.

Print the “**Shipment details are** ”string and the table header details in main method itself. The tostring () method will only conatin the format for printing the object.

**[Note: Strictly adhere the object oriented specifications given as a part of the problem statement. Use the same class names, attribute names and method names.]**

**Input and Output Format:**

Refer sample input and output for formatting specifications.

**Sample Input and Output:**

**[All the text in bold corresponds to the input and rest corresponds to output.]**

Enter the number of shipments:

**3**

Enter the Shipment 1 details

Enter the shipper name:

**AGCI**

Enter the mode of transportation:

**Air**

Enter the total weight:

**300**

Enter the arrival port:

**India**

Enter the depature port :

**America**

Enter the Shipment 2 details

Enter the shipper name:

**DHL Services**

Enter the mode of transportation:

**Water**

Enter the total weight:

**500**

Enter the arrival port:

**cochin**

Enter the depature port :

**Srilanka**

Enter the Shipment 3 details

Enter the shipper name:

**Fedex**

Enter the mode of transportation:

**Land**

Enter the total weight:

**200**

Enter the arrival port:

**India**

Enter the depature port :

**China**

Shipment details are

Id Shippername Mode of transportation Total Weight Arrival Port Departure Port

1001 AGCI Air 300Kg India America

1002 DHL Services Water 500Kg Cochin Srilanka

1003 Fedex Land 200Kg India China

**Don’ts :**

Do not create multiple classes inside a single file. Create separate file for each class.