I – Enumerations and Composition

Student Exercises

# Exercises

1. **LetterGrade + BahamaLetterGrade** – The BahamaLetterGrade also uses the LetterGrade enumerated type, assigning its own specific ranges and values to the possible LetterGrade values.
2. **HazardousMaterial + ClassCode** – The various types of hazardous materials are now identified by their ClassCode enumerated type.
3. **CanadianAddress + Province** – The CanadianAddress class is modified to now use a Province enumeration to properly capture the provinces and territories of Canada.
4. **Employee/Student + CanadianAddress + Province** – The Employee and Student classes now have address information.
5. **Company + Month + CanadianAddress + Province** – The Company now has a CanadianAddress.

# LetterGrade + BahamaLetterGrade

The BahamaLetterGrade also uses the LetterGrade enumerated type, assigning its own specific ranges and values to the possible LetterGrade values.

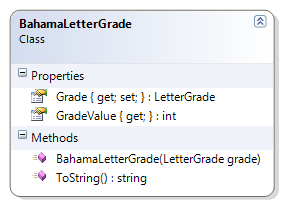
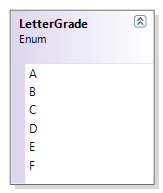
## Problem Statement

Write the code for the BahamaLetterGrade class and the LetterGrade enumeration to represent a letter grade as assigned in universities in the Bahamas. (For more information on Bahaman letter grades, see <http://en.wikipedia.org/wiki/Letter_grade>.) . The solution must meet the following requirements (new requirements are in ***green, bold italic*** font):

* ***The LetterGrade enumeration should be “generic” and support letter grades of A through F inclusive***
* ***The BahamaLetterGrade should reject the LetterGrade of E (which is not allowed in the Bahamas)***
* The BahamaLetterGrade should get the appropriate descriptions for the grade, based on the following table:

|  |  |  |
| --- | --- | --- |
| Grade | Grade Value | Description |
| A | 4 | A-4 - 90-100% |
| B | 3 | B-3 - 71-89% |
| C | 2 | C-2 - 56-70% |
| D | 1 | D-1 - 46-55% |
| F | 0 | F-0 - 0-45% |

Use the following class diagram when creating your solution.



# HazardousMaterial + ClassCode

The various types of hazardous materials are now identified by their ClassCode enumerated type.

## Problem Statement

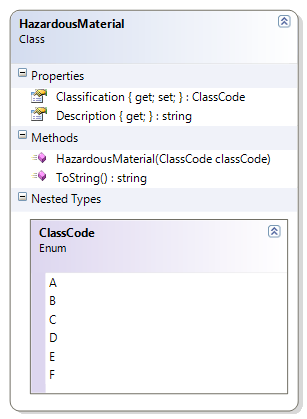
Rewrite the code for the HazardousMaterial class to make use of the ClassCode enumerated type. The solution must meet the following requirements (new requirements are in ***green, bold italic*** font):

* Should return the ***class code as the classification***
* Should ***get the description for the class***, based on the following table  
  ***You must use a switch statement to get the results***

|  |  |
| --- | --- |
| **Class Code** | **Description** |
| A | Compressed Gas |
| B | Flammable and Combustible Material |
| C | Oxidizing Material |
| D | Poisonous and Infectious Material |
| E | Corrosive Material |
| F | Dangerously Reactive Material |

* Should ***override the ToString() method to get the full description and class code*** in the following format:
  + “Class ClassCode - Description”

Use the following class diagram when creating your solution.

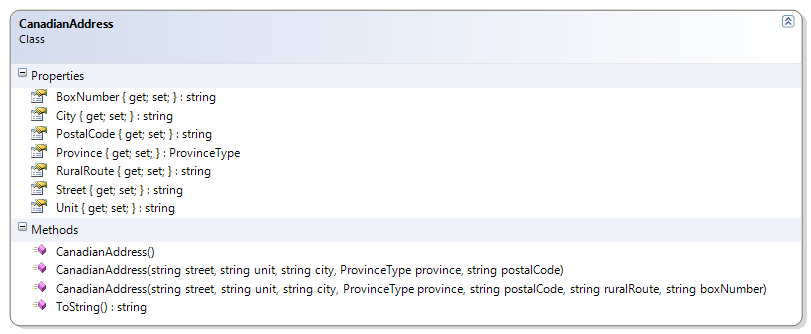
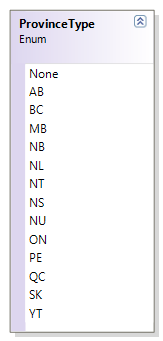


# CanadianAddress + Province

The CanadianAddress class is modified to now use a ProvinceType enumeration to properly capture the provinces and territories of Canada.

## Problem Statement

Modify the CanadianAddress class to now use an enumeration for the province. Use the following class diagram as a guide in creating the class and the enumeration.

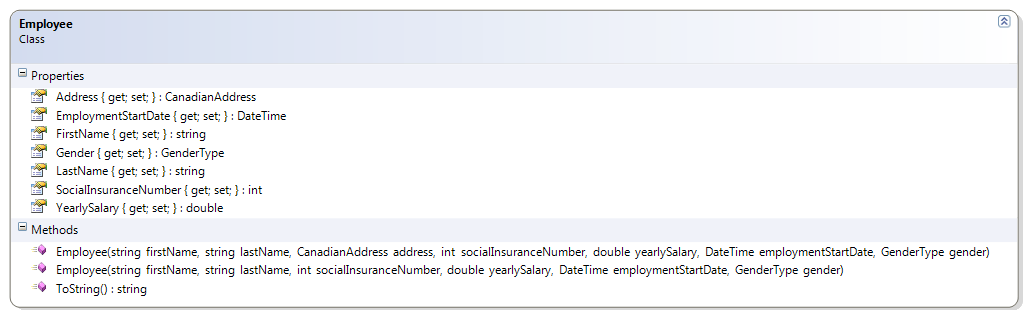


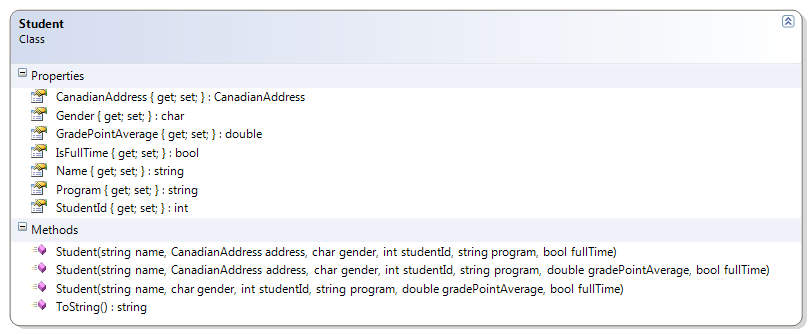
# Employee/Student + CanadianAddress + Province

The Employee and Student classes now have address information.

## Problem Statement

Modify the Employee and Student classes to now use the CanadianAddress type for their addresses.





# Company + Month + CanadianAddress + Province

The Company now has a CanadianAddress.

## Problem Statement

Modify the Company class to now make use of the CanadianAddress type for the address. Also, create an enumeration for the months of the year for representing the company’s fiscal year end.

