Project5
CECS277 Fall 2021
Due October 6th 11:59 pm
Submit project5.zip folder before the deadline

Please make sure to follow the naming convention for your project. If your project does not run because of the naming issues, you won't receive any credit.
project5.zip should include **project5 Package** and **project5.jar**
project5 package will include **Employee, ProductionWorker and WorkerDemo** classes.

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Any form of plagiarism or cheating will result in a failing grade on the assignment (at a minimum), and could result in a failing grade in the course or even university disciplinary action.

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Academic Information and Regulations-Cheating and Plagiarism

Employee and ProductionWorker Classes

Design a class named Employee. The class should keep the following information in fields:

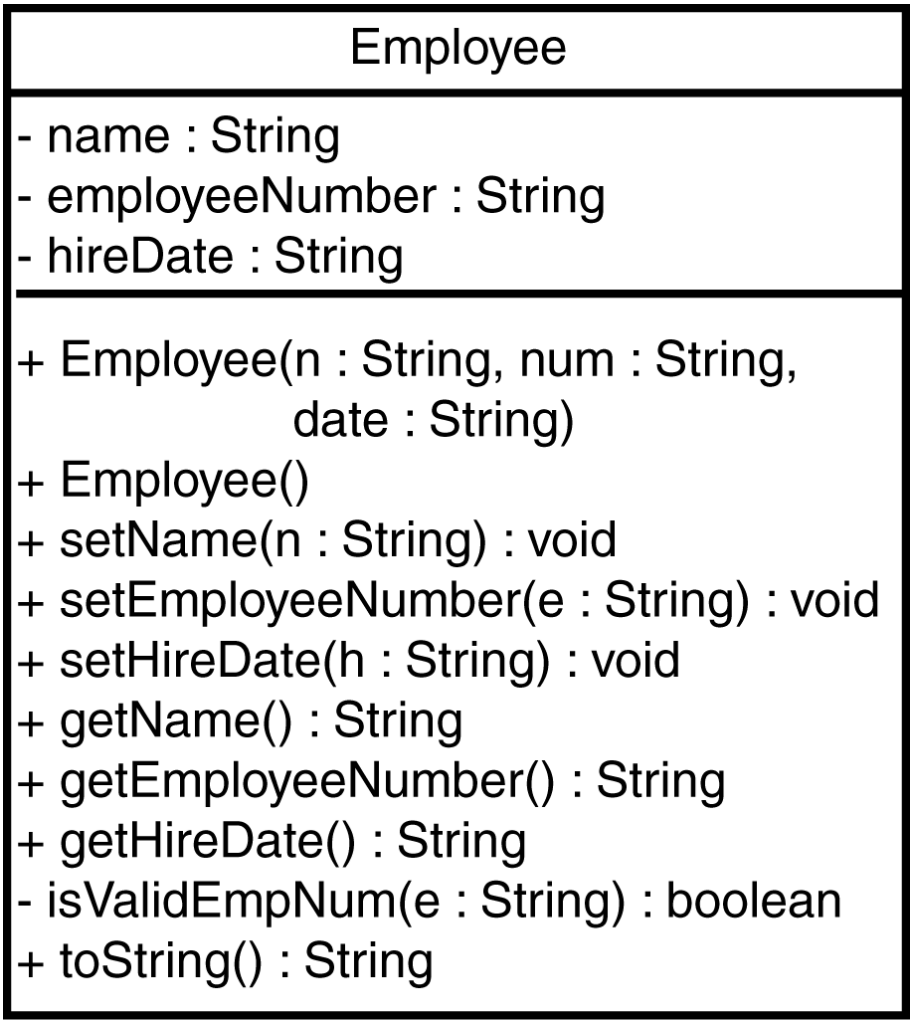
- Employee name
- Employee number in the format XXX–L, where each X is a digit within the range 0–9, and the L is a letter within the range A–M. It should be total of 5 characters.

  isValidEmpNum:

  This private method returns true if the argument e is a valid Employee ID number. Othewise, it returns false. The **isValidEmpNum** should be called from setEmployeeNumber(). As long as the user does not enter a valid Employee number in the right format, **isValidEmpNum will be called again.** Use while loop for this to make it work properly.

- Hire date

Follow the ***Unified Modeling Language diagram*** below to create Employee fields, constructors and the appropriate accessor and mutator methods for the class.**Employee Class UML**

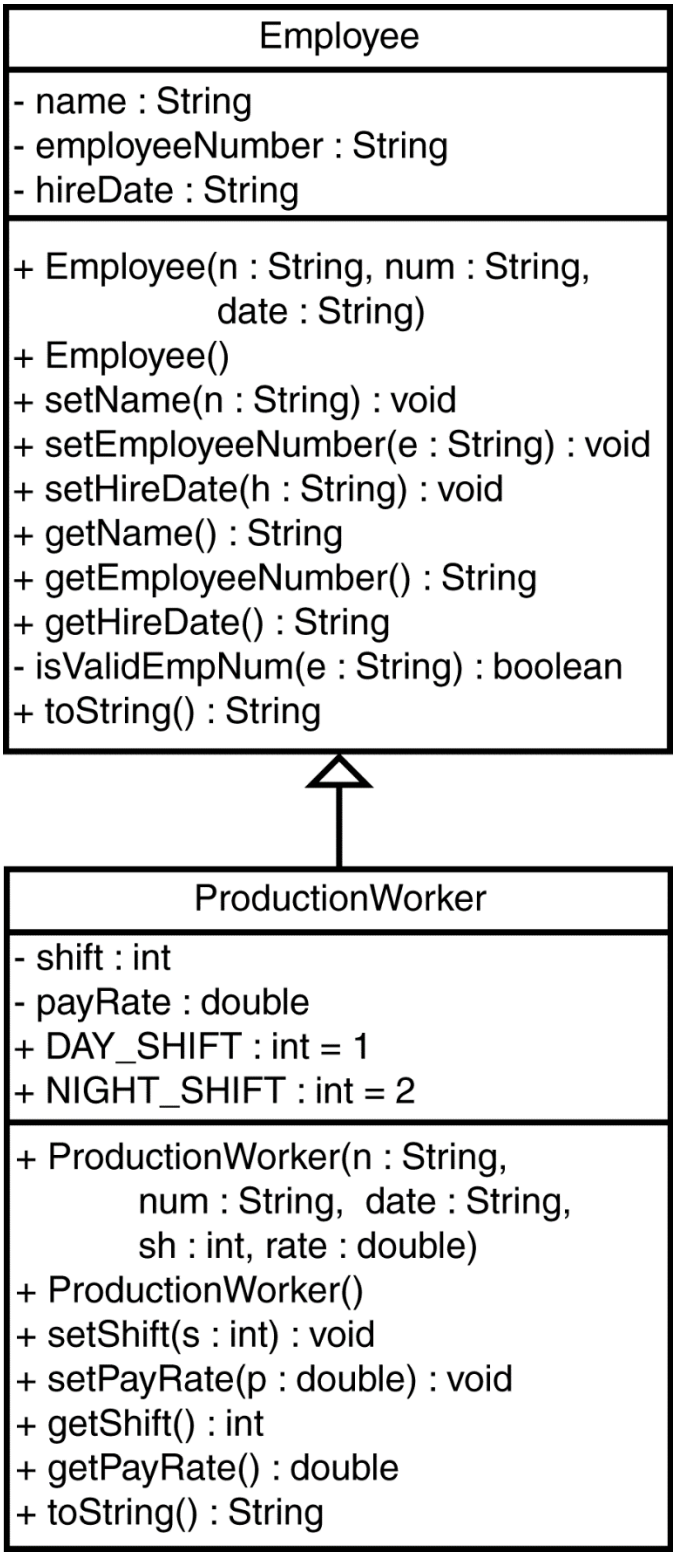


Next, write a class named ProductionWorker that inherits from the Employee class. The ProductionWorker class stores data about an employee that is a production worker. The ProductionWorker class should have fields to hold the following information:

- Shift (an integer) *Validate the shift value. Make sure the user to enter only 1 or 2.*
- Hourly pay rate (a double) *No need for validation for this one.*

The workday is divided into two shifts: day and night. The shift field will be an integer value representing the shift that the employee works. The day shift is shift 1, and the night shift is shift 2.

Write two constructors and the appropriate accessor and mutator methods for the class. Please follow the UML below for it:


Employee
- name : String
- employeeNumber : String
- hireDate : String
+ Employee(n : String, num : String,
date : String)
+ Employee()
+ setName(n : String) : void
+ setEmployeeNumber(e : String) : void
+ setHireDate(h : String) : void
+ getName() : String
+ getEmployeeNumber() : String
+ getHireDate() : String
- isValidEmpNum(e : String) : boolean
+ toString() : String
ProductionWorker
- shift : int
- payRate : double
+ DAY_SHIFT : int = 1
+ NIGHT_SHIFT : int = 2
+ ProductionWorker(n : String,
num : String, date : String,
sh : int, rate : double)
+ ProductionWorker()
+ setShift(s : int) : void
+ setPayRate(p : double) : void
+ getShift() : int
+ getPayRate() : double
+ toString() : String

Demonstrate the classes by writing a program that uses ProductionWorker objects. Here is how you do this: Create a class named WorkerDemo which has the main method in it. We will create objects of ProductionWorker class. One of these objects is using the overloaded constructor to set the values of Employee Name, number, Date of Hire, shift and payRate.

The other object will ask for user inputs to set those values. For more details, see the sample output.

```
C:\Users\facuser\Desktop\CECS277>java -jar project5.jar
Here's the first production worker.
Name: John Smith
Employee Number: 123-A
Hire Date: 11-15-2005
Shift: Day
Hourly Pay Rate: $16.50

Demonstrating the input validation ...


Enter the employee Name: John Wagner

Enter the employee number: 3448-1
 INVALID Format--
Please try again--This time in the correct format.
XXX-L, where each X is a digit within the range 0-9,
and the L is a letter within the range A-M
 flelel33
 INVALID Format--
Please try again--This time in the correct format.
XXX-L, where each X is a digit within the range 0-9,
and the L is a letter within the range A-M
 345-A
```

```
Enter the employee Hire Date: 09-10-1999

Enter the employee workers shift (Day=1, night=2): -2
Invalid input-- Please enter 1 or 2: 0
Invalid input-- Please enter 1 or 2: 2

Enter the employee pay Rate: 25

Here's the second production worker.
Name: John Wagner
Employee Number: 345-A
Hire Date: 09-10-1999
Shift: Night
Hourly Pay Rate: $25.00
```