

Java Inheritance – Person

Purpose

This lab was designed to solidify your understanding of class design by defining classes, extending classes, instantiating objects via constructors, accessing objects thru reference variables, declaring private attributes with the appropriate accessor and mutator methods, and encapsulating data fields.

Person.java

Write a Person class that *has-a* name, gender, address and number. The class has 2 constructors, the no-arg (default or non-parameterized) and an initialization constructor (parameterized).

Person
-name: String = "John Doe" -gender: char = 'M' -number: long = 832_123_4567 -address: String = "Cypress"
+Person() +Person(name: String, gender: char, number:long, address:String) +setNumber(number: long) : void +setAddress(address: String) : void +getName(): String +equals(obj: Object) : boolean +toString() : String

+ and - : indicates the method/field is public and private respectively

Student.java

Write a Student class. A student *is-a* person. A student *has-a* gpa.

Student
-gpa: double = 4.0
+Student() +Student(name: String, gender: char, number:long, address:String, gpa: double) +setgpa(gpa: double): void +getgpa(): double +equals(obj: Object): boolean +toString() : String

HighSchoolStudent.java

Write a HighSchoolStudent class. A high school student *is-a* student and *has-a* grade level and a name of the school where they attend.

HighSchoolStudent
-grade: String = "senior" -school: String = "Cy Ranch"
+HighSchoolStudent() +HighSchoolStudent(name: String, gender: char, number:long, address:String, gpa: double grade: String, school: String) +equals(obj: Object): boolean +toString() : String

Employee.java

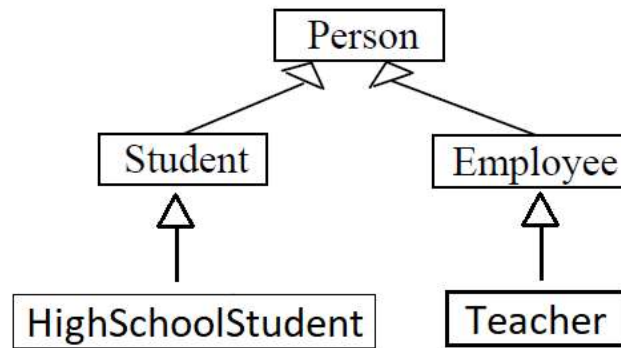
Write an Employee class. An employee *is-a* person and *has-a* salary and date hired.

Employee
-salary: int = 100_000 -dateHired: java.time.LocalDate = 2022-11-15
+Employee() + Employee(salary: int, dateHired: java.time.LocalDate) +equals(obj: Object): boolean +toString() : String

Teacher.java

Write a Teacher class. A teacher *is-a* employee and *has-a* room number, conference period, and years in profession.

Teacher
-room: int = 1560 -conference: String = "6th" -years: int = 12
+Teacher () +Teacher(room: int, conference: String, years: int) +equals(obj: Object): boolean +toString() : String



Sample Data

```
Person defaultPerson = new Person();
System.out.println(defaultPerson);

Person chuckNorris = new Person("Chuck Norris", 'M', 111_111_1111, "Navasota" );
System.out.println(chuckNorris);

Student defaultStudent = new Student();
System.out.println(defaultStudent);

Student cb = new Student("Capybara", 'F', 222_222_2222L, "SouthAmerica", 7.0);
System.out.println(cb);

HighSchoolStudent defaultHighSchoolStudent = new HighSchoolStudent();
System.out.println(defaultHighSchoolStudent);

HighSchoolStudent fo; = new HighSchoolStudent("Fred O'Bannion", 'M', 999_999_9999L,
"Austin", 1.2, "Senior", "Lee High");
System.out.println(fo);

Employee defaultEmployee = new Employee();
System.out.println(defaultEmployee);

Employee pg = new Employee("Peter Gibbons", 'M', 888_888_8888L, "Austin", 75_000,
LocalDate.parse("1999-02-19"));
System.out.println(pg);

Teacher defaultTeacher = new Teacher();
System.out.println(defaultTeacher);

Teacher eh = new Teacher("Elizabeth Halsey", 'F', 555_555_5555L, "Chicago", 50_000,
LocalDate.parse("2011-06-11"), 1, "1st", 1);
System.out.println(eh);
```

Sample Execution

name='John Doe', gender=M, number=8321234567, address='Cypress'

name='Chuck Norris', gender=M, number=1111111111, address='Navasota'

name='John Doe', gender=M, number=8321234567, address='Cypress', gpa=4.0

name='Capybara', gender=F, number=2222222222, address='SouthAmerica', gpa=7.0

name='John Doe', gender=M, number=8321234567, address='Cypress', gpa=4.0, grade='senior',
school='Cy Ranch'

name='Fred O'Bannion', gender=M, number=9999999999, address='Austin', gpa=1.2, grade='Senior',
school='Lee High'

name='John Doe', gender=M, number=8321234567, address='Cypress', salary=100000, date
hired=2022-11-15

name='Peter Gibbons', gender=M, number=8888888888, address='Austin', salary=75000, date
hired=1999-02-19

name='John Doe', gender=M, number=8321234567, address='Cypress', salary=100000, date
hired=2022-11-15, room=1560, conference='6th', years=12

name='Elizabeth Halsey', gender=F, number=5555555555, address='Chicago', salary=50000, date
hired=2011-06-11, room=1, conference='1st', years=1