# CS 115 - Introduction to Programming in Python

# Lab Guide 08B

**Lab Objectives:** Inheritance.

1. Create a class, **Patient**, with the following data members and methods. Note all data members and class variables should be private.

**Data Members:**

* **pName**: stores the string name of the patient
* **isInsured**: boolean field that indicates if patient has private insurance.
* **coveragePercent**: stores the percent (as decimal value) of the patient’s insurance coverage. Zero if not insured.

**Class Variable:**

* **hospitalFee**: stores the fee for the hospital visit, 500TL.

**Methods**:

* **\_\_init()\_\_**: initializes the pName, isInsured, coveragePercent (default parameter set to zero if not passed) to values passed as parameters. Should initialize coveragePercent using the set method.
* **Get and set methods** for all data members. The set method for coveragePercent should only set the variable if the value passed as a parameter is a positive value.
* **Get method to return the value of the \_\_hospitalFee.**
* **\_\_repr()\_\_**: returns a string representation of a Patient object formatted as shown in the sample run (includes patient name and insurance information only).
* **calculateFee ()**: calculates and returns the amount of the hospital fee the patient must pay. If the patient is insured, deduct the insurance portion.

1. Create a class, **Outpatient**, with the following data members and methods. Note all data members should be private.

**Data Members:**

* **polyClinic**: stores the string name of the poly clinic for the patient’s appointment.
* **doctorName**: stores the string name of the doctor the patient will visit.
* **appointmentDate**: stores the date of the appointment.
* **appointmentTime**: stores the time of the appointment.

**Methods**:

* **\_\_init()\_\_**:
  + Takes the following parameters: name, insurance, appointment date, appointment time, poly clinic, doctor name, and coverage percent (default 0.0) as parameters.
  + Initialize the Patient data using the super class \_\_init\_\_ method. If the polyclinic is Dentistry or Optometry, the coverage percent passed as a parameter should be divided by 2.
  + Initialize appointment date, time, doctor and poly clinic to the parameter values.
  + Use the set method to initialize the appointment date.
* **Get and set methods for Outpatient attributes**:
  + **setAppointmentDate()** takes a string as a parameter (assume ‘YYYYmmdd’) and converts it to a date object using the date time module.
  + **Example:**

datetime.datetime.strptime(varName, ‘%Y%m%d’).date()

converts the given varName string to a date, where %Y indicates the position of the 4 digit year, %m the two digit month, and %d the two digit date.

today = datetime.datetime.strptime('20190123', '%Y%m%d').date()

today

Out[13]: datetime.date(2019, 1, 23)

* **\_\_lt()\_\_**: compares two Outpatients by their appointment date and time. If self has an appointment date and time before other, return True, else return false.
* **\_\_repr()\_\_**: returns a string representation of an Outpatient object. The method should call the Patient \_\_repr\_\_ to get the Patient data, and append the Outpatient data, formatted as shown in the sample run.

1. Write a script **PatientApp** with the following functions:

* **schedulePatients():** takes a string filename and list of Outpatients as parameters. Reads the patient data from the file and adds the outpatients in the file to the list passed as a parameter.
* **The script** should do the following:
  + Create an empty list to store patients.
  + Schedule the patients in the file patients.txt using the function above.
  + Sort the list of patients according to their appointment times.
  + Display the list of patients.

**Sample Run:**

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Appointment Date: 2019-02-15 08:30

Patient Name: Syreeta Coachman Insurance: (no)

Poly Clinic: Gastroenterology (Dr. Irem Basar)

Fee: 500

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Appointment Date: 2019-02-15 10:15

Patient Name: Charlena Tebbs Insurance: (yes)

Poly Clinic: Dentistry (Dr. Ali Ayhan)

Fee: 325.0

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Appointment Date: 2019-02-16 12:15

Patient Name: Arlie Peek Insurance: (no)

Poly Clinic: ENT (Dr. Jale TunÃ§)

Fee: 500

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Appointment Date: 2019-02-16 15:30

Patient Name: Elwood Depaul Insurance: (no)

Poly Clinic: Optometry (Dr. Mehmet Keskin)

Fee: 500

,

Appointment Date: 2019-02-22 15:30

Patient Name: Janell Huey Insurance: (yes)

Poly Clinic: ENT (Dr. Melis KoÃ§)

Fee: 100.0

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Appointment Date: 2019-03-15 11:00

Patient Name: Lenore Bechard Insurance: (yes)

Poly Clinic: Cardiology (Dr. Ayla GÃ¼ner)

Fee: 325.0

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Appointment Date: 2019-03-17 10:30

Patient Name: Lolita Shore Insurance: (yes)

Poly Clinic: Cardiology (Dr. Veysel KarakuÅŸ)

Fee: 150.0

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Appointment Date: 2019-03-17 15:30

Patient Name: Maudie Plummer Insurance: (yes)

Poly Clinic: Optometry (Dr. Elif Som)

Fee: 275.0

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