# Lab 07:

Lab Task: 1. Design a class named Person and its two subclasses named Student and Employee. Make Faculty and Staff subclasses of Employee.

(The Person, Student, Employee, Faculty, and Staff classes)

A person has a name, address, phone number, and email address. A student has a class status (freshman, sophomore, junior, or senior). Define the status as a constant. An employee has an office, salary, and date hired. A faculty member has office hours and a rank. A staff member has a title. Override the toString method in each class to display the class name and the person’s name.

Write a test program that creates a Person, Student, Employee, Faculty, and Staff, and invokes their toString() methods.

## **Code**:

**package** pakage;

**import** java.util.\*;

**public** **class** main {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

Person person = **new** Person();

Student student = **new** Student();

Employee employee = **new** Employee();

Faculty faculty = **new** Faculty();

Staff staff = **new** Staff();

person.display();

System.***out***.println("\n---------------------------");

student.display();

System.***out***.println("\n---------------------------");

employee.display();

System.***out***.println("\n---------------------------");

faculty.display();

System.***out***.println("\n---------------------------");

staff.display();

}

}

**class** Person{

String name, address, phone, email;

**public** Person(){

**this**("Naveed", "7th Street", "+92345678910", "naveed884@gmail.com");

}

**public** Person(String name, String address, String phone, String email){

**this**.name = name;

**this**.address = address;

**this**.phone = phone;

**this**.email = email;

}

**public** **void** display(){

System.***out***.println("\nPerson data fields");

System.***out***.println("Name: " + name);

System.***out***.println("Address: " + address);

System.***out***.println("Phone: " + phone);

System.***out***.println("Email: " + email);

}

}

**class** Student **extends** Person{

**final** String CLASS\_STATUS;

**public** Student(){

**this**.CLASS\_STATUS = "Freshman";

}

**public** Student(String CLASS\_STATUS){

**this**.CLASS\_STATUS = CLASS\_STATUS;

}

**public** **void** display(){

**super**.display();

System.***out***.println("\nStudent data fields");

System.***out***.println("Class status: " + CLASS\_STATUS);

}

}

**class** Employee **extends** Person{

String office;

**int** salary;

MyDate dateHired;

**public** Employee(){

**this**("Standard", 50000, **new** MyDate());

}

**public** Employee(String office, **int** salary, MyDate dateHired){

**this**.office = office;

**this**.salary = salary;

**this**.dateHired = dateHired;

}

**public** **void** display(){

**super**.display();

System.***out***.println("\nEmployee data fields");

System.***out***.println("Office : " + office);

System.***out***.println("Salary: " + salary);

System.***out***.println("Date hired: " + dateHired);

}

}

**class** Faculty **extends** Employee{

String officeHours, rank;

**public** Faculty(){

**this**("4-5", "");

}

**public** Faculty(String officeHours, String rank){

**this**.officeHours = officeHours;

**this**.rank = rank;

}

**public** **void** display(){

**super**.display();

System.***out***.println("\nFaculty data fields");

System.***out***.println("Office hours: " + officeHours);

System.***out***.println("Rank: " + rank);

}

}

**class** Staff **extends** Employee{

String title;

**public** Staff(){

**this**("staff");

}

**public** Staff(String title){

**this**.title = title;

}

**public** **void** display(){

**super**.display();

System.***out***.println("\nStaff data fields");

System.***out***.println("Title: " + title);

}

}

**class** MyDate{

Calendar c = Calendar.*getInstance*();

**private** **int** year, month, day;

**public** MyDate(){

**this**(System.*currentTimeMillis*());

}

**public** MyDate(**long** millis){

setDate(millis);

}

**public** MyDate(**int** year, **int** month, **int** day){

**this**.year = year;

**this**.month = month;

**this**.day = day;

}

**public** **int** getYear(){

**return** year;

}

**public** **int** getMonth(){

**return** month;

}

**public** **int** getDay(){

**return** day;

}

**public** **void** setDate(**long** millis){

c.setTimeInMillis(millis);

year = c.get(Calendar.***YEAR***);

month = c.get(Calendar.***MONTH***);

day = c.get(Calendar.***DAY\_OF\_MONTH***);

}

**public** **void** display(){

System.***out***.printf("%d/%d/%d (mm/dd/yyyy)\n", month, day, year);

}

}

## **Output**:

Person data fields

Name: Naveed

Address: 7th Street

Phone: +92345678910

Email: naveed884@gmail.com

---------------------------

Person data fields

Name: Naveed

Address: 7th Street

Phone: +92345678910

Email: naveed884@gmail.com

Student data fields

Class status: Freshman

---------------------------

Person data fields

Name: Naveed

Address: 7th Street

Phone: +92345678910

Email: naveed884@gmail.com

Employee data fields

Office : Standard

Salary: 50000

Date hired: pakage.MyDate@31befd9f

---------------------------

Person data fields

Name: Naveed

Address: 7th Street

Phone: +92345678910

Email: naveed884@gmail.com

Employee data fields

Office : Standard

Salary: 50000

Date hired: pakage.MyDate@1c20c684

Faculty data fields

Office hours: 4-5

Rank:

---------------------------

Person data fields

Name: Naveed

Address: 7th Street

Phone: +92345678910

Email: naveed884@gmail.com

Employee data fields

Office : Standard

Salary: 50000

Date hired: pakage.MyDate@1fb3ebeb

Staff data fields

Title: staff

# Lab 07:

Lab Task: 1. Design a class named Person and its two subclasses named Student and Employee. Make Faculty and Staff subclasses of Employee.

(The Person, Student, Employee, Faculty, and Staff classes)

A person has a name, address, phone number, and email address. A student has a class status (freshman, sophomore, junior, or senior). Define the status as a constant. An employee has an office, salary, and date hired. A faculty member has office hours and a rank. A staff member has a title. Override the toString method in each class to display the class name and the person’s name.

Write a test program that creates a Person, Student, Employee, Faculty, and Staff, and invokes their toString() methods.

## **Code**:

**package** pakage;

**import** java.util.\*;

**public** **class** main {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

Person person = **new** Person();

Student student = **new** Student();

Employee employee = **new** Employee();

Faculty faculty = **new** Faculty();

Staff staff = **new** Staff();

person.display();

System.***out***.println("\n---------------------------");

student.display();

System.***out***.println("\n---------------------------");

employee.display();

System.***out***.println("\n---------------------------");

faculty.display();

System.***out***.println("\n---------------------------");

staff.display();

}

}

**class** Person{

String name, address, phone, email;

**public** Person(){

**this**("Osama Fazal", " 24th Street", "+92 349 021 328 7", "osamafazal11@gmail.com");

}

**public** Person(String name, String address, String phone, String email){

**this**.name = name;

**this**.address = address;

**this**.phone = phone;

**this**.email = email;

}

**public** **void** display(){

System.***out***.println("\nPerson data fields");

System.***out***.println("Name: " + name);

System.***out***.println("Address: " + address);

System.***out***.println("Phone: " + phone);

System.***out***.println("Email: " + email);

}

}

**class** Student **extends** Person{

**final** String CLASS\_STATUS;

**public** Student(){

**this**.CLASS\_STATUS = "Freshman";

}

**public** Student(String CLASS\_STATUS){

**this**.CLASS\_STATUS = CLASS\_STATUS;

}

**public** **void** display(){

**super**.display();

System.***out***.println("\nStudent data fields");

System.***out***.println("Class status: " + CLASS\_STATUS);

}

}

**class** Employee **extends** Person{

String office;

**int** salary;

MyDate dateHired;

**public** Employee(){

**this**("Standard", 70000, **new** MyDate());

}

**public** Employee(String office, **int** salary, MyDate dateHired){

**this**.office = office;

**this**.salary = salary;

**this**.dateHired = dateHired;

}

**public** **void** display(){

**super**.display();

System.***out***.println("\nEmployee data fields");

System.***out***.println("Office : " + office);

System.***out***.println("Salary: " + salary);

System.***out***.println("Date hired: " + dateHired);

}

}

**class** Faculty **extends** Employee{

String officeHours, rank;

**public** Faculty(){

**this**("4-5", "");

}

**public** Faculty(String officeHours, String rank){

**this**.officeHours = officeHours;

**this**.rank = rank;

}

**public** **void** display(){

**super**.display();

System.***out***.println("\nFaculty data fields");

System.***out***.println("Office hours: " + officeHours);

System.***out***.println("Rank: " + rank);

}

}

**class** Staff **extends** Employee{

String title;

**public** Staff(){

**this**("staff");

}

**public** Staff(String title){

**this**.title = title;

}

**public** **void** display(){

**super**.display();

System.***out***.println("\nStaff data fields");

System.***out***.println("Title: " + title);

}

}

**class** MyDate{

Calendar c = Calendar.*getInstance*();

**private** **int** year, month, day;

**public** MyDate(){

**this**(System.*currentTimeMillis*());

}

**public** MyDate(**long** millis){

setDate(millis);

}

**public** MyDate(**int** year, **int** month, **int** day){

**this**.year = year;

**this**.month = month;

**this**.day = day;

}

**public** **int** getYear(){

**return** year;

}

**public** **int** getMonth(){

**return** month;

}

**public** **int** getDay(){

**return** day;

}

**public** **void** setDate(**long** millis){

c.setTimeInMillis(millis);

year = c.get(Calendar.***YEAR***);

month = c.get(Calendar.***MONTH***);

day = c.get(Calendar.***DAY\_OF\_MONTH***);

}

**public** **void** display(){

System.***out***.printf("%d/%d/%d (mm/dd/yyyy)\n", month, day, year);

}

}

## **Output**:

Person data fields

Name: Osama Fazal

Address: 24th Street

Phone: +92 349 021 328 7

Email: osamafazal11@gmail.com

---------------------------

Person data fields

Name: Osama Fazal

Address: 24th Street

Phone: +92 349 021 328 7

Email: osamafazal11@gmail.com

Student data fields

Class status: Freshman

---------------------------

Person data fields

Name: Osama Fazal

Address: 24th Street

Phone: +92 349 021 328 7

Email: osamafazal11@gmail.com

Employee data fields

Office : Standard

Salary: 70000

Date hired: pakage.MyDate@31befd9f

---------------------------

Person data fields

Name: Osama Fazal

Address: 24th Street

Phone: +92 349 021 328 7

Email: osamafazal11@gmail.com

Employee data fields

Office : Standard

Salary: 70000

Date hired: pakage.MyDate@1c20c684

Faculty data fields

Office hours: 4-5

Rank:

---------------------------

Person data fields

Name: Osama Fazal

Address: 24th Street

Phone: +92 349 021 328 7

Email: osamafazal11@gmail.com

Employee data fields

Office : Standard

Salary: 70000

Date hired: pakage.MyDate@1fb3ebeb

Staff data fields

Title: staff