

assignment-1_1\src\main\java\package1\Employee.java

```
1 package main.java.package1;
2 public class Employee{
3     private String firstName;
4     private String lastName;
5     private String ssn;
6
7     public Employee (String firstName, String lastName, String ssn){
8         this.firstName = firstName;
9         this.lastName = lastName;
10        this.ssn = ssn;
11    }
12
13    public String getFirstName(){return firstName;}
14    public String getLastName(){return lastName;}
15    public String getSSN(){return ssn;}
16
17    public void setFirstName(String newFirstName){this.firstName = newFirstName;}
18    public void setLastName(String newLastName){this.lastName = newLastName;}
19    public void setSSN(String newSSN){this.ssn = newSSN;}
20 }
21
```

assignment-1_1\src\main\java\package1\BaseEmployee.java

```
1 package main.java.package1;
2
3 public class BaseEmployee extends Employee{
4     private double baseSalary;
5
6     public BaseEmployee(String firstName, String lastName, String ssn, double baseSalary) {
7         super(firstName, lastName, ssn);
8         this.baseSalary = baseSalary;
9     }
10
11     public double getBaseSalary(){return this.baseSalary;}
12
13     public void setBaseSalary(double newBaseSalary){this.baseSalary = newBaseSalary;}
14 }
15
```

assignment-1_1\src\main\java\package1\CommissionEmployee.java

```
1 package main.java.package1;
2
3 public class CommissionEmployee extends Employee{
4     private double commissionRate;
5     private double grossSales;
6
7     public CommissionEmployee(String firstName, String lastName, String ssn, double
commissionRate, double grossSales) {
8         super(firstName, lastName, ssn);
9         this.commissionRate = commissionRate;
10        this.grossSales = grossSales;
11    }
12
13    public double getCommissionRate(){return this.commissionRate;}
14    public double getGrossSales(){return this.grossSales;}
15
16    public void setCommissionRate(double newCommissionRate){this.commissionRate =
newCommissionRate;}
17    public void setGrossSales(double newGrossSales){this.grossSales = newGrossSales;}
18 }
19
```

assignment-1_1\src\main\java\package1\HourlyEmployee.java

```
1 package main.java.package1;
2
3 public class HourlyEmployee extends Employee{
4     private double wage;
5     private double hoursWorked;
6
7     public HourlyEmployee(String firstName, String lastName, String ssn, double wage, double
hoursWorked) {
8         super(firstName, lastName, ssn);
9         this.wage = wage;
10        this.hoursWorked = hoursWorked;
11    }
12
13    public double getWage(){return wage;}
14    public double getHoursWorked(){return hoursWorked;}
15
16    public void setWage(double newWage){this.wage = newWage;}
17    public void setHoursWorked(double newHoursWorked){this.hoursWorked = newHoursWorked;}
18 }
19
```

assignment-1_1\src\main\java\package1\Driver.java

```
1 package main.java.package1;
2
3 public class Driver {
4     public static void main(String[] args) {
5         SalariedEmployee joe = new SalariedEmployee("Joe", "Jones", "111-11-1111", 2500);
6         HourlyEmployee stephanie = new HourlyEmployee("Stephanie", "Smith", "222-22-2222", 25,
7 32);
8         HourlyEmployee mary = new HourlyEmployee("Mary", "Quinn", "333-33-3333", 19, 47);
9         CommissionEmployee nicole = new CommissionEmployee("Nicole", "Dior", "444-44-4444",
10 0.15, 50000);
11         SalariedEmployee renwa = new SalariedEmployee("Renwa", "Chanel", "555-55-5555", 1700);
12         BaseEmployee mike = new BaseEmployee("Mike", "Davenport", "666-66-6666", 95000);
13         CommissionEmployee mahaz = new CommissionEmployee("Mahaz", "Vaziri", "777-77-7777",
14 0.22, 40000);
15
16         printInfo(joe);
17         printInfo(stephanie);
18         printInfo(mary);
19         printInfo(nicole);
20         printInfo(renwa);
21         printInfo(mike);
22         printInfo(mahaz);
23     }
24
25     private static void printInfo(Employee employee){
26         System.out.println("First Name: " + employee.getFirstName());
27         System.out.println("Last Name: " + employee.getLastName());
28         System.out.println("Social Security Number: " + employee.getSSN());
29
30         if (employee instanceof SalariedEmployee) {
31             System.out.println("Weekly Salary: $" + ((SalariedEmployee) employee)
32 .getWeeklySalary());
33         } else if (employee instanceof HourlyEmployee) {
34             HourlyEmployee hourlyEmployee = (HourlyEmployee) employee;
35             System.out.println("Wage: $" + hourlyEmployee.getWage());
36             System.out.println("Hours Worked: " + hourlyEmployee.getHoursWorked());
37         } else if (employee instanceof CommissionEmployee) {
38             CommissionEmployee commissionEmployee = (CommissionEmployee) employee;
39             System.out.println("Commission Rate: " + commissionEmployee.getCommissionRate());
40             System.out.println("Gross Sales: $" + commissionEmployee.getGrossSales());
41         } else if (employee instanceof BaseEmployee) {
42             System.out.println("Base Salary: $" + ((BaseEmployee) employee).getBaseSalary());
43         }
44     }
45
46     System.out.println("-----");
47 }
```

First Name: Joe

Last Name: Jones

Social Security Number: 111-11-1111

Weekly Salary: \$2500.0

First Name: Stephanie

Last Name: Smith

Social Security Number: 222-22-2222

Wage: \$25.0

Hours Worked: 32.0

First Name: Mary

Last Name: Quinn

Social Security Number: 333-33-3333

Wage: \$19.0

Hours Worked: 47.0

First Name: Nicole

Last Name: Dior

Social Security Number: 444-44-4444

Commission Rate: 0.15

Gross Sales: \$50000.0

First Name: Renwa

Last Name: Chanel

Social Security Number: 555-55-5555

Weekly Salary: \$1700.0

First Name: Mike

Last Name: Davenport

Social Security Number: 666-66-6666

Base Salary: \$95000.0

First Name: Mahaz

Last Name: Vaziri

Social Security Number: 777-77-7777

Commission Rate: 0.22

Gross Sales: \$40000.0

assignment-1_1\src\main\java\package1\SalariedEmployee.java

```
1 package main.java.package1;
2
3 public class SalariedEmployee extends Employee{
4
5     private double weeklySalary;
6
7     public SalariedEmployee(String firstName, String lastName, String ssn, double
weeklySalary) {
8         super(firstName, lastName, ssn);
9         this.weeklySalary = weeklySalary;
10    }
11
12    public double getWeeklySalary(){return weeklySalary;}
13    public void setWeeklySalary(double newWeeklySalary){this.weeklySalary = newWeeklySalary;}
14
15 }
16
```

assignment-1_1\src\main\java\package2\CargoShip.java

```
1 package main.java.package2;
2
3 public class CargoShip extends Ship{
4     private int tonnage;
5
6     public CargoShip(String name, int year, int tonnage) {
7         super(name, year);
8         this.tonnage = tonnage;
9     }
10
11     public int getTonnage(){return this.tonnage;}
12
13     public void setTonnage(int newTonnage){this.tonnage = newTonnage;}
14
15     @Override
16     public void print(){
17         super.print();
18         System.out.println("Cargo Capacity: " + tonnage);
19     }
20 }
21
```


assignment-1_1\src\main\java\package2\CruiseShip.java

```
1 package main.java.package2;
2
3 public class CruiseShip extends Ship{
4     private int maxNumPassengers;
5
6     public CruiseShip(String name, int year, int maxNumPassengers) {
7         super(name, year);
8         this.maxNumPassengers = maxNumPassengers;
9     }
10
11     public int getMaxNumPassengers(){return this.maxNumPassengers;}
12
13     public void setMaxNumPassengers(int newMaxNumPassengers){this.maxNumPassengers =
14 newMaxNumPassengers;}
15
16     @Override
17     public void print(){
18         super.print();
19         System.out.println("Max Number of Passenegers: " + maxNumPassengers);
20     }
21 }
```

assignment-1_1\src\main\java\package2\ShipDriver.java

```
1 package main.java.package2;
2
3 public class ShipDriver {
4     public static void main(String[] args) {
5         Ship[] ships = new Ship[3];
6
7         ships[0] = new Ship("Ship1", 2023);
8         ships[1] = new CruiseShip("Cruise Ship 2", 1997, 100);
9         ships[2] = new CargoShip("Cargo Ship 1", 1730, 23);
10
11         for (Ship x: ships){
12             x.print();
13             System.out.println("-----");
14         }
15     }
16 }
17
```

assignment-1_1\src\main\java\package2\Ship.java

```
1 package main.java.package2;
2
3 public class Ship {
4     private String name;
5     private int year;
6
7     public Ship(String name, int year){
8         this.name = name;
9         this.year = year;
10    }
11
12    public String getName(){return this.name;}
13    public int getYear(){return this.year;}
14
15    public void setName(String newName){this.name = newName;}
16    public void setYear(int newYear){this.year = newYear;}
17
18    public void print(){
19        System.out.println("Ship name: " + name);
20        System.out.println("Year built: " + year);
21    }
22 }
23
```

```
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```

Ship name: Ship1

Year built: 2023

Ship name: Cruise Ship 2

Year built: 1997

Max Number of Passenegers: 100

Ship name: Cargo Ship 1

Year built: 1730

Cargo Capacity: 23

assignment-1_1\src\main\java\package3\Course.java

```
1 package main.java.package3;
2
3 public class Course {
4     private String courseName;
5     private Instructor instructor;
6     private Textbook textbook;
7
8     public Course(String courseName, Instructor instructor, Textbook textbook){
9         this.courseName = courseName;
10        this.instructor = instructor;
11        this.textbook = textbook;
12    }
13
14    public String getCourseName() {return courseName;}
15    public Instructor getInstructor() {return instructor;}
16    public Textbook getTextbook() {return textbook;}
17
18    public void setCourseName(String courseName) {this.courseName = courseName;}
19    public void setInstructor(Instructor instructor) {this.instructor = instructor;}
20    public void setTextbook(Textbook textbook) {this.textbook = textbook;}
21
22    public void print() {
23        System.out.println("Course Name: " + courseName);
24        System.out.println("Instructor: " + instructor.getFirstName() + " " +
instructor.getLastName() +
25            ", Office Number: " + instructor.getOfficeNum());
26        System.out.println("Textbook: " + textbook.getTitle() + System.lineSeparator() +
27            "Written by: " + textbook.getAuthor() + System.lineSeparator() +
28            "Publisher: " + textbook.getPublisher());
29    }
30 }
31
```

assignment-1_1\src\main\java\package3\Instructor.java

```
1 package main.java.package3;
2
3 public class Instructor {
4     private String firstName;
5     private String lastName;
6     private String officeNum;
7
8     public Instructor(String firstName, String lastName, String officeNum){
9         this.firstName = firstName;
10        this.lastName = lastName;
11        this.officeNum = officeNum;
12    }
13
14    public String getFirstName(){return this.firstName;}
15    public String getLastName(){return this.lastName;}
16    public String getOfficeNum(){return this.officeNum;}
17
18    public void setFirstName(String newFirstName){this.firstName = newFirstName;}
19    public void setLastName(String newLastName){this.lastName = newLastName;}
20    public void setOfficeNum(String newOfficeNum){this.officeNum = newOfficeNum;}
21 }
22
```

assignment-1_1\src\main\java\package3\CourseDriver.java

```
1 package main.java.package3;
2
3 public class CourseDriver {
4     public static void main(String[] args) {
5         Instructor instructor1 = new Instructor("Nima", "Davarpanah", "3-2636");
6         Instructor instructor2 = new Instructor("Yu", "Sun", "8-1423");
7
8         Textbook textbook1 = new Textbook("Engineering for Dummies", "G4G", "Webster");
9         Textbook textbook2 = new Textbook("Computers for Dummies", "Intel", "Apple");
10
11         Course course1 = new Course("Advanced Software Engineering", instructor1, textbook1);
12         Course course2 = new Course("Advanced Computers", instructor2, textbook2);
13
14         System.out.println("-----");
15         course1.print();
16         System.out.println("-----");
17         course2.print();
18     }
19 }
20
```

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Course Name: Advanced Software Engineering

Instructor: Nima Davarpanah, Office Number: 3-2636

Textbook: Engineering for Dummies

Written by: G4G

Publisher: Webster

Course Name: Advanced Computers

Instructor: Yu Sun, Office Number: 8-1423

Textbook: Computers for Dummies

Written by: Intel

Publisher: Apple

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assignment-1_1\src\main\java\package4\Folder.java

```
1 package main.java.package4;
2
3 import java.util.ArrayList;
4 import java.util.List;
5
6 public class Folder {
7     private String folderName;
8     private List<File> files;
9     private List<Folder> subFolders;
10
11     public Folder(String folderName){
12         this.folderName = folderName;
13         this.files = new ArrayList<>();
14         this.subFolders = new ArrayList<>();
15     }
16
17     public String getFolderName() {return folderName;}
18     public List<File> getFiles() {return files;}
19     public List<Folder> getSubFolders() {return subFolders;}
20
21     public void setFolderName(String folderName) {this.folderName = folderName;}
22     public void setFiles(List<File> files) {this.files = files;}
23     public void setSubFolders(List<Folder> subFolders) {this.subFolders = subFolders;}
24
25     public void addFile(File file){files.add(file);}
26     public void addSubFolder(Folder subFolder){subFolders.add(subFolder);}
27
28     public void delete(){
29         for (File file: files){
30             System.out.println("Deleting file: " + file.getFileName());
31         }
32         files.clear();
33
34         for (Folder subFolder: subFolders){
35             System.out.println("Deleteing folder: " + subFolder.getFolderName());
36             subFolder.delete();
37         }
38         subFolders.clear();
39
40         this.files.clear();
41         this.subFolders.clear();
42
43         // Added this method to also remove folder itself
44         removeFromParent(this);
45     }
46
47     public void print(){
48         System.out.println("Folder: " + folderName);
49         for (File file: files){
50             file.print();
51         }
52         for (Folder subFolder: subFolders){
53             subFolder.print();
```

```
54     }
55 }
56
57 private void removeFromParent(Folder folder){
58     if (parent != null){
59         parent.subFolders.remove(folder);
60     }
61 }
62
63 // added this portion to keep track of parent
64 private Folder parent;
65 public Folder getParent() {return parent;}
66 public void setParent(Folder parent) {this.parent = parent;}
67 }
```

assignment-1_1\src\main\java\package3\Textbook.java

```
1 package main.java.package3;
2
3 public class Textbook {
4     private String title;
5     private String author;
6     private String publisher;
7
8     public Textbook(String title, String author, String publisher){
9         this.title = title;
10        this.author = author;
11        this.publisher = publisher;
12    }
13
14    public String getTitle(){return this.title;}
15    public String getAuthor(){return this.author;}
16    public String getPublisher(){return this.publisher;}
17
18    public void setTitle(String title) {this.title = title;}
19    public void setAuthor(String author) {this.author = author;}
20    public void setPublisher(String publisher) {this.publisher = publisher;}
21
22 }
23
```

assignment-1_1\src\main\java\package4\File.java

```
1 package main.java.package4;
2
3 public class File {
4     private String fileName;
5
6     public File(String fileName){
7         this.fileName = fileName;
8     }
9
10    public String getFileName() {return fileName;}
11
12    public void setFileName(String fileName) {this.fileName = fileName;}
13
14    public void print() {
15        System.out.println("File: " + fileName);
16    }
17 }
18
```

assignment-1_1\src\main\java\package4\FileDemo.java

```
1 package main.java.package4;
2
3 public class FileDemo {
4     public static void main(String[] args) {
5         Folder phpDemo1 = new Folder("php_demo1");
6
7         Folder sourceFiles = new Folder("Source Files");
8         Folder phalcon = new Folder("phalcon");
9         Folder app = new Folder("app");
10        Folder config = new Folder("config");
11        Folder controllers = new Folder("controllers");
12        Folder library = new Folder("library");
13        Folder migrations = new Folder("migrations");
14        Folder models = new Folder("models");
15        Folder views = new Folder("views");
16
17        Folder cache = new Folder("cache");
18        Folder publicFolder = new Folder("public");
19        File htaccess = new File(".htaccess");
20        File indexhtrouter = new File(".htrouter.php");
21        File indexHtml = new File("index.html");
22
23        Folder includePath = new Folder("Include Path");
24        Folder remoteFiles = new Folder("Remote Files");
25
26        phpDemo1.addSubFolder(sourceFiles);
27        phpDemo1.addSubFolder(includePath);
28        phpDemo1.addSubFolder(remoteFiles);
29
30        sourceFiles.addSubFolder(phalcon);
31        sourceFiles.addSubFolder(app);
32        app.setParent(sourceFiles);
33        sourceFiles.addSubFolder(cache);
34        sourceFiles.addSubFolder(publicFolder);
35        publicFolder.setParent(sourceFiles);
36
37
38        app.addSubFolder(config);
39        app.addSubFolder(controllers);
40        app.addSubFolder(library);
41        app.addSubFolder(migrations);
42        app.addSubFolder(models);
43        app.addSubFolder(views);
44
45        publicFolder.addFile(htaccess);
46        publicFolder.addFile(indexhtrouter);
47        publicFolder.addFile(indexHtml);
48
49        // Print out php and all its subfolders
50        phpDemo1.print();
51        System.out.println("-----");
52
53        // Delete 'app' and print
```

```
54     app.delete();
55     phpDemo1.print();
56     System.out.println("-----");
57
58     // Delete 'public' and print
59     publicFolder.delete();
60     phpDemo1.print();
61 }
62 }
63
```

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Folder: php_demo1
Folder: Source Files
Folder: phalcon
Folder: app
Folder: config
Folder: controllers
Folder: library
Folder: migrations
Folder: models
Folder: views
Folder: cache
Folder: public
File: .htaccess
File: .htrouter.php
File: index.html
Folder: Include Path
Folder: Remote Files

Deleteing folder: config
Deleteing folder: controllers
Deleteing folder: library
Deleteing folder: migrations
Deleteing folder: models
Deleteing folder: views
Folder: php_demo1
Folder: Source Files
Folder: phalcon
Folder: cache
Folder: public
File: .htaccess
File: .htrouter.php
File: index.html
Folder: Include Path
Folder: Remote Files

Deleting file: .htaccess
Deleting file: .htrouter.php
Deleting file: index.html
Folder: php_demo1
Folder: Source Files
Folder: phalcon
Folder: cache
Folder: Include Path
Folder: Remote Files