

## CS4800 HW1

### inheritance

The screenshot displays the IntelliJ IDEA IDE interface for a project named CS4800\_Hw1. The left sidebar shows the project structure with the following files and folders:

- CS4800\_Hw1
  - .idea
  - out
  - src
    - Aggregation
    - Composition
    - Inheritance
      - baseEmployee
      - commissionEmployee
      - employee
      - hourlyEmployee
      - inheritanceDriver
      - salariedEmployee
    - Polymorphism
      - cargoShip
      - cruiseShip
      - polymorphismDriver
      - ship
    - Main
  - .gitignore
  - CS4800\_Hw1.iml
  - External Libraries
  - Scratches and Consoles

The main editor window shows the code for `inheritanceDriver.java`:

```
14    salariedEmployee employee1 = new salariedEmployee();
15
16    employee1.setFirstName("Joe");
17    employee1.setLastName("Jones");
18    employee1.setSSN("111-11-1111");
19    employee1.setWeeklySalary(2500);
20
21    hourlyEmployee employee2 = new hourlyEmployee();
22    employee2.setFirstName("Stephanie");
23    employee2.setLastName("Smith");
24    employee2.setSSN("222-22-2222");
25    employee2.setWage(25);
26    employee2.setHoursWorked(32);
27
28    hourlyEmployee employee3 = new hourlyEmployee();
29    employee3.setFirstName("Mary");
30    employee3.setLastName("Quinn");
31    employee3.setSSN("333-33-3333");
32    employee3.setWage(19);
33    employee3.setHoursWorked(47);
34
35    commissionEmployee employee4 = new commissionEmployee();
36    employee4.setFirstName("Nicole");
37    employee4.setLastName("Dior");
38    employee4.setSSN("444-44-4444");
39    employee4.setCommissionRate(15);
40    employee4.setGrossSales(50000);
41
42    salariedEmployee employee5 = new salariedEmployee();
43    employee5.setFirstName("Renwa");
44    employee5.setLastName("Chanel");
```

The Run window at the bottom shows the output of the program:

```
"C:\Program Files\Java\jdk-17.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2023.3.4\lib\idea_rt.jar=58219:C:\Program Files\JetBrains\IntelliJ IDEA 2023.3.4\bin" -Dfile.encoding=UTF-8 -classpath
Employee Name: Joe Jones SSN: 111-11-1111 Weekly Salary: 2500
Employee Name: Stephanie Smith SSN: 222-22-2222 Wage: 25 Hours Worked: 32
Employee Name: Mary Quinn SSN: 333-33-3333 Wage: 19 Hours Worked: 47
Employee Name: Nicole Dior SSN: 444-44-4444 Commission Rate: 15 Gross Sales: 50000
Employee Name: Renwa Chanel SSN: 555-55-5555 Weekly Salary: 1700
Employee Name: Mike Davenport SSN: 666-66-6666 Base Salary: 95000
Employee Name: Mahnaz Vaziri SSN: 777-77-7777 Commission Rate: 22 Gross Sales: 40000

Process finished with exit code 0
```

## Polymorphism

The screenshot shows an IDE window for a project named "CS4800\_Hw1". The left sidebar displays the project structure, including a "Polymorphism" package with classes "cargoShip", "cruiseShip", "polymorphismDriver", and "ship". The main editor displays the code for "polymorphismDriver.java".

```
4
5 {
6     public static void main(String[] args)
7     {
8         ship ship1 = new ship();
9         ship1.setShipName("Ship 1");
10        ship1.setYearBuild("6000");
11
12        cruiseShip ship2 = new cruiseShip();
13        ship2.setShipName("Ship 2");
14        ship2.setYearBuild("6050");
15        ship2.setMaxPassengers(5);
16
17        cargoShip ship3 = new cargoShip();
18        ship3.setShipName("Ship 3");
19        ship3.setYearBuild("6080");
20        ship3.setCapacity(10000);
21
22        ship[] shipArray = new ship[3];
23
24        shipArray[0] = ship1;
25        shipArray[1] = ship2;
26        shipArray[2] = ship3;
27
28        for(int i = 0; i < shipArray.length; i++)
29        {
30            System.out.println(shipArray[i].toString());
31        }
32    }
33 }
```

The bottom panel shows the "Run" output for "polymorphismDriver". The command executed is:

```
"C:\Program Files\Java\jdk-17.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2023.3.4\lib\idea_rt.jar=58363:C:\Program Files\JetBrains\IntelliJ IDEA 2023.3.4\bin" -Dfile.encoding=UTF-8 -classpath
```

The output shows the following lines:

```
Ship Name: Ship 1 Year Built: 6000
Ship Name: Ship 2 Max Passengers: 5
Ship Name: Ship 3 Capacity in Tonnage: 10000
Process finished with exit code 0
```

The status bar at the bottom indicates the current file is "polymorphismDriver.java" in the "main" method, with a cursor at line 20, column 34. The encoding is UTF-8, and the line length is 4 spaces.

## Aggregation

The screenshot displays the IntelliJ IDEA IDE interface. The top toolbar shows the 'Run' button (a green play icon). The left sidebar contains the 'Project' view, showing a directory structure for 'CS4800\_Hw1' with folders like 'src' and 'Aggregation', and files like 'aggregationDriver.java', 'course.java', 'instructor.java', 'textbook.java', 'inheritanceDriver.java', and 'polymorphismDriver.java'. The 'Aggregation' folder is expanded, showing its contents. The main editor window displays the code for 'aggregationDriver.java'. The code defines a package 'Aggregation' and a public class 'aggregationDriver' with a 'main' method. The 'main' method creates instances of 'Instructor', 'Textbook', and 'Course' objects, demonstrating aggregation. The output window at the bottom shows the execution results, including the command used to run the program and the printed output.

```
package Aggregation;

public class aggregationDriver
{
    public static void main(String[] args)
    {
        //instructor instructor1 = new instructor("Nima", "Davaranpanah", "3-2636");
        //textbook textbook1 = new textbook("Clean Code", "Robert Cecil Martin", "Pearson");
        //course course1 = new course("CS 4800", instructor1, textbook1);

        instructor instructor1 = new instructor();
        instructor1.setFirstName("Nima");
        instructor1.setLastName("Davaranpanah");
        instructor1.setOfficeNumber("3-2636");

        textbook textbook1 = new textbook();
        textbook1.setBookTitle("Clean Code");
        textbook1.setAuthor("Robert Cecil Martin");
        textbook1.setPublisher("Pearson");

        course course1 = new course();
        course1.setCourseName("CS 4800");
        course1.setInstructor(instructor1);
        course1.setTextbook(textbook1);

        System.out.println(course1.toString());

        //instructor instructor2 = new instructor("John", "Do", "3-54");
        //textbook textbook2 = new textbook("Yearbook", "School", "CPP");
        //course course2 = new course("CS 0000", instructor2, textbook2);
    }
}
```

Run aggregationDriver x

```
"C:\Program Files\Java\jdk-17.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2023.3.4\lib\idea_rt.jar=57933:C:\Program Files\JetBrains\IntelliJ IDEA 2023.3.4\bin" -Dfile.encoding=UTF-8 -classpath
Course: CS 4800 Instructor: Nima Davaranpanah, 3-2636 TextBook: Clean Code, Robert Cecil Martin, Pearson
Course: CS 0000 Instructor: John Do, 3-54 TextBook: Yearbook, School, CPP

Process finished with exit code 0
```

CS4800\_Hw1 > src > Aggregation > aggregationDriver > main 31:11 CRLF UTF-8 4 spaces

## Composition

```
"C:\Program Files\Java\jdk-17.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2023.3.4\lib\idea_rt.jar=57506:C:\Program Files\JetBrains\IntelliJ IDEA 2023.3.4\bin" -Dfile.encoding=UTF-8 -classpath
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,

Process finished with exit code 0
```

HW1 > src > Composition > folder > printFolder 37:28 CRLF UTF-8 4 spaces

```
"C:\Program Files\Java\jdk-17.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2023.3.4\lib\idea_rt.jar=57567:C:\Program Files\JetBrains\IntelliJ IDEA 2023.3.4\bin" -Dfile.encoding=UTF-8 -classpath
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,

Process finished with exit code 0
```

hw1 > src > Composition > compositionDriver > main

32:11 CRLF UTF-8 4 spaces

```
"C:\Program Files\Java\jdk-17.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2023.3.4\lib\idea_rt.jar=57579:C:\Program Files\JetBrains\IntelliJ IDEA 2023.3.4\bin" -Dfile.encoding=UTF-8 -classpath
Folder: php_demo1,
  Folder: source_files,
    Folder: phalcon,
      Folder: cache,
        Folder: include_path,
          Folder: Remote Files,

Process finished with exit code 0
```

hw1 > src > Composition > compositionDriver > main

40:11 CRLF UTF-8 4 spaces