Assignment Report for Assignment 02

Course and Section	CSC215.28
Assignment Name	Assignment 02
Due Date and Time	09-13-2024 @ 11:55 PM
First Name and Last Name	Miguel Antonio Logarta
SFSU Email Account	923062683@sfsu.edu
First Name and Last Name of Teammate	N/A
SFSU Email Account of Teammate	N/A

PART A

Question Description and Analysis:

This part of the assignment asks me to follow a code tutorial and demonstrate that I can run at least 1 program from the file manager.

Answer:

I followed the tutorial and downloaded “13_AbstractClasses_and_Interface” from the file manager.

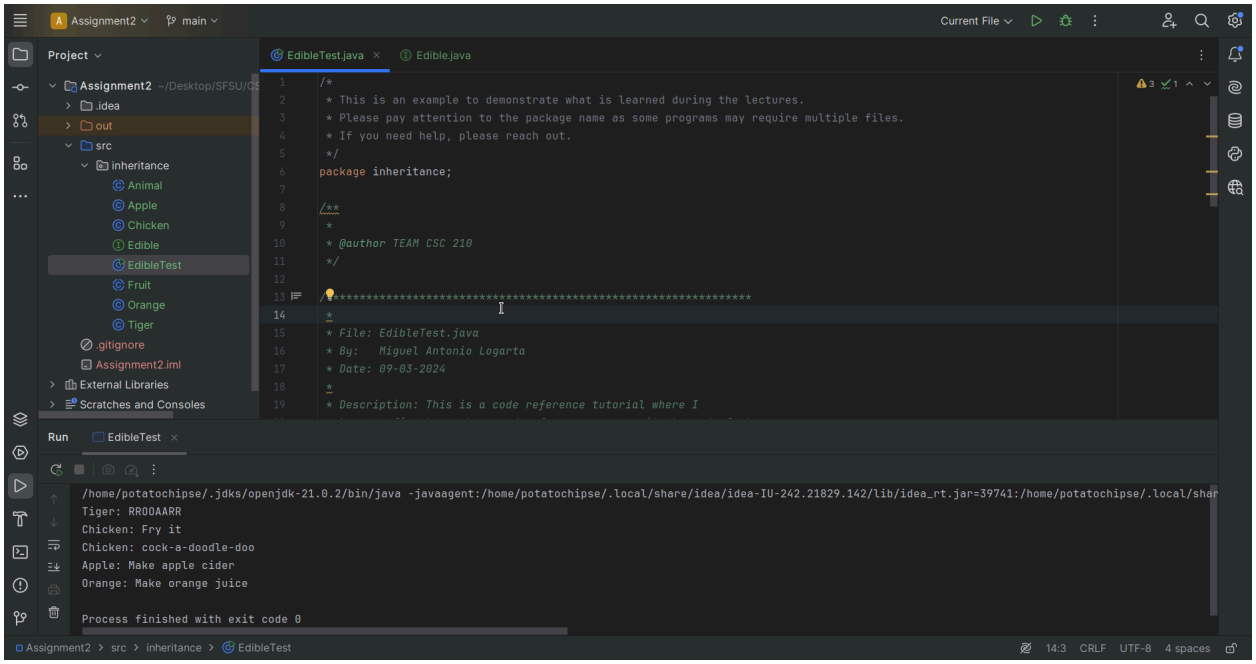
I opened IntelliJ and created a new project. I then imported EdibleTest.java and replaced my main file with it. Since EdibleTest.java was not working, I had to move it into a package called “inheritance” to resolve the package errors.

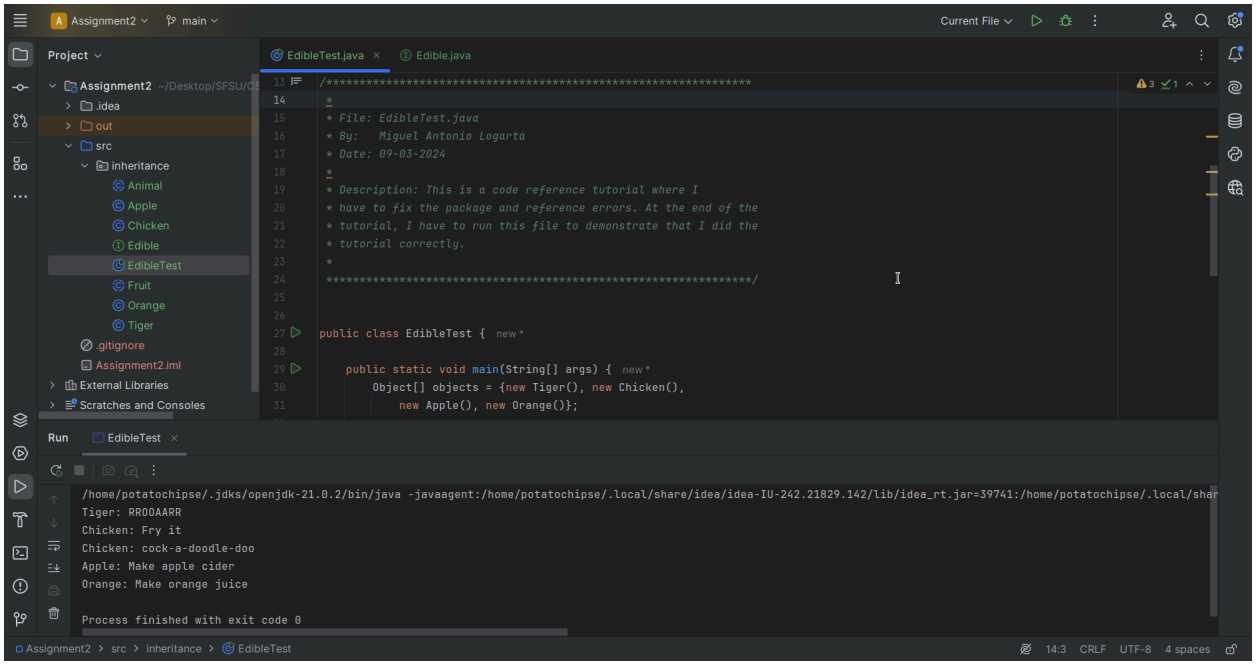
Next, I had to fix the reference errors. I used wget to pull the files from the file manager and then imported it to IntelliJ into the “inheritance” package folder.

I ran the file to make sure that everything worked and succeeded.

Screenshots of Outputs and Explanation:

Here are the screenshots of my EdibleTest.java file.


Assignment2
main
Current File
Project
EdibleTest.java
Edible.java
Assignment2 ~/Desktop/SFSU/CS
.idea
out
src
inheritance
Animal
Apple
Chicken
Edible
EdibleTest
Fruit
Orange
Tiger
.gitignore
Assignment2.iml
External Libraries
Scratches and Consoles
/*
* This is an example to demonstrate what is learned during the lectures.
* Please pay attention to the package name as some programs may require multiple files.
* If you need help, please reach out.
*/
package inheritance;
/**
*
* @author TEAM CSC 210
*/
/**********
*
* File: EdibleTest.java
* By: Miguel Antonio Logarta
* Date: 09-03-2024
*
* Description: This is a code reference tutorial where I
Run
EdibleTest
/home/potatochipse/.jdks/openjdk-21.0.2/bin/java -javaagent:/home/potatochipse/.local/share/idea/idea-IU-242.21829.142/lib/idea_rt.jar=39741:/home/potatochipse/.local/shar
Tiger: RROOAARR
Chicken: Fry it
Chicken: cock-a-doodle-doo
Apple: Make apple cider
Orange: Make orange juice
Process finished with exit code 0
Assignment2 > src > inheritance > EdibleTest
14:3
CRLF
UTF-8
4 spaces


Assignment2
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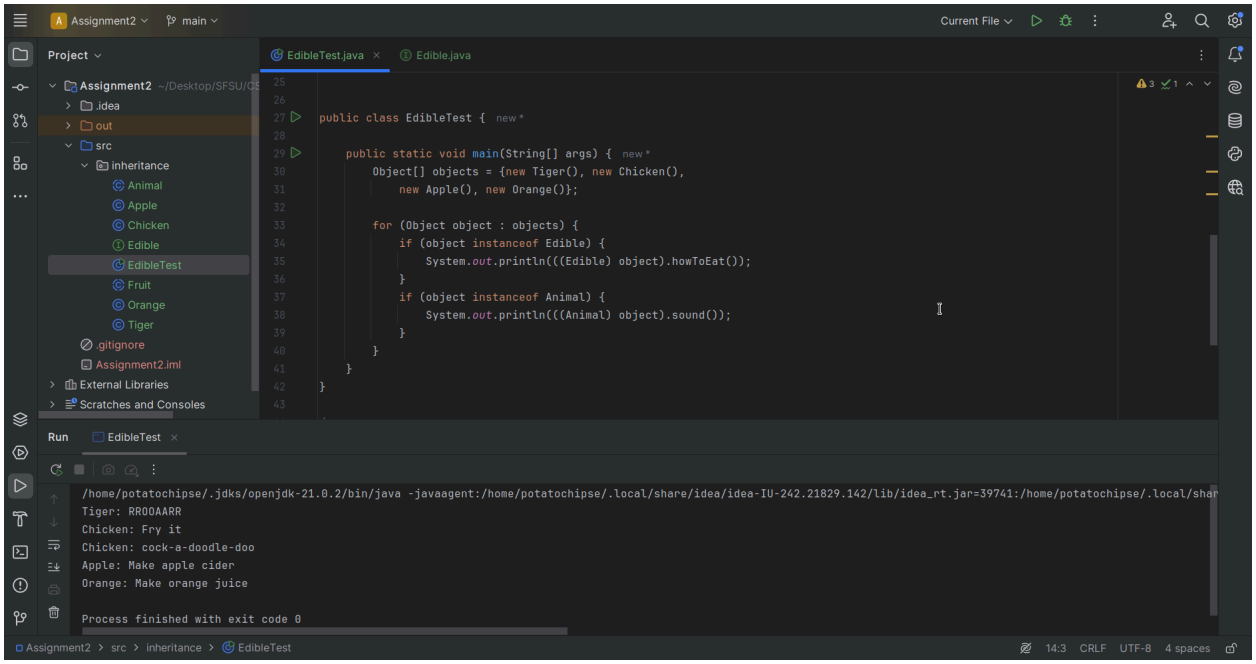
Animal
Apple
Chicken
Edible
EdibleTest
Fruit
Orange
Tiger
.gitignore
Assignment2.iml
External Libraries
Scratches and Consoles
/**********
*
* File: EdibleTest.java
* By: Miguel Antonio Logarta
* Date: 09-03-2024
*
* Description: This is a code reference tutorial where I
* have to fix the package and reference errors. At the end of the
* tutorial, I have to run this file to demonstrate that I did the
* tutorial correctly.
*
**********/
public class EdibleTest { new *
public static void main(String[] args) { new *
Object[] objects = {new Tiger(), new Chicken(),
new Apple(), new Orange()};
Run
EdibleTest
/home/potatochipse/.jdks/openjdk-21.0.2/bin/java -javaagent:/home/potatochipse/.local/share/idea/idea-IU-242.21829.142/lib/idea_rt.jar=39741:/home/potatochipse/.local/shar
Tiger: RROOAARR
Chicken: Fry it
Chicken: cock-a-doodle-doo
Apple: Make apple cider
Orange: Make orange juice
Process finished with exit code 0
Assignment2 > src > inheritance > EdibleTest
14:3
CRLF
UTF-8
4 spaces



PART B

Question Description and Analysis:

This part of the assignment asks me to debug 2 of the 5 programs requested from a client.

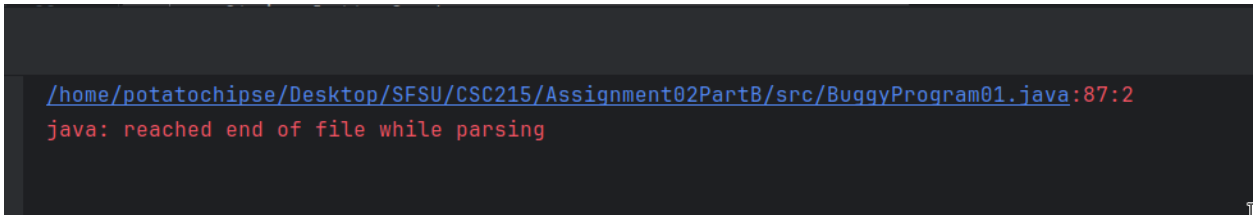
Answer:

BuggyProgram01.java

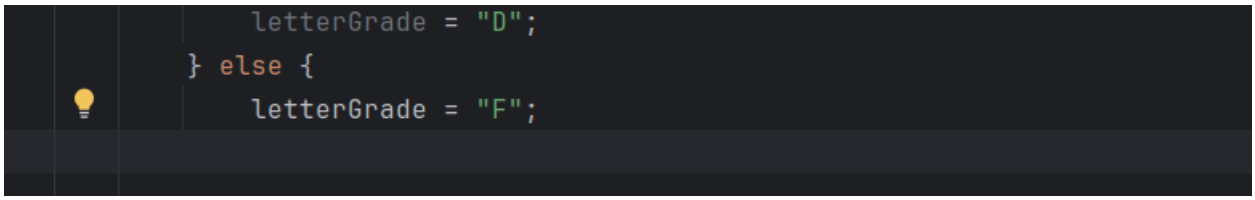
There are a multitude of bugs in this program. There are compile errors, runtime errors, and logic errors.

- Compile errors:
    1. The first error I found was a compile error. I found this bug by first trying to run the program. I noticed that it said that it reached the end of the file while parsing which is not right. This must mean that there is a missing curly brace. To solve this bug, I

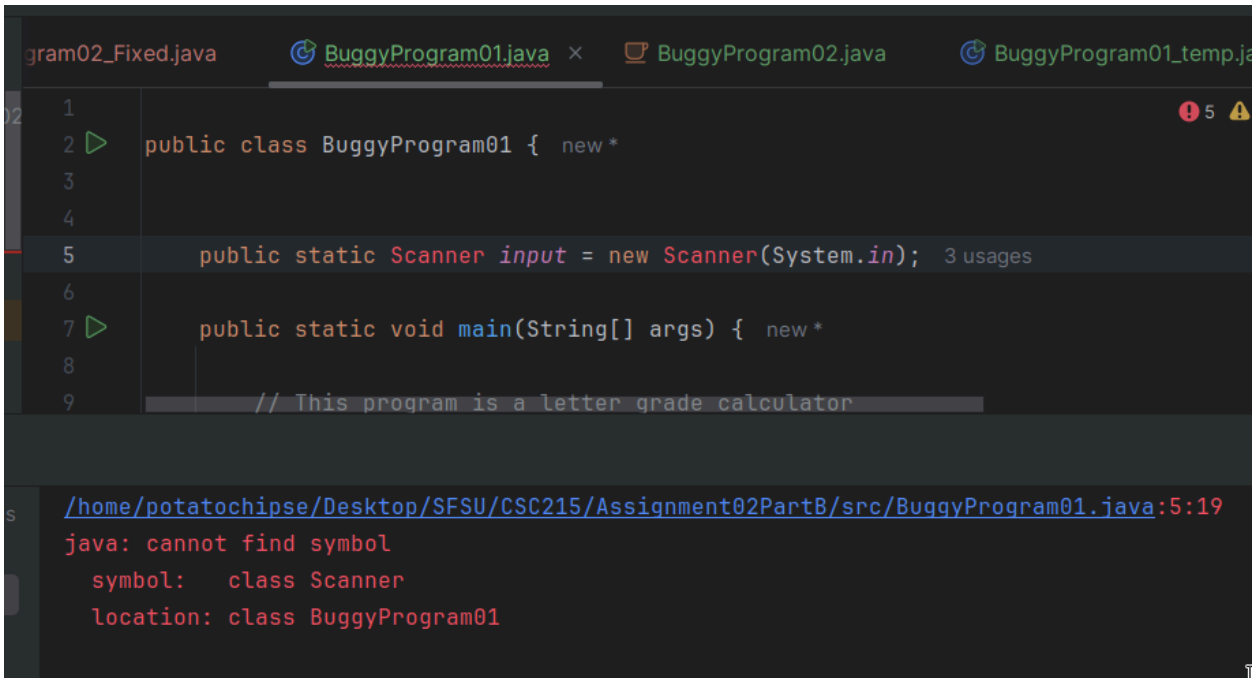
scanned through the whole document, making sure that every open curly brace is matched by a closing brace.



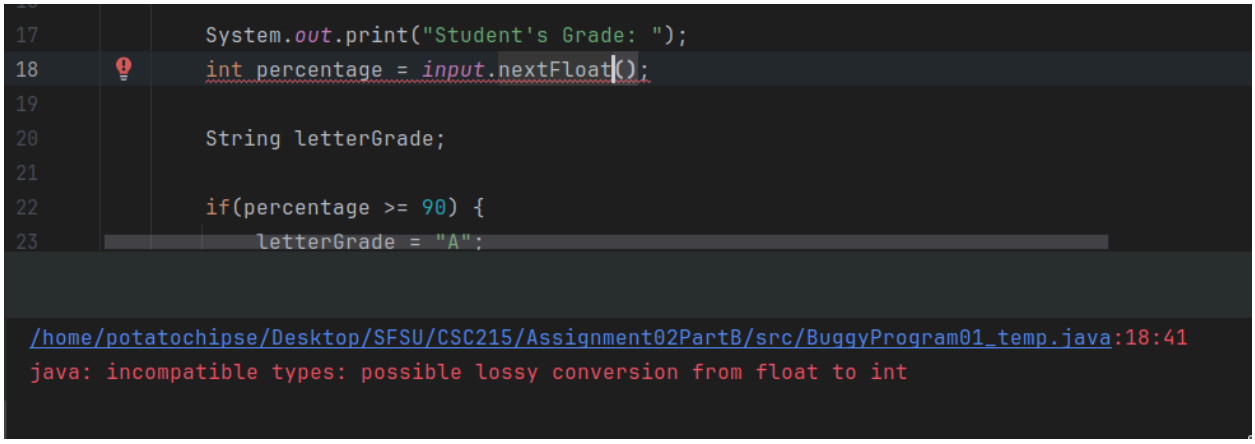
I found out that an else statement is missing a curly brace. I fixed it by adding a closing brace.

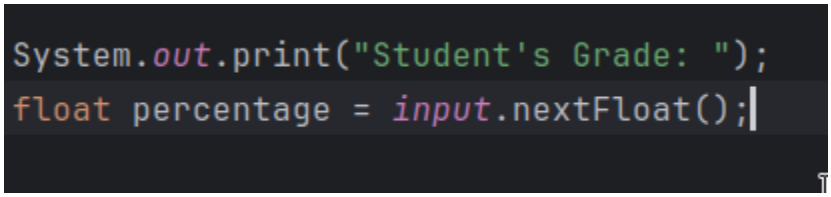


2. The next bug I found was a missing symbol error. It said that Scanner was unknown. Since I know that you need to import the Scanner before using it, I resolved the bug by importing java.util.Scanner at the top of the file.



3. Finally the last compile-time error that I found was an “incompatible types” error. This is caused when a user is trying to assign a value to the wrong variable type. In this case, the program was trying to convert a float to an int without explicitly converting the value first. I fixed this error by going to the line where the error occurred and changing the int type to a float. I assumed that the grader would want to input decimals instead of whole numbers.





- Runtime errors:

1. After you input your first name, the scanner does not capture the new line, preventing the second input from entering your last name. I changed the line “String firstName = input.next();” into “String firstName = input.nextLine();”

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

    // This program is a letter grade calculator

    System.out.print("Student First Name: ");
    String firstName = input.next();

    System.out.print("Student Last Name: ");
    String lastName = input.nextLine();

    System.out.print("Student's Grade: ");
    float percentage = input.nextFloat();
```

```
/home/potatochipse/.jdks/openjdk-21.0.2/bin/ja
Student First Name: Miguel
Student Last Name: Student's Grade: 90
Miguel  A received an Exception in thread "mai
```

```
    System.out.print("Student First Name: ");
    String firstName = input.nextLine();

    System.out.print("Student Last Name: ");
    String lastName = input.nextLine();

    System.out.print("Student's Grade: ");
    float percentage = input.nextFloat();

    String letterGrade;
```

2. There is also an error with printf. It has one too many %s tokens which causes the program to crash when printing out your grade. I fixed it by deleting one %s in the line.

```
}


System.out.printf("%s %s %s received an %s", firstName, lastName, letterGrade);
```

```
Miguel Logarta B received an Exception in thread "main" java.util.MissingFormatArgumentException: Format specifi
    at java.base/java.util.Formatter.format(Formatter.java:2790)
    at java.base/java.io.PrintStream.implFormat(PrintStream.java:1367)
    at java.base/java.io.PrintStream.format(PrintStream.java:1346)
    at java.base/java.io.PrintStream.printf(PrintStream.java:1245)
    at BuggyProgram01_temp.main(BuggyProgram01_temp.java:35)
```

```


System.out.printf("%s %s received an %s", firstName, lastName, letterGrade);
```

```
Student First Name: Miguel
Student Last Name: Logarta
Student's Grade: 85
Miguel Logarta received an C
Process finished with exit code 0
```

- Logic errors:

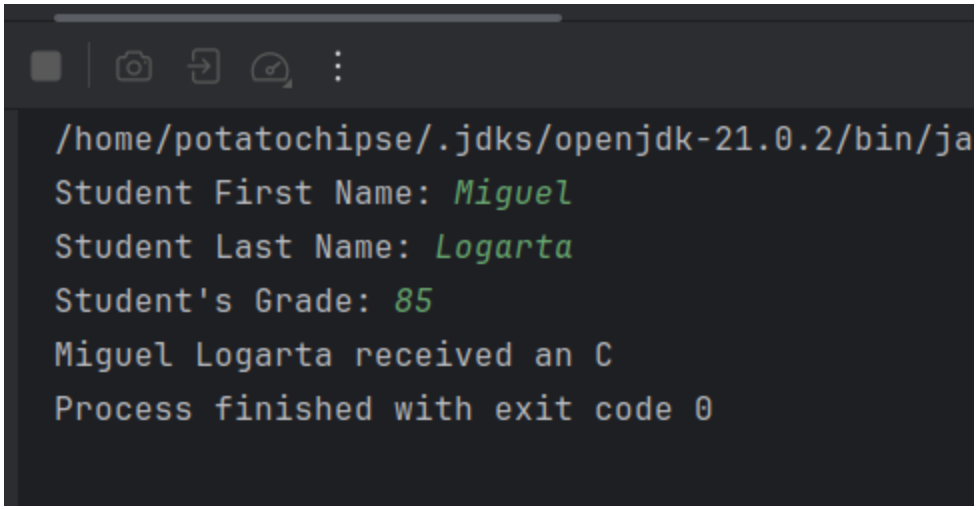
1. The logic of the grade calculation would give people between 80% to 89% and 61% to 69% an F grade when they should've been given a B and a D respectively. I changed the "<=" and "==" comparison operators to ">=" to fix the problem. I also

changed the numbers to floats in case the user wanted to enter a decimal number into the field.

```
System.out.print("Student's Grade: ");
float percentage = input.nextFloat();
```

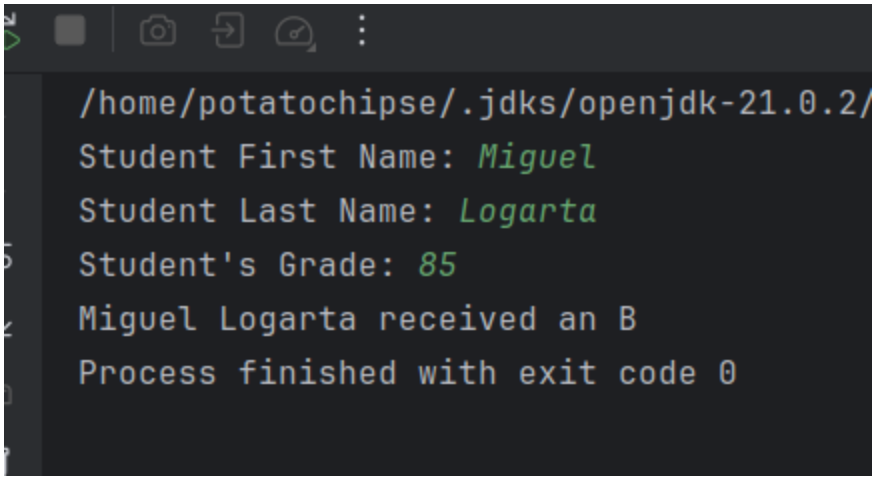
```
    String letterGrade;

    if(percentage >= 90) {
        letterGrade = "A";
    } else if(percentage <= 80) {
        letterGrade = "B";
    } else if(percentage >= 70) {
        letterGrade = "C";
    } else if(percentage == 60) {
        letterGrade = "D";
    } else {
        letterGrade = "F";
    }
```



```
/home/potatochipse/.jdks/openjdk-21.0.2/bin/ja
Student First Name: Miguel
Student Last Name: Logarta
Student's Grade: 85
Miguel Logarta received an C
Process finfinished with exit code 0
```

```
if (percentage >= 90.0) {
    letterGrade = "A";
} else if (percentage >= 80.0) {
    letterGrade = "B";
} else if (percentage >= 70.0) {
    letterGrade = "C";
} else if (percentage >= 60.0) {
    letterGrade = "D";
} else {
    letterGrade = "F";
}
```

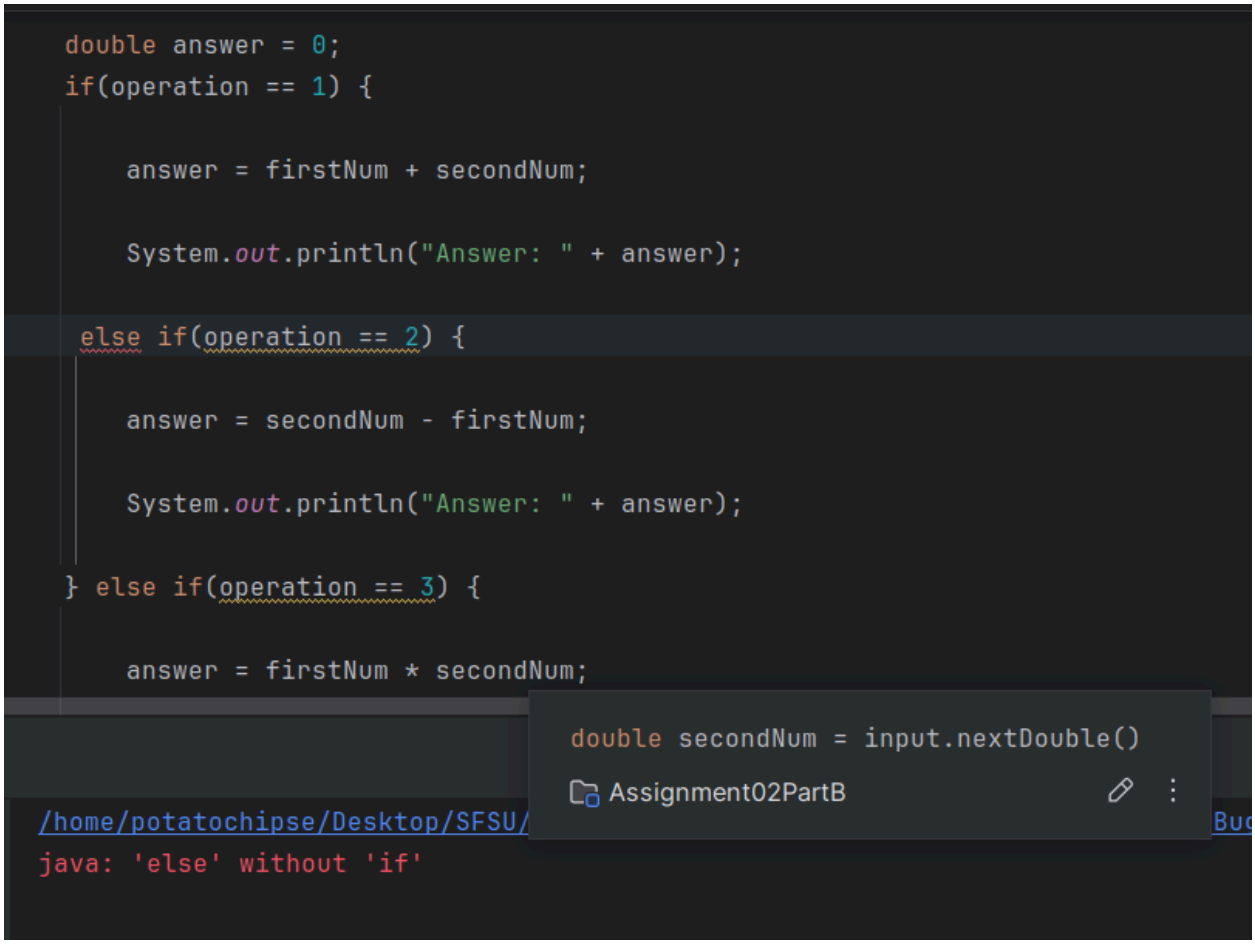


BuggyProgram02.java

There were a lot of bugs in this program as well

Compile Errors:

1. When I first attempted to run the program, the first error I encountered was a missing if statement preceding an else statement. I found that the cause of this error was because the if statement did not have a curly brace. To solve this bug, I added a closing brace to the if statement.



2. The next error that the compile threw at me was that it was expecting a class, interface, enum, or record. I found that the cause of this bug was because there was an extra closing curly brace at the end of the if-else statements causing the compiler to throw an error. I fixed this bug by deleting the curly brace. However, the compiler still threw an error. I found out that the last else statement was also missing an opening curly brace. I inserted an opening curly brace to fix the problem.

```
            System.out.println("Not a valid operation! Exiting...");

        }
        }



    }


    /*
    ============================================
     Expected Output Samples:
    ============================================
```

713 ms /home/potatochipse/Desktop/SFSU/CSC215/Assignment02PartB/src/BuggyProgram02_Buggy.java:66:5
java: class, interface, enum, or record expected

```
            }

        } else

            System.out.println("Not a valid operation! Exiting...");

        }
    }
```

```
    public static void main(String[] args) {
            } else {
                answer = firstNum / secondNum;

                System.out.println("Answer: " + answer);
            }

        } else {

            System.out.println("Not a valid operation! Exiting...");

        }
    }
```

3. The compiler also gave me an error saying that a non-static variable was being referenced in a static context. This means that we are referencing a variable that was not instantiated as an object. To solve this, I inserted the “static” keyword where the scanner was instantiated.

```
        System.out.print("Please enter the operation that you would like to use: ");

        int operation = input.nextInt();


        System.out.print("Please input the first number: ");
        int firstNum = input.nextDouble();

        System.out.print("Please input the second number: ");
        double secondNum = input.nextDouble();

        double answer = 0;
        if(operation == 1) {

            answer = firstNum + secondNum;

            System.out.println("Answer: " + answer);
```

```
70 ms  /home/potatochipse/Desktop/SFSU/CSC215/Assignment02PartB/src/BuggyProgram02.java:20:25
       java: non-static variable input cannot be referenced from a static context
```

```
public class BuggyProgram02 {

    public Scanner input = new Scanner(System.in);  3 usages

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

```
89 ms  /home/potatochipse/Desktop/SFSU/CSC215/Assignment02PartB/src/BuggyProgram02.java:20:25
       java: non-static variable input cannot be referenced from a static context
```

```
public class BuggyProgram02 {

    public static Scanner input = new Scanner(System.in);  3 usages

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

4. Another bug I found was an incompatible types error. This is caused by assigning a value with a type that is different from the variable to that you are assigning it to. I fixed this issue by changing the type of the first number from int to double.

```
System.out.print("Please input the first number: ");
int firstNum = input.nextDouble();

System.out.print("Please input the second number: ");
double secondNum = input.nextDouble();

double answer = 0;
if(operation == 1) {


/home/potatochipse/Desktop/SFSU/CSC215/Assignment02PartB/src/BuggyProgram02.java:24:40
java: incompatible types: possible lossy conversion from double to int
```

```
System.out.print("Please input the first number: ");
double firstNum = input.nextDouble();

System.out.print("Please input the second number: ");
double secondNum = input.nextDouble();

double answer = 0;
if(operation == 1) {

    answer = firstNum + secondNum;

    System.out.println("Answer: " + answer);
```

Runtime Errors:

- I encountered no runtime errors

Logic Errors:

1. When we subtract the two numbers in the calculator. The calculator subtracts the second number from the first number when it should be the other way around. The answers are in

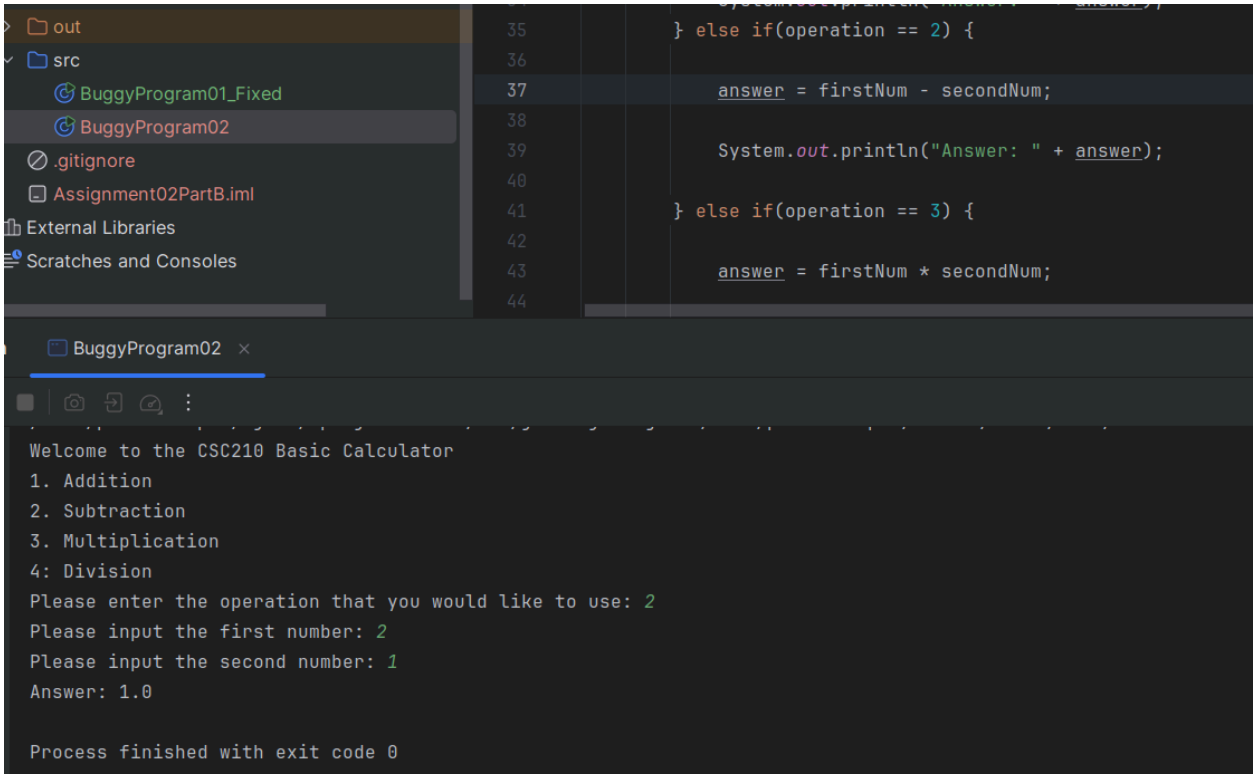
the opposite sign which is wrong. I changed the line from “answer = secondNum - firstNum” to “answer = firstNum - secondNum”.

```
Welcome to the CSC210 Basic Calculator
1. Addition
2. Subtraction
3. Multiplication
4: Division
Please enter the operation that you would like to use: 2
Please input the first number: 2
Please input the second number: 1
Answer: -1.0
```

```
} else if(operation == 2) {

    answer = secondNum - firstNum;

    System.out.println("Answer: " + answer);
```



2. There was also a logic error when trying to divide by zero. When we divide a number by 1, it will say “Cannot divide by zero”. When we divide by zero, it outputs “Infinity.” I changed the logic to say “Cannot divide by zero” when the user enters 0 for the second number. “if(secondNum == 1)” is changed to “if(secondNum == 0)”.

```
Welcome to the CSC210 Basic Calculator
1. Addition
2. Subtraction
3. Multiplication
4: Division
Please enter the operation that you would like to use: 4
Please input the first number: 3
Please input the second number: 1
Cannot divide by 0
```

```
Welcome to the CSC210 Basic Calculator
1. Addition
2. Subtraction
3. Multiplication
4: Division
Please enter the operation that you would like to use: 4
Please input the first number: 1
Please input the second number: 0
Answer: Infinity
```

```
} else if(operation == 4) {

    if(secondNum == 1) {
        System.out.println("Cannot divide by 0");
    } else {
        answer = firstNum / secondNum;

        System.out.println("Answer: " + answer);
    }
```

```
} else if(operation == 4) {

    if(secondNum == 0) {
        System.out.println("Cannot divide by 0");
    } else {
        answer = firstNum / secondNum;

        System.out.println("Answer: " + answer);
    }
```

```
Please enter the operation that you would like to use: 4
Please input the first number: 1
Please input the second number: 0
Cannot divide by 0

Process finished with exit code 0
```

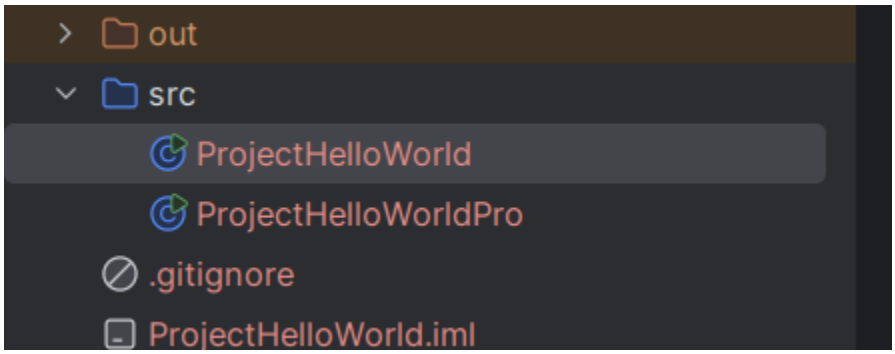
PART C

Question Description and Analysis:

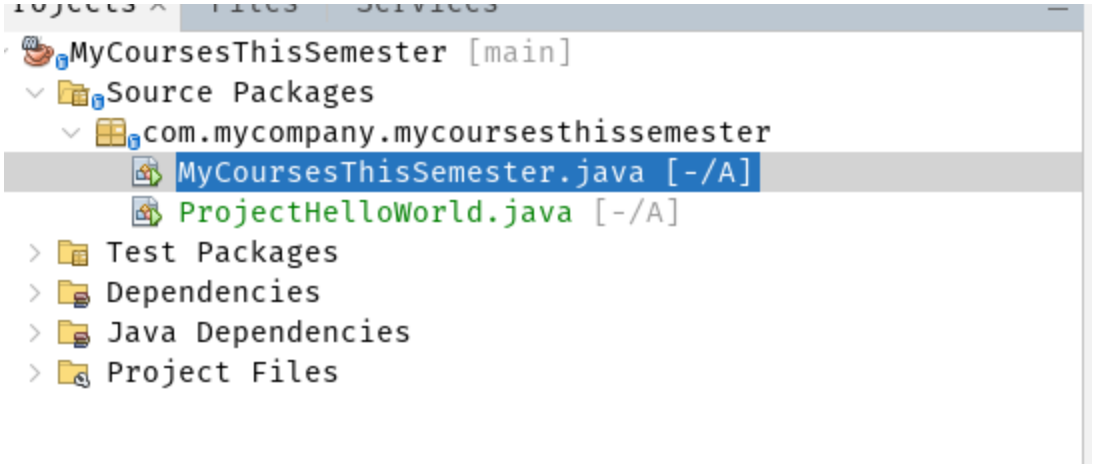
This part of the assignment asks me to install the Apache NetBeans IDE. I have to create a program that prints out the courses I am taking for the semester. I also have to copy the ProjectHelloWorldPro.java file and run it in this IDE. I have to detail my steps as well.

Answer:

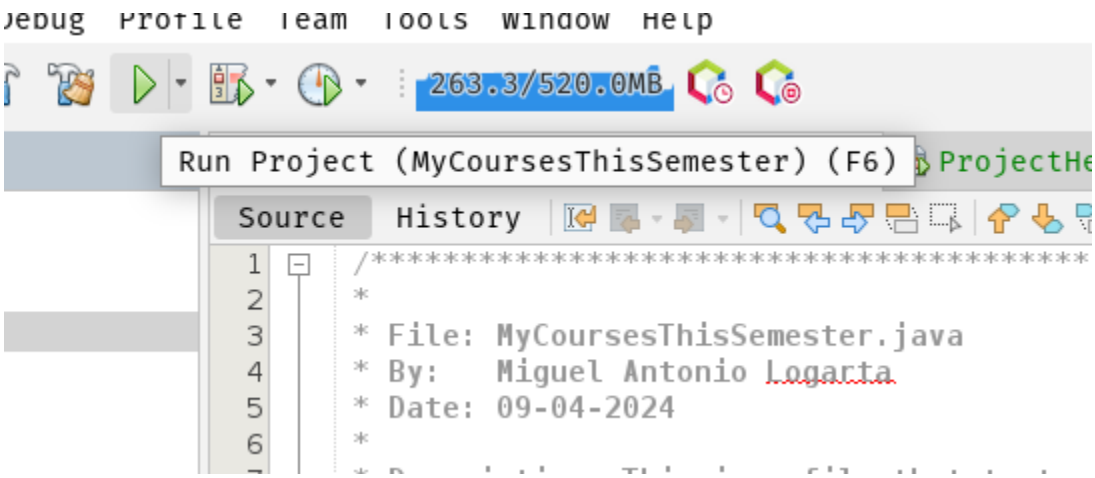
1. I created a new project in NetBeans by…
2. Yes, I did manage to copy ProjectHelloWorld.java from assignment 1 to NetBeans.
3. What I did was I went to my past projects in IntelliJ Idea, then I opened the project folder of ProjectHelloWorld.java. In the file tree, I right-clicked on the file, then clicked copy.



   Next, I went over to Apache NetBeans, then I right-clicked on the file tree to paste my file. I pasted ProjectHelloWorld.java into the same package that MyCoursesThisSemester.java was located in.

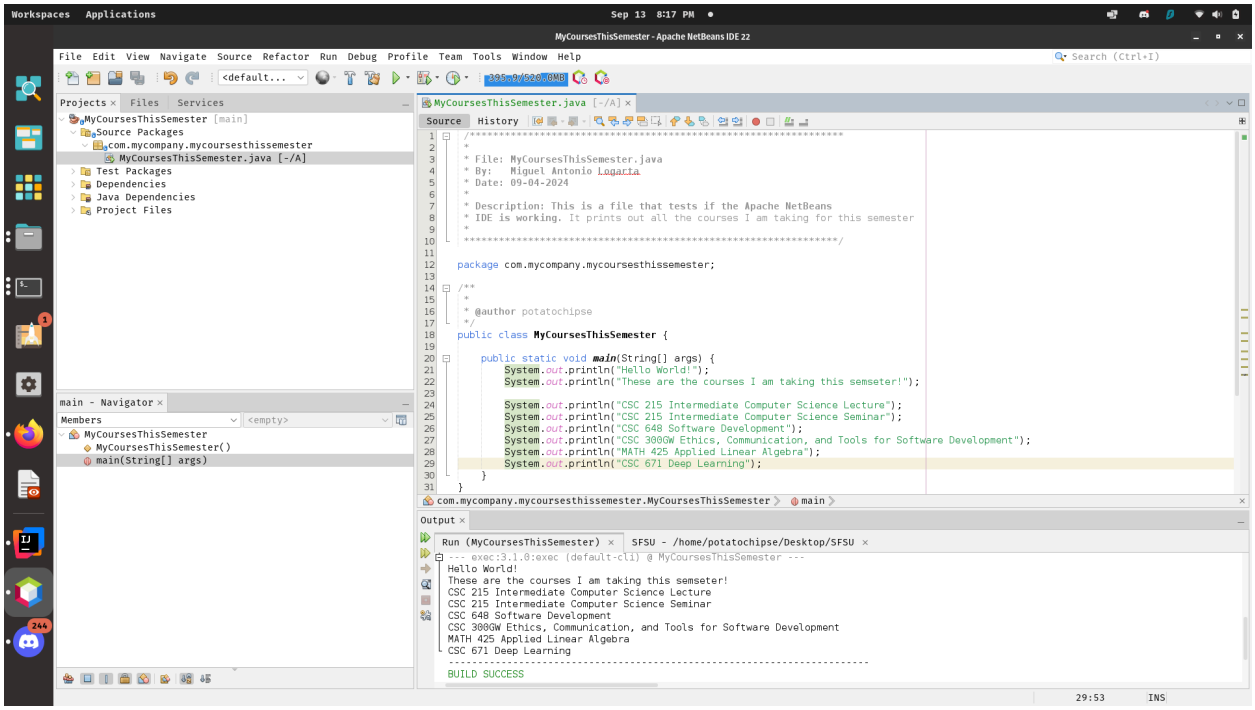


However, unlike IntelliJ, the top bar doesn't give you the option to select which java file you want to run. So when I initially clicked the green play button (run project), it ran MyCoursesThisSemester.java. To fix this, I had to right-click on the current file and select "Run File" from the menu. Looking at the shortcuts, I find that "Run Project" is F6 and "Run File" is Shift+F6

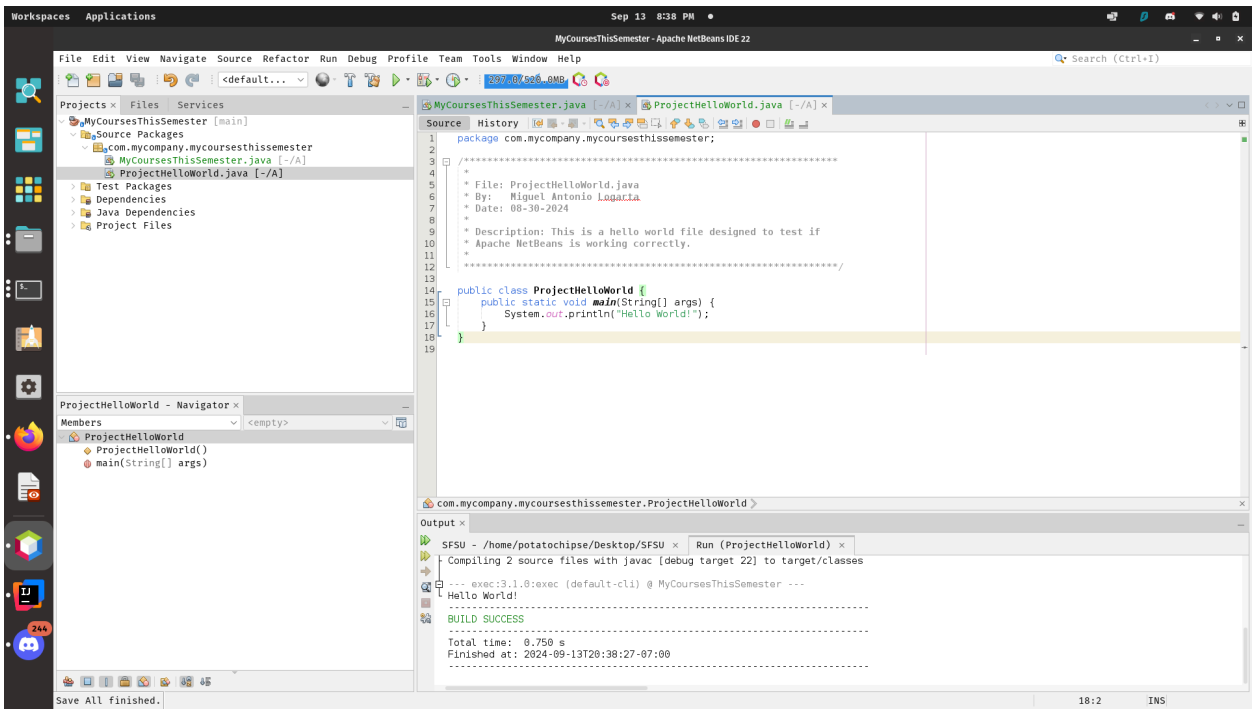


Screenshots of Outputs and Explanation:

Here is Apache NetBeans working on my machine.



Here is ProjectHelloWorld.java running on Apache NetBeans IDE



PART D

Question Description and Analysis:

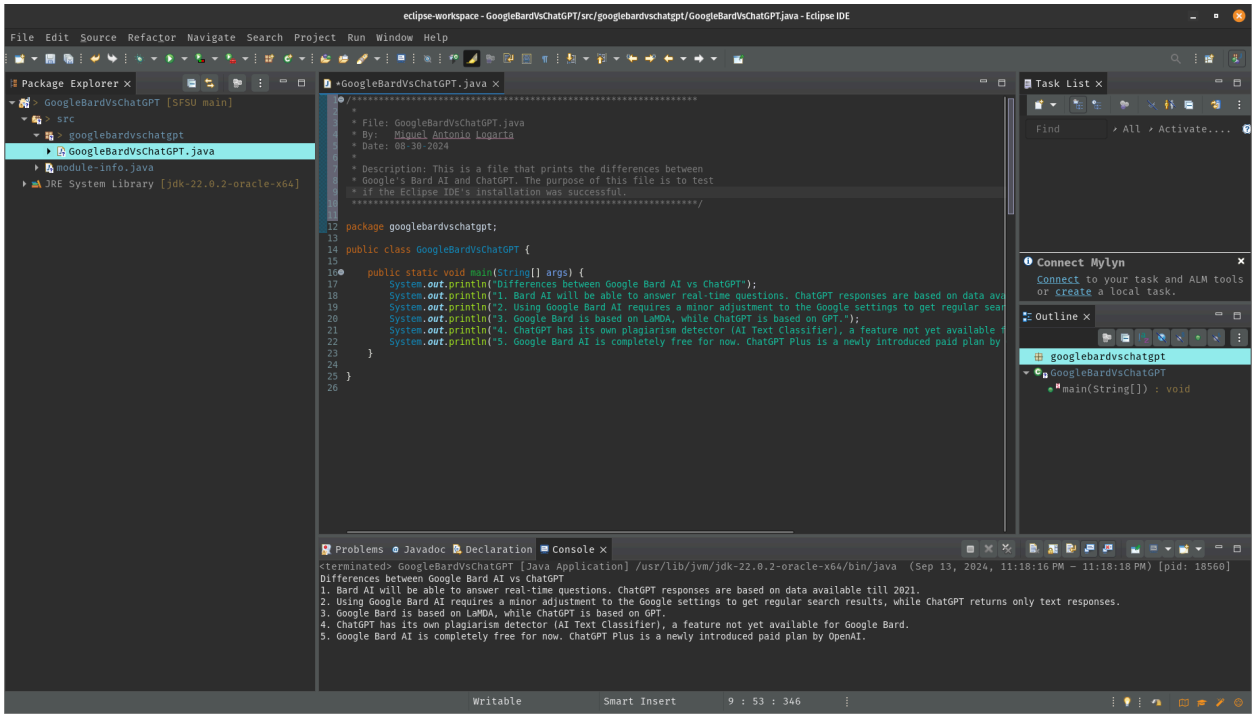
This part of the assignment asks us to download and install the latest version of the Eclipse IDE. We also had to create and copy programs to prove that our installation is working.

Answer:

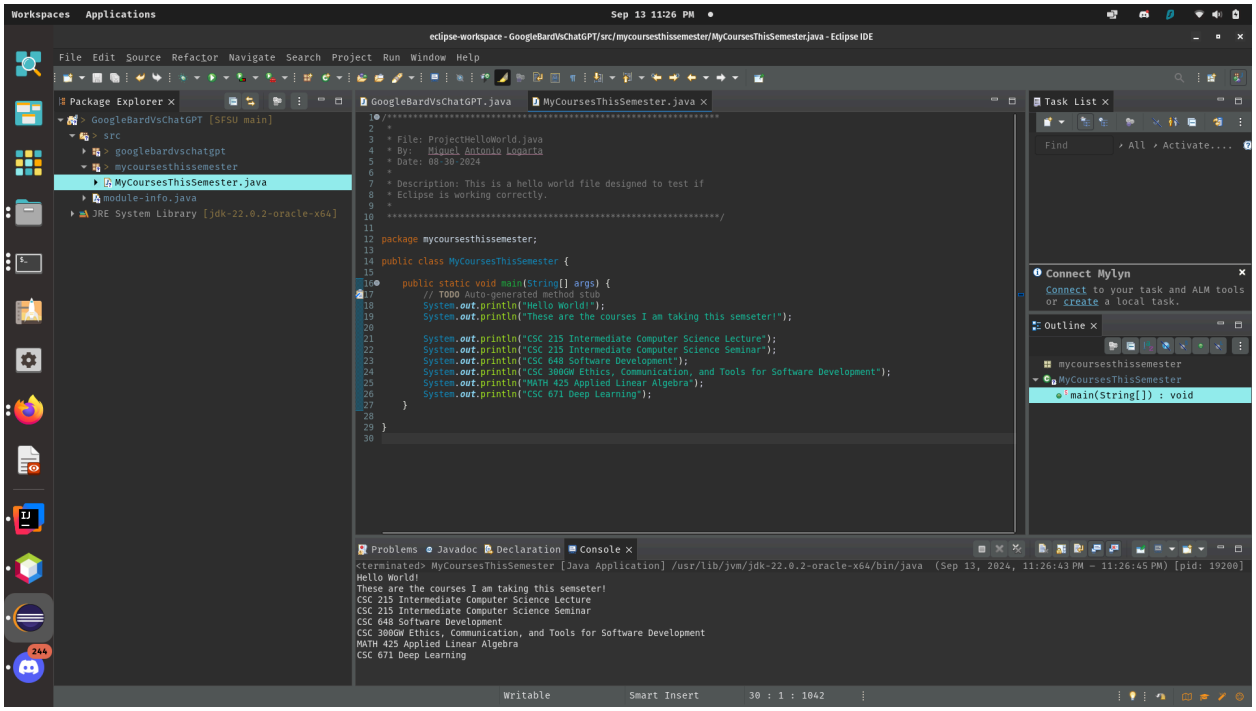
1. I created a new project in Eclipse by clicking on the “New Java Project” option when greeted by Eclipse. It gave me a blank template with no files. I had to create a new package. I named the package googlebardvschatgpt. Then I created a java file under that package and named it GoogleBardVsChatGPT.java and inserted a main method inside the file. I then clicked on the green play button to run the project.
2. Yes, I managed to copy MyCoursesThisSemester.java from NetBeans to Eclipse. However, I found it more difficult to copy these files as compared to IntelliJ and NetBeans.
3. Since Eclipse didn’t allow me to simply copy and paste files into the project file tree, I had to manually create a new package which had the same name (mycoursesthissemester). In this package, I created a new Java file and named it MyCoursesThisSemester.java and inserted a main method inside of it. I then went to the code I had opened in NetBeans and copied it to MyCoursesThisSemester.java inside Eclipse.

Screenshots of Outputs and Explanation:

This is a working installation of Eclipse showing the differences between Bard AI and ChatGPT



This is MyCoursesThisSemester.java running on the Eclipse IDE



This is me copying and pasting code from NetBeans to Eclipse. Since I couldn't find a more convenient way to copy the file, I just copied the contents inside of it instead.