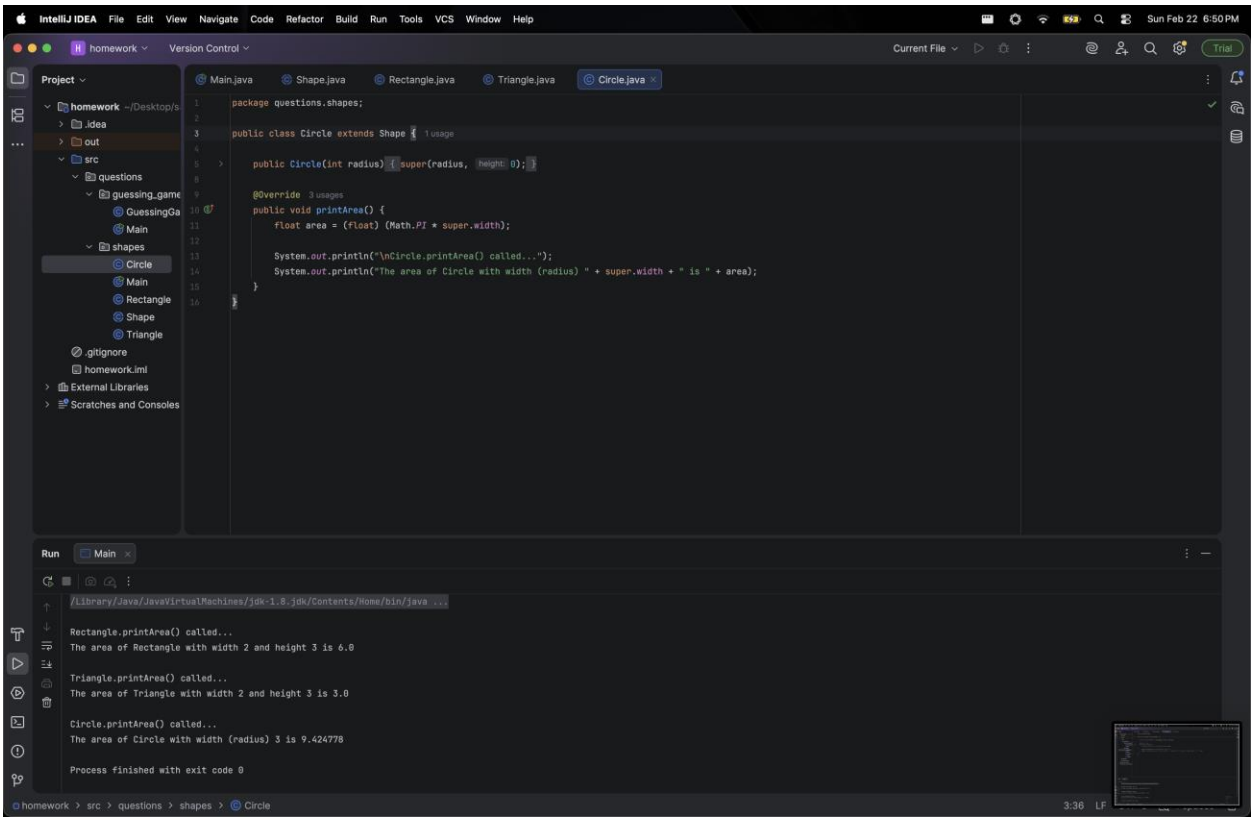
Week 1 – Day 3 Assignment (February 20th, 2026)

Question 1 – Shapes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homework Version Control
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guessing_game
GuessingGa
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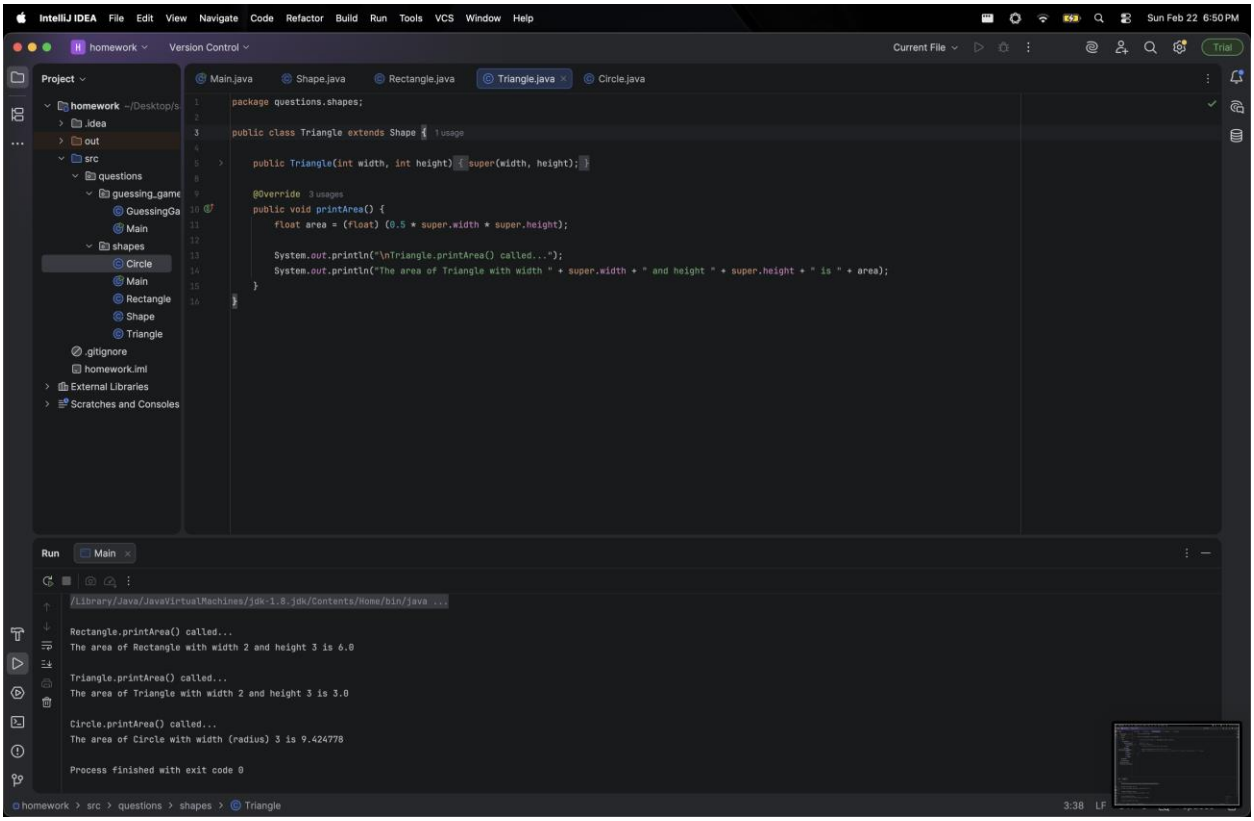
shapes
Circle
Main
Rectangle
Shape
Triangle
.gitignore
homework.iml
External Libraries
Scratches and Consoles
Main.java
Shape.java
Rectangle.java
Triangle.java
Circle.java
package questions.shapes;
public class Circle extends Shape { 1 usage
public Circle(int radius) { super(radius, height: 0); }
@Override 3 usages
public void printArea() {
float area = (float) (Math.PI * super.width);
System.out.println("\nCircle.printArea() called...");
System.out.println("The area of Circle with width (radius) " + super.width + " is " + area);
}
}
Run
Main
/Library/Java/JavaVirtualMachines/jdk-1.8.jdk/Contents/Home/bin/java ...
Rectangle.printArea() called...
The area of Rectangle with width 2 and height 3 is 6.0
Triangle.printArea() called...
The area of Triangle with width 2 and height 3 is 3.0
Circle.printArea() called...
The area of Circle with width (radius) 3 is 9.424778
Process finished with exit code 0
homework > src > questions > shapes > Circle
3:36 LF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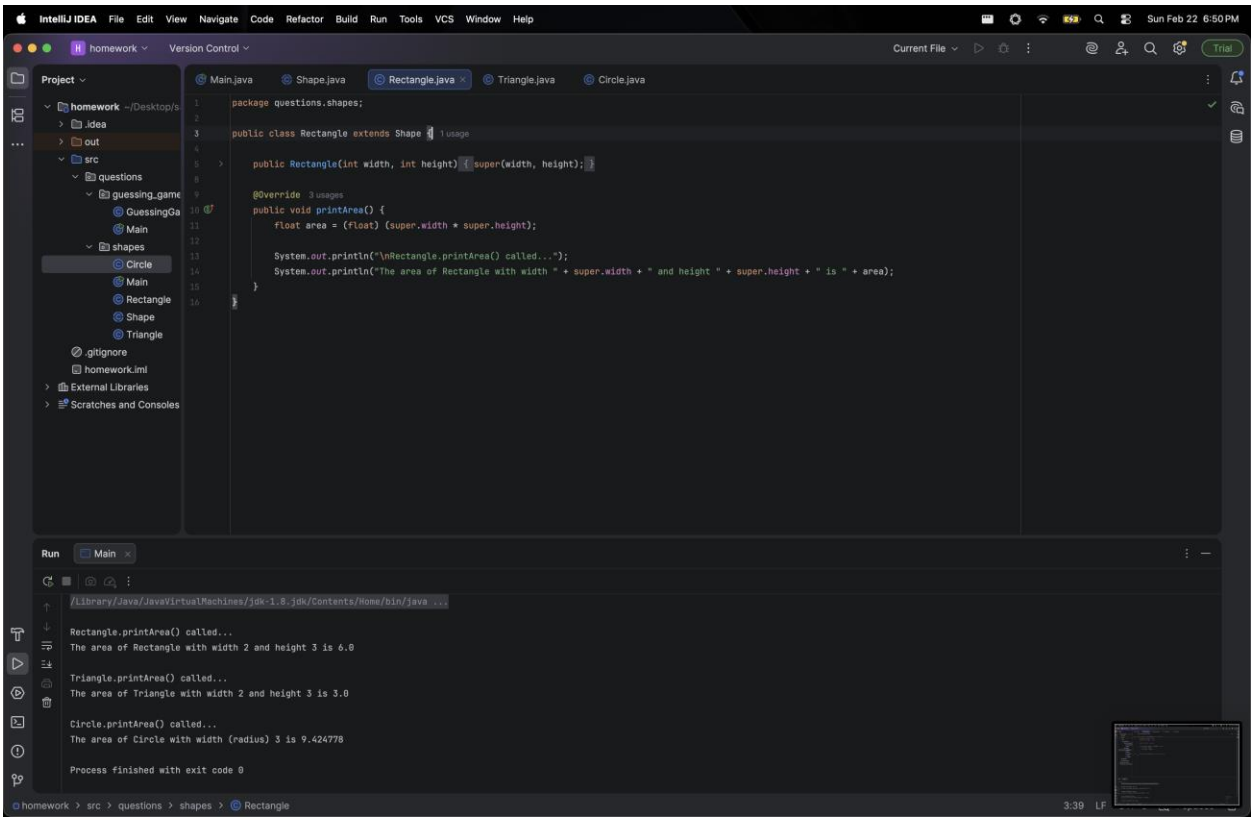
Circle.java
package questions.shapes;
public class Triangle extends Shape { 1 usage
public Triangle(int width, int height) { super(width, height); }
@Override 3 usages
public void printArea() {
float area = (float) (0.5 * super.width * super.height);
System.out.println("\nTriangle.printArea() called...");
System.out.println("The area of Triangle with width " + super.width + " and height " + super.height + " is " + area);
}
}
Run
Main
/Library/Java/JavaVirtualMachines/jdk-1.8.jdk/Contents/Home/bin/java ...
Rectangle.printArea() called...
The area of Rectangle with width 2 and height 3 is 6.0
Triangle.printArea() called...
The area of Triangle with width 2 and height 3 is 3.0
Circle.printArea() called...
The area of Circle with width (radius) 3 is 9.424778
Process finished with exit code 0
homework > src > questions > shapes > Triangle
3:38 LF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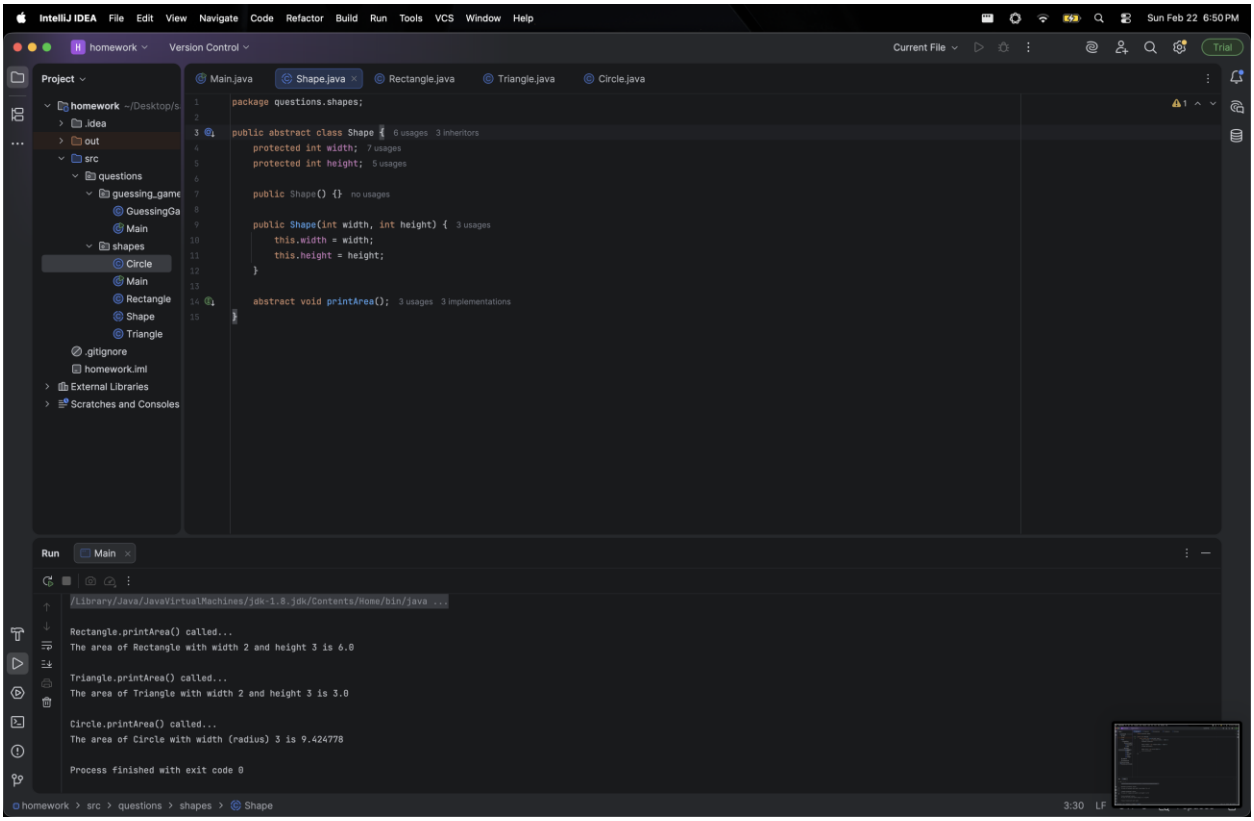
Circle.java
package questions.shapes;
public class Rectangle extends Shape { 1 usage
public Rectangle(int width, int height) { super(width, height); }
@Override 3 usages
public void printArea() {
float area = (float) (super.width * super.height);
System.out.println("\nRectangle.printArea() called...");
System.out.println("The area of Rectangle with width " + super.width + " and height " + super.height + " is " + area);
}
}
Run
Main
/Library/Java/JavaVirtualMachines/jdk-1.8.jdk/Contents/Home/bin/java ...
Rectangle.printArea() called...
The area of Rectangle with width 2 and height 3 is 6.0
Triangle.printArea() called...
The area of Triangle with width 2 and height 3 is 3.0
Circle.printArea() called...
The area of Circle with width (radius) 3 is 9.424778
Process finished with exit code 0
homework > src > questions > shapes > Rectangle
3:39 LF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Shape.java
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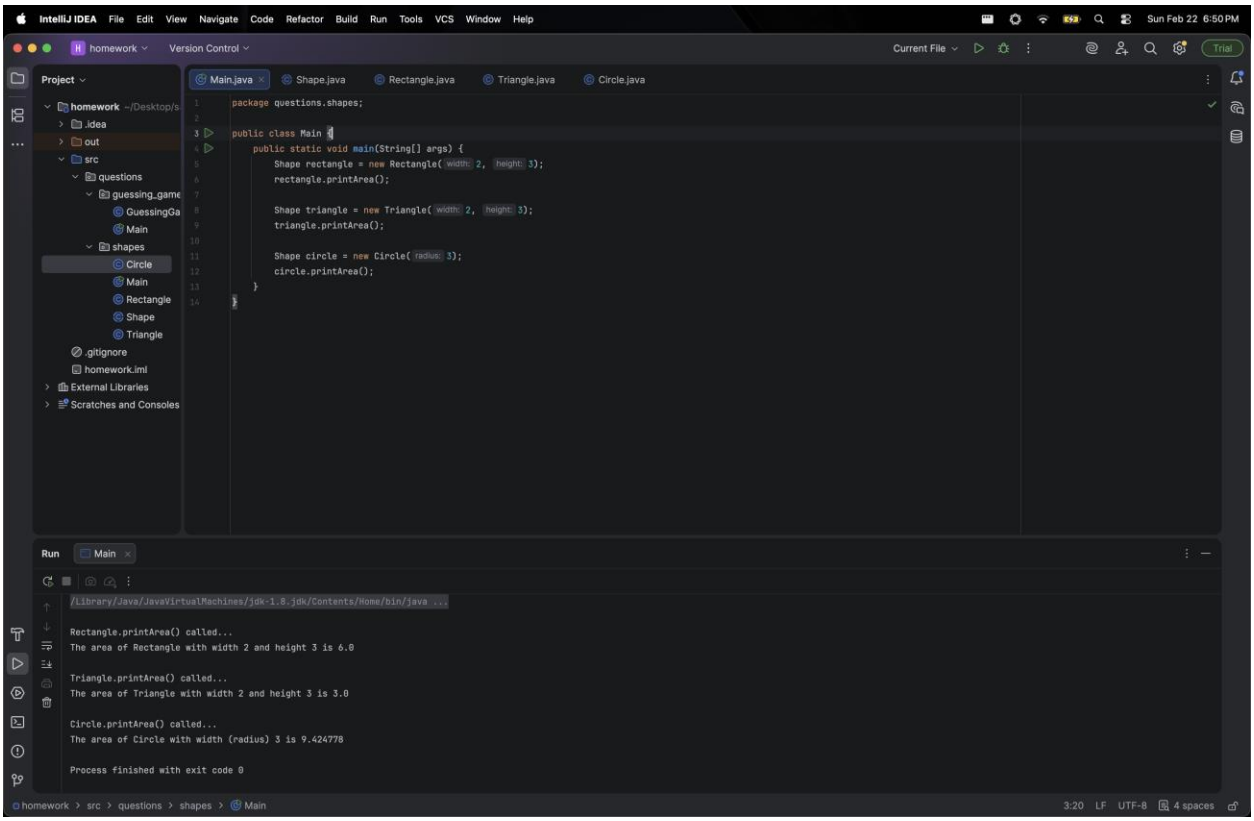
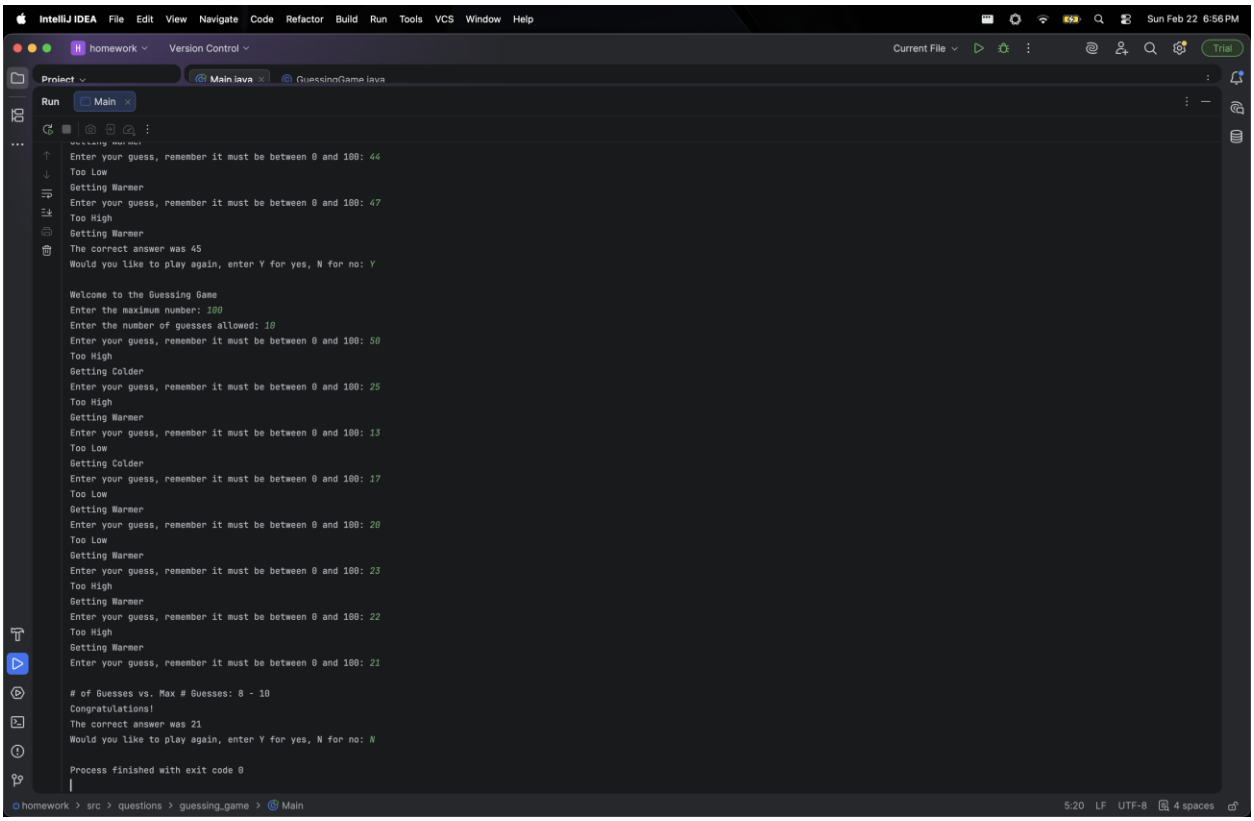
Triangle.java
Circle.java
package questions.shapes;
public abstract class Shape { 6 usages 3 inheritors
protected int width; 7 usages
protected int height; 5 usages
public Shape() {} no usages
public Shape(int width, int height) { 3 usages
this.width = width;
this.height = height;
}
abstract void printArea(); 3 usages 3 implementations
}
Run
Main
/Library/Java/JavaVirtualMachines/jdk-1.8.jdk/Contents/Home/bin/java ...
Rectangle.printArea() called...
The area of Rectangle with width 2 and height 3 is 6.0
Triangle.printArea() called...
The area of Triangle with width 2 and height 3 is 3.0
Circle.printArea() called...
The area of Circle with width (radius) 3 is 9.424778
Process finished with exit code 0
homework > src > questions > shapes > Shape
3:30 LF



Question 2 – Guessing Game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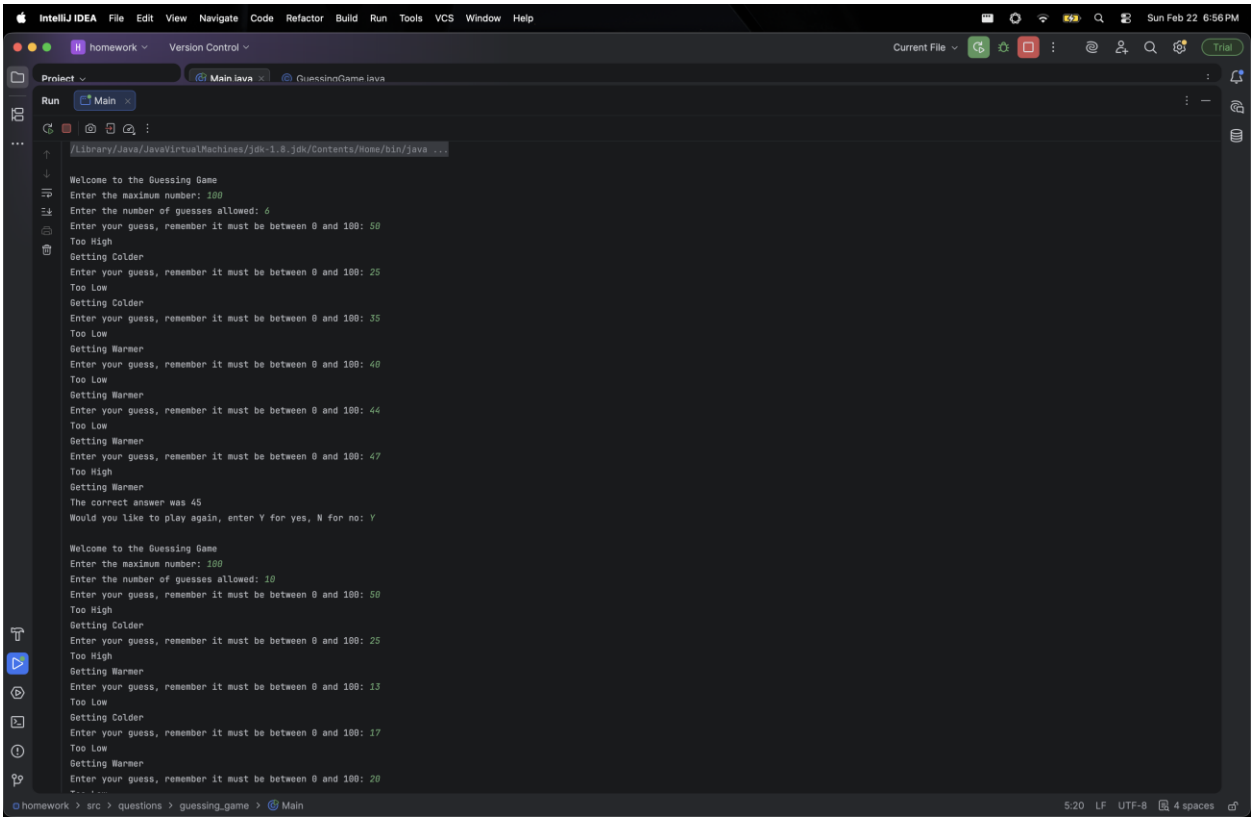
Run
Main
Enter your guess, remember it must be between 0 and 100: 44
Too Low
Getting Warmer
Enter your guess, remember it must be between 0 and 100: 47
Too High
Getting Warmer
The correct answer was 45
Would you like to play again, enter Y for yes, N for no: Y
Welcome to the Guessing Game
Enter the maximum number: 100
Enter the number of guesses allowed: 10
Enter your guess, remember it must be between 0 and 100: 50
Too High
Getting Colder
Enter your guess, remember it must be between 0 and 100: 25
Too High
Getting Warmer
Enter your guess, remember it must be between 0 and 100: 13
Too Low
Getting Colder
Enter your guess, remember it must be between 0 and 100: 17
Too Low
Getting Warmer
Enter your guess, remember it must be between 0 and 100: 20
Too Low
Getting Warmer
Enter your guess, remember it must be between 0 and 100: 23
Too High
Getting Warmer
Enter your guess, remember it must be between 0 and 100: 22
Too High
Getting Warmer
Enter your guess, remember it must be between 0 and 100: 21
# of Guesses vs. Max # Guesses: 8 - 10
Congratulations!
The correct answer was 21
Would you like to play again, enter Y for yes, N for no: N
Process finished with exit code 0
homework > src > questions > guessing_game > Main
5:20 LF UTF-8 4 spaces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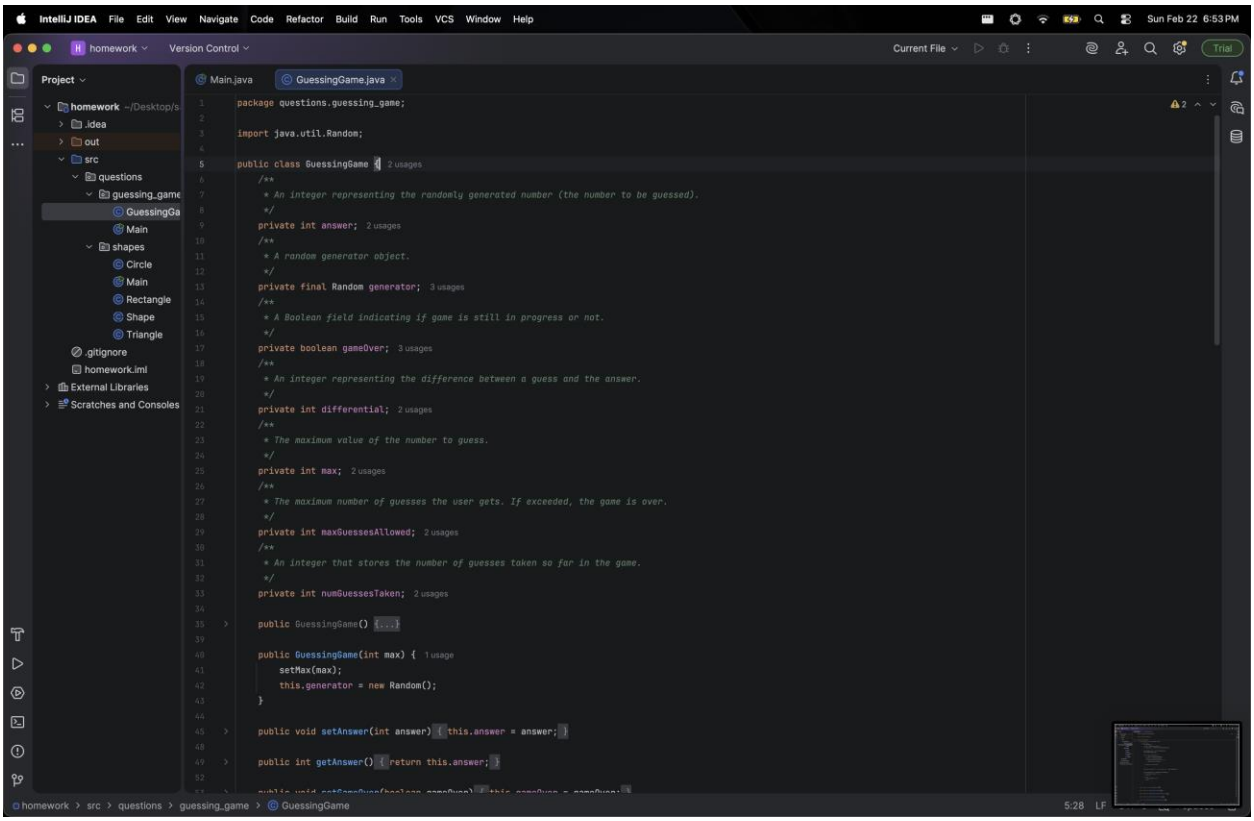
Run
Main
/Library/Java/JavaVirtualMachines/jdk-1.8.jdk/Contents/Home/bin/java ...
Welcome to the Guessing Game
Enter the maximum number: 100
Enter the number of guesses allowed: 6
Enter your guess, remember it must be between 0 and 100: 50
Too High
Getting Colder
Enter your guess, remember it must be between 0 and 100: 25
Too Low
Getting Colder
Enter your guess, remember it must be between 0 and 100: 35
Too Low
Getting Warmer
Enter your guess, remember it must be between 0 and 100: 40
Too Low
Getting Warmer
Enter your guess, remember it must be between 0 and 100: 44
Too Low
Getting Warmer
Enter your guess, remember it must be between 0 and 100: 47
Too High
Getting Warmer
The correct answer was 45
Would you like to play again, enter Y for yes, N for no: Y
Welcome to the Guessing Game
Enter the maximum number: 100
Enter the number of guesses allowed: 10
Enter your guess, remember it must be between 0 and 100: 50
Too High
Getting Colder
Enter your guess, remember it must be between 0 and 100: 25
Too High
Getting Warmer
Enter your guess, remember it must be between 0 and 100: 13
Too Low
Getting Colder
Enter your guess, remember it must be between 0 and 100: 17
Too Low
Getting Warmer
Enter your guess, remember it must be between 0 and 100: 20
homework > src > questions > guessing_game > Main
5:20 LF UTF-8 4 spaces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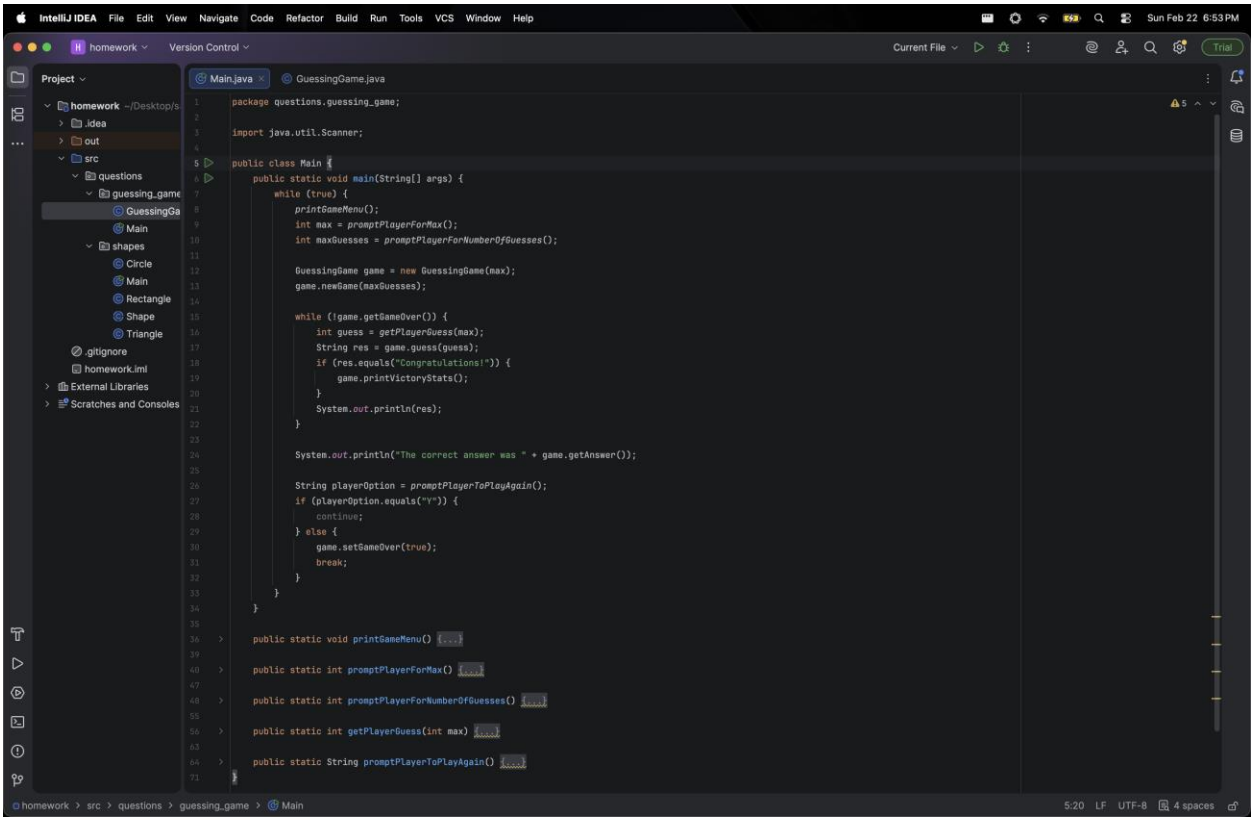
package questions.guessing_game;
import java.util.Random;
public class GuessingGame {
/**
* An integer representing the randomly generated number (the number to be guessed).
*/
private int answer;
/**
* A random generator object.
*/
private final Random generator;
/**
* A Boolean field indicating if game is still in progress or not.
*/
private boolean gameOver;
/**
* An integer representing the difference between a guess and the answer.
*/
private int differential;
/**
* The maximum value of the number to guess.
*/
private int max;
/**
* The maximum number of guesses the user gets. If exceeded, the game is over.
*/
private int maxGuessesAllowed;
/**
* An integer that stores the number of guesses taken so far in the game.
*/
private int numGuessesTaken;
public GuessingGame() {...}
public GuessingGame(int max) {
setMax(max);
this.generator = new Random();
}
public void setAnswer(int answer) { this.answer = answer; }
public int getAnswer() { return this.answer; }
homework > src > questions > guessing_game > GuessingGame
5:28 LF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External Libraries
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package questions.guessing_game;
import java.util.Scanner;
public class Main {
public static void main(String[] args) {
while (true) {
printGameMenu();
int max = promptPlayerForMax();
int maxGuesses = promptPlayerForNumberOfGuesses();
GuessingGame game = new GuessingGame(max);
game.newGame(maxGuesses);
while (!game.getGameOver()) {
int guess = getPlayerGuess(max);
String res = game.guess(guess);
if (res.equals("Congratulations!")) {
game.printVictoryStats();
}
System.out.println(res);
}
System.out.println("The correct answer was " + game.getAnswer());
String playerOption = promptPlayerToPlayAgain();
if (playerOption.equals("Y")) {
continue;
} else {
game.setGameOver(true);
break;
}
}
}
public static void printGameMenu() {...}
public static int promptPlayerForMax() {...}
public static int promptPlayerForNumberOfGuesses() {...}
public static int getPlayerGuess(int max) {...}
public static String promptPlayerToPlayAgain() {...}
homework > src > questions > guessing_game > Main
5:20 LF UTF-8 4 spaces