Christopher Bussen

CPS 150 02 – Algorithms and Programming 1

Long Week Project

11/10/20

**Problem 1 Running Screenshot**

**Text

Description automatically generated**

INPUT FILE:

Graphical user interface, text

Description automatically generated

OUTPUT FILE

Graphical user interface, text

Description automatically generated

**Problem 1 Code**

/\*

Christopher Bussen

CPS 150 02

Long Week Project

Problem1MoreFiles: string string ; string

program takes in the name of an existing input file and a name for an output file

from the user and reads the contents of the input file into the output file then

switches the first and second half of the string in the file - finally, it prints

the reversed string

ex1: user inputs name of file that contains hello world - program will output worldhello and enter this into the new output file

ex2: user inputs name of file incorrectly - program will output error

\*/

import java.io.File;

import java.io.IOException;

import java.io.PrintWriter;

import java.util.Scanner;

public class Problem1MoreFiles {

public static void main(String [] args) throws IOException {

// 1. Declare and create a new Scanner variable named keyboard for keyboard input Scanner

Scanner keyboard = new Scanner(System.in);

// 2. Declare 3 String variables named inputFileName, outputFileName, and line String

String inputFileName;

String outputFileName;

String line;

// 3. Declare a File variable named inputFile

File inputFile;

// 4. Declare a Scanner variable named fileReader

Scanner fileReader;

// 5. Declare a PrintWriter variable named fileOutput

PrintWriter fileOutput;

// 6. Declare 2 int variables named lineLength and middleIndex

int lineLength;

int middleIndex;

// 7. Using the keyboard Scanner, get the inputFileName String as user input

System.out.print("Please enter the name of the input file: ");

inputFileName = keyboard.nextLine();

// 8. Create a new File object with the inputFileName, assign it to the inputFile variable

inputFile = new File(inputFileName);

// 9. Create a new Scanner object with the inputFile, assign it to the fileReader variable

fileReader = new Scanner(inputFile);

// 10. Using the fileReader Scanner, get the line String from the input file // HINT: use the Scanner nextLine method

line = fileReader.nextLine();

// 11. Set the lineLength variable to the line's length // HINT: use the String length method

lineLength = line.length();

// 12. Set the middleIndex variable to the index of the line's middle character

middleIndex = lineLength / 2;

// 13. Reset the line variable to the String resulting from switching the 2 halves of the line // HINT: use the String length substring method and the String concatenation operator

line = line.substring(middleIndex) + line.substring(0, middleIndex);

// 14. Using the keyboard Scanner, get the outputFileName String as user input

System.out.print("Please enter the name of the output file: ");

outputFileName = keyboard.nextLine();

// 15. Create a new PrintWriter object with the outputFileName, assign it to the fileOutput variable

fileOutput = new PrintWriter(outputFileName);

// 16. Using the fileOutput PrintWriter, write the line String to the output file // HINT: use the PrintWriter println method

fileOutput.println(line);

// 17. Close the fileReader Scanner

fileReader.close();

// 18. Close the fileOutput PrintWriter

fileOutput.close();

//added step - print the line

System.out.println(line);

// end main

}

// end class CPS150\_ProgrammingProject1

}

**Problem 2 Running Screenshot**

**Text

Description automatically generated**

**Problem 2 Code**

import java.io.\*;

import java.util.\*;

/\*\*

\* CPS 150, Fall 2020 semester

\*

\* Long Week Project: Rock, Paper, Scissors

\*

\* @authors \*\*\* Christopher Bussen \*\*\*

\*

\* RockPaperScissors: number ; string

\*

\* program takes in a number from the user which represents their choice of either

\* rock, paper, or scissors, generates a random number for the computer, and determines

\* and prints the outcome of the game based on the two integers

\*

\* examples below with each method

\*/

public class RockPaperScissors

{

// global named constant for random number generator

static Random gen = new Random();

// global named constants for game choices

static final int ROCK = 1;

static final int PAPER = 2;

static final int SCISSORS = 3;

// global names constants for game outcomes

static final int PLAYER1\_WINS = 11;

static final int PLAYER2\_WINS = 12;

static final int DRAW = 3;

// global named constant for error condition

static final int ERROR = -1;

/\*\*

\* 1. Get human player's choice

\* 2. Get computer player's (random) choice

\* 3. Check human player's choice

\* 4. Check computer player's choice

\* 5. Announce winner

\*/

public static void main(String[] args)

{

Scanner scan = new Scanner(System.in);

PrintStream output = System.out;

int player1, player2;

// get player 1 input as 1 (rock), 2 (paper or 3 (scissors)

output.print("Choose 1 (rock), 2 (paper), or 3 (scissors): ");

player1 = scan.nextInt();

/\*

\*

\* \*\*\* Add code here to validate that player1 has entered

\* an integer between 1 and 3

\* otherwise, ABORT the program

\*/

if(player1 < 1 || player1 > 3){

System.out.println("ERROR - Please enter a number between 1 and 3");

//end program

System.exit(0);

}

// echo human player's choice

System.out.print(" You chose ");

if (player1 == ROCK) {

System.out.println("rock");

}

else if (player1 == PAPER) {

System.out.println("paper");

}

else {

System.out.println("scissors");

}

// now computer picks one randomly

output.println("Now I choose one ...");

/\*

\*\*\* Add code to and un-comment the following line so that

player2 is set to a random integer between 1 and 3,

using the gen Random object, ALREADY DECLARED AS

A GLOBAL VARIABLE:

\*/

player2 = gen.nextInt(3) + 1;

System.out.print(" I choose ");

/\*

\*

\* \*\*\* Add code here to output the computer's choice

\* as "rock", "paper" or "scissors"

\*/

if (player2 == ROCK) {

System.out.println("rock");

}

else if (player2 == PAPER) {

System.out.println("paper");

}

else {

System.out.println("scissors");

}

/\*

\*

\* \*\*\* Add code below to compare player input against

\* computer's choice and output results:

\*

\* if human player chose ROCK:

\* call rockChoice method with computer choice

\* output the game's outcome (returned from rockChoice)

\* otherwise, if human player chose PAPER:

\* call paperChoice method with computer choice

\* output the game's outcome (returned from paperChoice)

\* otherwise, if human player chose SCISSORS:

\* call scissorChoice method with computer choice

\* output the game's outcome (returned from scissorChoice)

\*/

if(player1 == ROCK){

rockChoice(player2);

}

else if(player1 == PAPER){

paperChoice(player2);

}

else{

scissorsChoice(player2);

}

} // end main

/\*\*

\*

\*

\* rockChoice(int) -> int

\*

\* method consumes the computer player's choice (ROCK, PAPER or SCISSORS),

\* assuming the human player has chosen ROCK

\* method produces game outcome (PLAYER1\_WINS, PLAYER2\_WINS, or DRAW)

\*

\* ex1: rockChoice(ROCK) -> DRAW

\* ex2: rockChoice(PAPER) -> PLAYER2\_WINS

\* ex3: rockChoice(SCISSORS) -> PLAYER1\_WINS

\* ex4: rockChoice(0) -> ERROR

\* ex5: rockChoice(-1) -> ERROR

\* ex6: rockChoice(4) -> ERROR

\*

\* \*\*\* ADD METHOD CODE HERE \*\*\*

\*/

public static void rockChoice(int x){

if(x == ROCK){

System.out.println("DRAW");

}

else if(x == PAPER){

System.out.println("PLAYER2\_WINS");

}

else{

System.out.println("PLAYER1\_WINS");

}

}

/\*\*

\*

\*

\* paperChoice(int) -> int

\*

\* method consumes the computer player's choice (ROCK, PAPER or SCISSORS),

\* assuming the human player has chosen PAPER

\* method produces game outcome (PLAYER1\_WINS, PLAYER2\_WINS, or DRAW)

\*

\* ex1: paperChoice(ROCK) -> PLAYER1\_WINS

\* ex2: paperChoice(PAPER) -> DRAW

\* ex3: paperChoice(SCISSORS) -> PLAYER2\_WINS

\* ex4: paperChoice(0) -> ERROR

\* ex5: paperChoice(-1) -> ERROR

\* ex6: paperChoice(4) -> ERROR

\*

\* \*\*\* ADD METHOD CODE HERE \*\*\*

\*/

public static void paperChoice(int x){

if(x == ROCK){

System.out.println("PLAYER1\_WINS");

}

else if(x == PAPER){

System.out.println("DRAW");

}

else{

System.out.println("PLAYER2\_WINS");

}

}

/\*\*

\*

\*

\* scissorsChoice(int) -> int

\*

\* method consumes the computer player's choice (ROCK, PAPER or SCISSORS),

\* assuming the human player has chosen SCISSORS

\* method produces game outcome (PLAYER1\_WINS, PLAYER2\_WINS, or DRAW)

\*

\* ex1: scissorsChoice(ROCK) -> PLAYER2\_WINS

\* ex2: scissorsChoice(PAPER) -> PLAYER1\_WINS

\* ex3: scissorsChoice(SCISSORS) -> DRAW

\* ex4: scissorsChoice(0) -> ERROR

\* ex5: scissorsChoice(-1) -> ERROR

\* ex6: scissorsChoice(4) -> ERROR

\*

\* \*\*\* ADD METHOD CODE HERE \*\*\*

\*/

public static void scissorsChoice(int x){

if(x == ROCK){

System.out.println("PLAYER2\_WINS");

}

else if(x == PAPER){

System.out.println("PLAYER1\_WINS");

}

else{

System.out.println("DRAW");

}

}

} // end class RockPaperScissors