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CST-105

Programming Exercises

Ch.4

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Ch. 4.2

public class Exercise\_04\_02{

public static void main (String[] args){

Scanner in = new Scanner(System.in);

System.out.print("Enter point 1 (latitude and longitude) in degrees: ");

double point\_1\_latitude = in.nextDouble();

double point\_1\_longitude = in.nextDouble();

System.out.print("Enter point 2 (latitude and longitude) in degrees: ");

double point\_2\_latitude = in.nextDouble();

double point\_2\_longitude = in.nextDouble();

double d = 6371.01 \* Math.acos((

Math.sin(Math.toRadians(point\_1\_latitude)) \*

Math.sin(Math.toRadians(point\_1\_longitude))) +

(Math.cos(Math.toRadians(point\_1\_latitude)) \*

Math.cos(Math.toRadians(point\_1\_longitude)) \*

Math.cos(Math.toRadians(point\_2\_longitude) - Math.toRadians(point\_2\_latitude))));

System.out.printf("The distance between the two points is %f km.%n", d);

}

}

4.17

public class NewClass {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

System.out.print("Enter a year: ");

int year = input.nextInt();

input.nextLine();

System.out.print("Enter a month: ");

String month = input.nextLine();

// Taken from the book per request of the instructor

boolean isLeapYear = ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0));

switch (month){

case "Jan":

case "Mar":

case "May":

case "July":

case "Aug":

case "Oct":

case "Dec":

System.out.println(month + " " + year + " has 31 days"); break;

case "Apr":

case "Jun":

case "Sep":

case "Nov":

System.out.println(month + " " + year + " has 30 days"); break;

case "Feb":

System.out.println(month + " " + year + " has 28 days");

}

}

}

4.22

public class Exercise\_22\_04 {

public static void main(String[] args) {

Scanner input = new Scanner(System.in);

// Prompt the user to enter two strings

System.out.print("Enter a string s1: ");

String s1 = input.nextLine();

System.out.print("Enter a string s2: ");

String s2 = input.nextLine();

int index = -1; // Index of sub string

int count = 0; // Count matching characters

boolean matched = false;

// tests whether the second string

// is a substring of the first string

for (int i = 0; i < s1.length(); i++) {

if (s1.charAt(i) != s2.charAt(count)){

count = 0;

}

if (s1.charAt(i) == s2.charAt(count)) {

if (count == 0)

index = i;

count++;

}

if (count == s2.length()) {

matched = true;

break;

}

}

// Display result

if (matched)

System.out.println("matched at index " + index);

else

System.out.println("\"" + s2 +

"\" is not a substring of \"" + s1 + "\""+ ".");

}

}