1. Suppose your cell phone carrier charges you $29.95 for up to 300 minutes of calls, and $0.45 for each additional minute, plus 12.5 percent taxes and fees. Give an algorithm to compute the monthly charge from a given number of minutes.

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| /\*  Name: Casey Carnnia  Date: 10.09.2012  Scope: Suppose your cell phone carrier charges you $29.95 for up to 300 minutes of calls,  and $0.45 for each additional minute, plus 12.5 percent taxes and fees.  Give an algorithm to compute the monthly charge from a given number of minutes.  Solution: welcome the user  set constant BASIC\_PRICE = 29.95 type = double  set constant PLAN\_MINUTES = 300 type = int  set constant EXTRA\_MINUTES\_FEE = 0.45 type = double  set constant TAX\_FEES = 12.5 / 100 type = double  set variable cost and totalCost type = double  ask the user to input numberOfMinutes type = int  cost = BASIC\_PRICE + ( (numberOfMinutes - PLAN\_MINUTES) \* EXTRA\_MINUTES\_FEE )  totalCost = cost + (cost \* TAX\_FEES)  out put the detail report    \*/  // import needed package  **import** java.util.Scanner;  // declare class  **public** **class** cellPhoneCalculator{  //declare the main method  **public** **static** **void** main(String[] args) {  // welcome the user  System.*out*.println("I can calculate your cell phone charges for the month.");  //set constant BASIC\_PRICE = 29.95 type = float  **final** **double** BASIC\_PRICE = 29.95;  //set constant PLAN\_MINUTES = 300 type = int  **final** **int** PLAN\_MINUTES = 300;  //set constant EXTRA\_MINUTES\_FEE = 0.45 type = float  **final** **double** EXTRA\_MINUTES\_FEE = 0.45;  //set constant TAX\_FEES = 12.5 / 100 type = double  **final** **double** TAX\_FEES = 12.5 / 100;  //set variable totalCost type = double  **double** cost, totalCost = 0;  //ask the user to input numberOfMinutes type = int  Scanner keyboard = **new** Scanner(System.*in*);  System.*out*.print("Please enter the number of minutes you have used this month: ");  //store the user input  **int** numberOfMinutes = keyboard.nextInt();  //cost = BASIC\_PRICE + ( (numberOfMinutes - PLAN\_MINUTES) \* EXTRA\_MINUTES\_FEE )  cost = BASIC\_PRICE + ( (numberOfMinutes - PLAN\_MINUTES) \* EXTRA\_MINUTES\_FEE );  //totalCost = cost + (cost \* TAX\_FEES)  totalCost = cost + (cost \* TAX\_FEES);  System.*out*.printf("Your cost is $%10.2f: ", totalCost);        }//main END  }//class END |
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2. Consider the following pseudocode for finding the most attractive photo from a sequence of photos:

Pick the first photo and call it "the best so far".

For each photo in the sequence

If it is more attractive than the "best so far"

Discard "the best so far".

Call this photo "the best so far".

The photo called "the best so far" is the most attractive photo in the sequence.

Is this an algorithm that will find the most attractive photo?

I don’t think that this can be done with what we currently have learned. Reason is we don’t have a dataset that allows us to loop through like a hash or array. After evaluating photo\_1 against all the photos in the set we don’t have a way to increment the loop so that we can evaluate photo\_2 against the set of photos.

Suppose each photo in the above problem had a price tag. Give an algorithm for finding the most expensive photo.

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| /\*  Name: Casey Carnnia  Date: 10.09.2012  Scope: Consider the following pseudocode for finding the most attractive photo from a sequence of photos:  Pick the first photo and call it "the best so far".  For each photo in the sequence  If it is more attractive than the "best so far"  Discard "the best so far".  Call this photo "the best so far".  The photo called "the best so far" is the most attractive photo in the sequence.  Is this an algorithm that will find the most attractive photo?  Suppose each photo in the above problem had a price tag. Give an algorithm for finding the most expensive photo.    Solution: welcome the user  set constant PHOTO\_1, PHOTO\_2, PHOTO\_3, PHOTO\_4, PHOTO\_5 to the user input type float  set variables photo1, photo2, photo3, photo4, photo5 to 0 type int    if PHOTO\_1 > PHOTO\_2 => photo1++  if PHOTO\_1 > PHOTO\_3 => photo1++  if PHOTO\_1 > PHOTO\_4 => photo1++  if PHOTO\_1 > PHOTO\_5 => photo1++    if PHOTO\_2 > PHOTO\_1 => photo1++  if PHOTO\_2 > PHOTO\_3 => photo1++  if PHOTO\_2 > PHOTO\_4 => photo1++  if PHOTO\_1 > PHOTO\_5 => photo1++    if PHOTO\_3 > PHOTO\_1 => photo1++  if PHOTO\_3 > PHOTO\_2 => photo1++  if PHOTO\_3 > PHOTO\_4 => photo1++  if PHOTO\_3 > PHOTO\_5 => photo1++    if PHOTO\_4 > PHOTO\_1 => photo1++  if PHOTO\_4 > PHOTO\_2 => photo1++  if PHOTO\_4 > PHOTO\_3 => photo1++  if PHOTO\_4 > PHOTO\_4 => photo1++    if PHOTO\_5 > PHOTO\_1 => photo1++  if PHOTO\_5 > PHOTO\_2 => photo1++  if PHOTO\_5 > PHOTO\_3 => photo1++  if PHOTO\_5 > PHOTO\_4 => photo1++    output ranking:  name:\t PHOTO 1\t PHOTO 2\t PHOTO 3\t PHOTO 4\t PHOTO 5\t  price:\t PHOTO\_1\t PHOTO\_2\t PHOTO\_3\t PHOTO\_4\t PHOTO\_5\t  ranking:\t photo1\t photo2\t photo3\t photo4\t photo5\t          \*/  // import needed package  **import** java.util.Scanner;  // declare class  **public** **class** pickPhoto{  //declare the main method  **public** **static** **void** main(String[] args) {  // welcome the user  System.*out*.println("I can choose the most expensive photo from a list of 5 if you tell me the price.");  //ask the user to input price of PHOTO\_1 type = double  Scanner keyboard = **new** Scanner(System.*in*);    System.*out*.print("Please enter the price of PHOTO\_1: ");  //set constant PHOTO\_1 to user input  **final** **double** PHOTO\_1 = keyboard.nextDouble();    System.*out*.print("Please enter the price of PHOTO\_2: ");  //set constant PHOTO\_2 to user input  **final** **double** PHOTO\_2 = keyboard.nextDouble();    System.*out*.print("Please enter the price of PHOTO\_3: ");  //set constant PHOTO\_3 to user input  **final** **double** PHOTO\_3 = keyboard.nextDouble();    System.*out*.print("Please enter the price of PHOTO\_4: ");  //set constant PHOTO\_4 to user input  **final** **double** PHOTO\_4 = keyboard.nextDouble();    System.*out*.print("Please enter the price of PHOTO\_5: ");  //set constant PHOTO\_5 to user input  **final** **double** PHOTO\_5 = keyboard.nextDouble();    // declare set ranking variables to 0  **int** photo1 = 0, photo2 = 0, photo3 = 0, photo4 = 0, photo5 = 0;    //start evaluating    **if** (PHOTO\_1 > PHOTO\_2) { photo1++;}  **if** (PHOTO\_1 > PHOTO\_3) { photo1++;}  **if** (PHOTO\_1 > PHOTO\_4) { photo1++;}  **if** (PHOTO\_1 > PHOTO\_5) { photo1++;}    **if** (PHOTO\_2 > PHOTO\_1) { photo2++;}  **if** (PHOTO\_2 > PHOTO\_3) { photo2++;}  **if** (PHOTO\_2 > PHOTO\_4) { photo2++;}  **if** (PHOTO\_1 > PHOTO\_5) { photo2++;}    **if** (PHOTO\_3 > PHOTO\_1) { photo3++;}  **if** (PHOTO\_3 > PHOTO\_2) { photo3++;}  **if** (PHOTO\_3 > PHOTO\_4) { photo3++;}  **if** (PHOTO\_3 > PHOTO\_5) { photo3++;}    **if** (PHOTO\_4 > PHOTO\_1) { photo4++;}  **if** (PHOTO\_4 > PHOTO\_2) { photo4++;}  **if** (PHOTO\_4 > PHOTO\_3) { photo4++;}  **if** (PHOTO\_4 > PHOTO\_4) { photo4++;}    **if** (PHOTO\_5 > PHOTO\_1) { photo5++;}  **if** (PHOTO\_5 > PHOTO\_2) { photo5++;}  **if** (PHOTO\_5 > PHOTO\_3) { photo5++;}  **if** (PHOTO\_5 > PHOTO\_4) { photo5++;}    // format the output    System.*out*.println("NAME:\t\t PRICE:\t\t RANKING\t");  System.*out*.println("PHOTO 1\t\t" + PHOTO\_1 + "\t\t" + photo1 + "\t");  System.*out*.println("PHOTO 2\t\t" + PHOTO\_2 + "\t\t" + photo2 + "\t");  System.*out*.println("PHOTO 3\t\t" + PHOTO\_3 + "\t\t" + photo3 + "\t");  System.*out*.println("PHOTO 4\t\t" + PHOTO\_4 + "\t\t" + photo4 + "\t");  System.*out*.println("PHOTO 5\t\t" + PHOTO\_5 + "\t\t" + photo5 + "\t");              }//main END  }//class END |
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3. Write pseudocode for a program that reads a word and then prints the first character, the last character, and the characters in the middle. For example, if the input is Harry, the program prints H y arr.

Declare a variable userInput class = String

Declare a variable wordLength type = int

Set wordLength to userInput.length()

System output userInput.charAt(0)

System output userInput.charAt(wordLength -1)

Set loopCounter =1 (this allows us to skip the first character)

As long as loopCounter < wordLength + 1 (this allows us to skip the last character)

System output userInput.charAt(loopCounter + 1)

Increment loopCounter by one

4. Write a program that helps a person decide whether to buy a hybrid car. Your program's inputs should be:

• The cost of a new car

• The estimated miles driven per year

• The estimated gas price

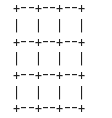
• The efficiency in miles per gallon

• The estimated resale value after 5 years

Compute the total cost of owning the car for 5 years. (For simplicity, we will not take the cost of financing into account.) Obtain realistic prices for a new and used hybrid and a comparable car from the Web. Run your program twice, using today's gas price and 15,000 miles per year. Include pseudocode and the program runs with your assignment.

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| /\*  Name: Casey Carnnia  Date: 10.09.2012  Scope: Write a program that helps a person decide whether to buy a hybrid car. Your program's inputs should be:  • The cost of a new car  • The estimated miles driven per year  • The estimated gas price  • The efficiency in miles per gallon  • The estimated resale value after 5 years    Solution: welcome the user  set following constant to user input  CAR\_PRICE type = double  CAR\_RESALE type = double  CAR\_MPG type = double  MILES\_DRIVEN\_PER\_YEAR type = double  GAS\_PRICE type = double    set following constants in the application  HYBRID\_NEW\_PRICE type = double 24000  HYBRID\_NEW\_RESALE type = double 11000  HYBRID\_NEW\_MPG type = double 51.00    HYBRID\_USED\_PRICE type = double 20000  HYBRID\_USED\_RESALE type = double 9000  HYBRID\_USED\_MPG type = double 50.00    do the calculation:  carGasCost = 5 \* ((MILES\_DRIVEN\_PER\_YEAR / CAR\_MPG) \* GAS\_PRICE)  hibridNewGasCost = 5 \* ((MILES\_DRIVEN\_PER\_YEAR / HYBRID\_NEW\_MPG) \* GAS\_PRICE)  hibridUsedGasCost = 5 \* ((MILES\_DRIVEN\_PER\_YEAR / HYBRID\_USED\_MPG) \* GAS\_PRICE)    carTotalCost = CAR\_PRICE + carGasCost - CAR\_RESALE  hibridNewTotalCost = HYBRID\_NEW\_PRICE + hibridNewGasCost - HYBRID\_NEW\_RESALE  hibridUsedTotalCost = HYBRID\_USED\_PRICE + hibridUsedGasCost - HYBRID\_USED\_RESALE  output ranking:  if the gas prices do not change and you continue to drive MILES\_DRIVEN\_PER\_YEAR per year in the next 5 years:  your cars total cost will be: carTotalCost  a 2012 Prius total cost will be: hibridNewTotalCost  a 2010 Prius total cost will be: hibridUsedTotalCost    \*/ |
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5. Printing a grid. Write a program that prints the following grid to play tic-tac-toe.



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| /\*  Name: Casey Carnnia  Date: 10.09.2012  Scope: Printing a grid. Write a program that prints the following grid to play tic-tac-toe.      \*/    // declare class  **public** **class** ticTacToe{  //declare the main method  **public** **static** **void** main(String[] args) {      System.*out*.println("+--+--+--+");  System.*out*.println("| | | |");  System.*out*.println("+--+--+--+");  System.*out*.println("| | | |");  System.*out*.println("+--+--+--+");  System.*out*.println("| | | |");  System.*out*.println("+--+--+--+");        }//main END  }//class END |
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6. Write pseudocode for a program that prompts the user for a month and day and prints out whether it is one of the following four holidays:

• New Year's Day (January 1)

• Independence Day (July 4)

• Veterans Day (November 11)

• Christmas Day (December 25)

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| /\*  Name: Casey Carnnia  Date: 10.09.2012  Scope: Write pseudocode for a program that prompts the user for a month and day and prints out whether it is one of the following four holidays:  • New Year's Day (January 1)  • Independence Day (July 4)  • Veterans Day (November 11)  • Christmas Day (December 25)  Solution: welcome the user  ask the user to input a month NAME  store it in a constant INPUT\_MONTH type = String  ask a user to input a day  store it in a constant INPUT\_DAY type = int  if INPUT\_MONTH equalsIgnoreCase("January") and INPUT\_DAY = 1  output "Happy New Year"  else if INPUT\_MONTH equalsIgnoreCase("July") and INPUT\_DAY = 4  output "Happy Independence Day"  else if INPUT\_MONTH equalsIgnoreCase("November ") and INPUT\_DAY = 11  output "Happy Veterans Day"  else if INPUT\_MONTH equalsIgnoreCase("December") and INPUT\_DAY = 25  output "Happy Christmas "  else  output "Sorry, not a holiday"      \*/ |
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7. Write a program that translates a number between 0 and 4 into the closest letter grade. For example, the number 2.8 (which might have been the average of several grades) would be converted to B–. Break ties in favor of the better grade; for example 2.85 should be a B.

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| /\*  Name: Casey Carnnia  Date: 10.09.2012  Scope: Write a program that translates a number between 0 and 4 into the closest letter grade.  For example, the number 2.8 (which might have been the average of several grades) would be converted to B–.  Break ties in favor of the better grade; for example 2.85 should be a B.  Algorithm: 1) prompt the user for a grade number between 0 and 4  2) capture the number in grade type = double  3) declare variables to hold the letter grade letterGrade type = String  4) if grade > 4.00 -> letterGrade = N    if grade >= 3.85 && grade <= 4.0 -> letterGrade = A+  if grade >= 3.5 && grade < 3.85 -> letterGrade = A  if grade >= 3.333 && grade < 3.5 -> letterGrade = A-    if grade >= 3.0 && grade < 3.333 -> letterGrade = B+  if grade >= 2.667 && grade < 3.0 -> letterGrade = B  if grade >= 2.333 && grade < 2.667 -> letterGrade = B-    if grade >= 2.0 && grade < 2.333 -> letterGrade = C+  if grade >= 1.667 && grade < 2.0 -> letterGrade = C  if grade >= 1.333 && grade < 1.667 -> letterGrade = C-    if grade >= 1.0 && grade < 1.333 -> letterGrade = D+  if grade > 0 && grade < 1.0 -> letterGrade = D  if grade == 0 -> letterGrade = F  5) print out "Your grade is\t" + grade + "\t Which is equal to: \t" + letterGrade  \*/  // import needed package  **import** java.util.Scanner;  // declare class  **public** **class** holidays{  //declare the main method  **public** **static** **void** main(String[] args) {  // welcome the user  System.*out*.println("I can calculate your letter grade based on your number grade. ");  // get ready to read the user data  Scanner keyboard = **new** Scanner(System.*in*);  // prompt the user for a number grade  System.*out*.print("Please enter your number grade: ");  // store the user input  **double** grade = keyboard.nextDouble();  // declare variables to hold the letter grade letterGrade type = char  String letterGrade;  // evaluate grade and set letterGrade  **if** (grade > 4.00 || grade < 0) {  letterGrade = "N";  }  **else** **if** (grade >= 3.85 && grade <= 4.0 )  {  letterGrade = "A+";  }  **else** **if** (grade >= 3.5 && grade < 3.85 )  {  letterGrade = "A";  }  **else** **if** (grade >= 3.333 && grade < 3.5 )  {  letterGrade = "A-";  }  **else** **if** (grade >= 3.0 && grade < 3.333 )  {  letterGrade = "B+";  }  **else** **if** (grade >= 2.667 && grade < 3.0 )  {  letterGrade = "B";  }  **else** **if** (grade >= 2.333 && grade < 2.667 )  {  letterGrade = "B-";  }  **else** **if** (grade >= 2.0 && grade < 2.333 )  {  letterGrade = "C+";  }  **else** **if** (grade >= 1.667 && grade < 2.0 )  {  letterGrade = "C";  }  **else** **if** (grade >= 1.333 && grade < 1.667 )  {  letterGrade = "C-";  }  **else** **if** (grade >= 1.0 && grade < 1.333 )  {  letterGrade = "D+";  }  **else** **if** (grade > 0 && grade < 1.0 )  {  letterGrade = "D";  }  **else** {  letterGrade = "F";  }//if END    **if** (letterGrade.equalsIgnoreCase("N")){    System.*out*.println(grade + " Your input is not a valid grade\t" + letterGrade);  }  **else**{  System.*out*.println("Your grade is\t" + grade + "\t Which is equal to: \t" + letterGrade);    }//if END          }//main END  }//class END |
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8. The following algorithm yields the season (Spring, Summer, Fall, or Winter) for a given month and day.

If month is 1, 2, or 3, season = "Winter"

Else if month is 4, 5, or 6, season = "Spring"

Else if month is 7, 8, or 9, season = "Summer"

Else if month is 10, 11, or 12, season = "Fall"

If month is divisible by 3 and day >= 21

If season is "Winter", season = "Spring"

Else if season is "Spring", season = "Summer"

Else if season is "Summer", season = "Fall"

Else season = "Winter"

Write a program that prompts the user for a month and day and then prints the season, as determined by this algorithm.

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| /\*  Name: Casey Carnnia  Date: 10.10.2012  Scope: The following algorithm yields the season (Spring, Summer, Fall, or Winter) for a given month and day.  If month is 1, 2, or 3, season = "Winter"  Else if month is 4, 5, or 6, season = "Spring"  Else if month is 7, 8, or 9, season = "Summer"  Else if month is 10, 11, or 12, season = "Fall"    If month is divisible by 3 and day >= 21    If season is "Winter", season = "Spring"  Else if season is "Spring", season = "Summer"  Else if season is "Summer", season = "Fall"  Else season = "Winter"    Write a program that prompts the user for a month and day and then prints  the season, as determined by this algorithm.    \*/  // import needed package  **import** java.util.Scanner;  // declare class  **public** **class** season{  //declare the main method  **public** **static** **void** main(String[] args) {  //declare variables  **int** inputMonth = 0;  **int** inputDay = 0;  // welcome the user  System.*out*.println("I can what season it is if you tell me the number indecating the month and one indecating the day. ");  // get ready to read the user data  Scanner keyboard = **new** Scanner(System.*in*);  // prompt the user for a number for month  System.*out*.print("Please enter a number from 1 to 12 to indecate the month: ");  // store the user input  inputMonth = keyboard.nextInt();      // evaluate valid input for month  **boolean** validInput = **true**;  **if** (inputMonth > 12 || inputMonth < 1) {  System.*out*.println(inputMonth + " is not a valid month.");  validInput = **false**;  }  **else**{  // prompt the user for a number for day  System.*out*.print("Please enter a number from 1 to 31 to indecate the day: ");  // store the user input  inputDay = keyboard.nextInt();  // evaluate valid input for month  **if** (inputDay > 31 || inputMonth < 1) {  System.*out*.println(inputDay + " is not a valid day.");  validInput = **false**;    }//if for day END    }//if for month END    // if we have valid data we work else we quit  **if** (validInput){  //variable to hold the season  String season = "";  //evaluate inputMonth and set the season accordingly  **if** (inputMonth == 1 || inputMonth == 2 || inputMonth == 3){  season = "Winter";  }  **else** **if** (inputMonth == 4 || inputMonth == 5 || inputMonth == 6){  season = "Spring";  }  **else** **if** (inputMonth == 7 || inputMonth == 8 || inputMonth == 9){  season = "Summer";  }  **else**{  season = "Fall";  }//if for monthInput END  //evaluate inputDay and update season accordingly    **if** (inputMonth % 3 == 0 && inputDay >= 21){  **if** (season.equalsIgnoreCase("Winter")){  season = "Spring";  }  **else** **if** (season.equalsIgnoreCase("Spring")){  season = "Summer";  }  **else** **if**(season.equalsIgnoreCase("Summer")){  season = "Fall";  }  **else**{  season = "Winter";  }//if for 21 END  }//if for inputDay END  System.*out*.println("I think it is\t" + season);  }  **else**{  System.*out*.println(validInput + " data so quitting.");  }//if valid input END              }//main END  }//class END |
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9.Write a program that prompts the user to provide a single character from the alphabet. Print Vowel or Consonant, depending on the user input. If the user input is not a letter (between a and z or A and Z), or is a string of length > 1, print an error message.

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| /\*  Name: Casey Carnnia  Date: 10.10.2012  Scope: Write a program that prompts the user to provide a single character from the alphabet.  Print Vowel or Consonant, depending on the user input.  If the user input is not a letter (between a and z or A and Z),  or is a string of length > 1, print an error message.  Solution: welcome the user  declare a variable to hold user input inputLetter type = String  prompt for user input  store the input in inputLetter  trim inputLetter  evaluate the inputLetter length  if inputLetter.lenghth() > 1 => error msg  convert inputLetter toLowerCase  if inputLetter < a or inputLetter > z => error msg  if inputLetter.equals [a,e,i,o,u] => this is a vowel  else => this is a consonant      \*/  // import needed package  **import** java.util.Scanner;  // declare class  **public** **class** vowel{  //declare the main method  **public** **static** **void** main(String[] args) {  //declare variables  String inputLetter = "";  // welcome the user  System.*out*.println("I can tell you if a letter in the alphabet is a vowel or a consonant.");  // get ready to read the user data  Scanner keyboard = **new** Scanner(System.*in*);  // prompt the user for a letter  System.*out*.print("Please enter a letter from English alphabet: ");  // store the user input  inputLetter = keyboard.next();    //trim it to remove white space  inputLetter = inputLetter.trim();    //check the length  **if** (inputLetter.length() == 1){  //convert inputLetter to lowercase  inputLetter = inputLetter.toLowerCase();  //is inputLetter between a and z and not a number or other char  **if** (inputLetter.compareTo("a") >= 0 ){  **if** (inputLetter.equals("a") || inputLetter.equals("e") || inputLetter.equals("i") || inputLetter.equals("o") || inputLetter.equals("u")){  System.*out*.println(inputLetter + " is a VOWEL.");  }  **else**{  System.*out*.println(inputLetter + " is a CONSONANT.");  }// output decision END    }  **else**{  System.*out*.println(inputLetter + " is not valid. You might have entered somthing other then a to z. ");  }//if between a and z END  }  **else**{  System.*out*.println(inputLetter + " is not valid. You either entered more then one letter. ");  }//if length END          }//main END  }//class END |
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10.Write a program that asks the user to enter a month (1 for January, 2 for February, and so on) and then prints the number of days in the month. For February, print “28 or 29 days”.

Enter a month: 5

30 days

Do not use a separate if/else branch for each month. Use Boolean operators.

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| /\*  Name: Casey Carnnia  Date: 10.09.2012  Scope: Write a program that asks the user to enter a month  (1 for January, 2 for February, and so on) and then  prints the number of days in the month.  For February, print “28 or 29 days”.  Enter a month: 5  30 days  Do not use a separate if/else branch for each month. Use Boolean operators.  Algorithm: prompt the user for a month number between 1 and 12  capture the number in monthInput type = int  use a switch to evaluate the input  print out "monthInput has n number of days"  \*/  // import needed package  **import** java.util.Scanner;  // declare class  **public** **class** daysInMonth{  //declare the main method  **public** **static** **void** main(String[] args) {  // welcome the user  System.*out*.println("I can tell you how many days are in month.");  // get ready to read the user data  Scanner keyboard = **new** Scanner(System.*in*);  // prompt the user for a number for month  System.*out*.print("Please enter a number between 1 to 12 representing a month in the year: ");  // store the user input  **int** monthInput = keyboard.nextInt();  // implement the switch  **switch** (monthInput)  {  **case** 1:  System.*out*.println("You entered " + monthInput + " there are 31 days in Januaray. ");  **break**;  **case** 2:  System.*out*.println("You entered " + monthInput + " there are 28 days in Febuarary. ");  **break**;  **case** 3:  System.*out*.println("You entered " + monthInput + " there are 31 days in March. ");  **break**;  **case** 4:  System.*out*.println("You entered " + monthInput + " there are 30 days in April. ");  **break**;  **case** 5:  System.*out*.println("You entered " + monthInput + " there are 31 days in May. ");  **break**;  **case** 6:  System.*out*.println("You entered " + monthInput + " there are 30 days in June. ");  **break**;  **case** 7:  System.*out*.println("You entered " + monthInput + " there are 31 days in July. ");  **break**;  **case** 8:  System.*out*.println("You entered " + monthInput + " there are 31 days in Auguest. ");  **break**;  **case** 9:  System.*out*.println("You entered " + monthInput + " there are 30 days in September. ");  **break**;  **case** 10:  System.*out*.println("You entered " + monthInput + " there are 31 days in October. ");  **break**;  **case** 11:  System.*out*.println("You entered " + monthInput + " there are 30 days in November. ");  **break**;  **case** 12:  System.*out*.println("You entered " + monthInput + " there are 31 days in December. ");  **break**;  **default**:  System.*out*.println("You entered " + monthInput + " which is invalid. ");  **break**;  }// switch END          }//main END  }//class END |
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11. Currency conversion. Write a program that first asks the user to type today's price for one dollar in Japanese yen, then reads U.S. dollar values and converts each to yen. Use 0 as a sentinel.

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| /\*  Name: Casey Carnnia  Date: 10.09.2012  Scope: Currency conversion. Write a program that first asks the user to type today's price for one dollar in Japanese yen, then reads U.S. dollar values and converts each to yen. Use 0 as a sentinel.  Solution: Welcome the user  ask the user to make a decision [1 = sell , 2 = buy , 0 = Exit ]  if 1  get sell value of one yen in dollars yenSellValue = double  get transactionAmount type = double  multiply transaction amount by selling value of yen  print out the answer  if 2  get buy value of one yen in dollars yenBuyValue double  get transactionAmount type = double  multiply transaction amount by yenBuyValue value of yen  print out the answer  if 3  exit  \*/  // import needed package  **import** java.util.Scanner;  // declare class  **public** **class** yenExchange{  //declare the main method  **public** **static** **void** main(String[] args) {  // welcome the user  System.*out*.println("I can exchange yen to dollar. ");    // get ready to read the user data  Scanner keyboard = **new** Scanner(System.*in*);  // prompt the user for a buy/sell option  System.*out*.println("Do you want to sell or buy YEN [1 = sell , 2 = buy , 0 = Exit ] ");  // store the user input  **int** inputOption = keyboard.nextInt();  // basic if logic  **if** (inputOption == 1) {  System.*out*.println("giving YEN to get DOLLAR");  System.*out*.println("What is the selling price of Yen against Dollars today? ");  **double** yenSellValue = keyboard.nextDouble();  System.*out*.println("How many YEN do you want to sell? ");  **double** transactionAmmount = keyboard.nextDouble();  **double** answer = yenSellValue \* transactionAmmount;  System.*out*.printf("With YEN at $%5.2f ==> you will get $%10.2f for %10.2f YEN.", yenSellValue, answer, transactionAmmount);    }  **else** **if** (inputOption == 2){  System.*out*.println("giving DOLLAR to get YEN");  System.*out*.println("What is the buying price of Yen against Dollar today? ");  **double** yenBuyValue = keyboard.nextDouble();  System.*out*.println("How many YEN do you want to buy? ");  **double** transactionAmmount = keyboard.nextDouble();  **double** answer = yenBuyValue \* transactionAmmount;  System.*out*.printf("With YEN at $%5.2f ==> it will cost you $%10.2f for %10.2f YEN.", yenBuyValue, answer, transactionAmmount);        }  **else** **if** (inputOption == 0){  System.*out*.println("You exited the program.");    }  **else** {  System.*out*.println("You entered an invalid value.");    }//if END      }//main END  }//class END |
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12.Translate the following pseudocode for finding the minimum value from a set of inputs into a Java program.

**Set a Boolean variable ”first” to true.**

**While another value has been read successfully**

**If first is true**

**Set the minimum to the value.**

**Set first to false.**

**Else if the value is less than the minimum**

**Set the minimum to the value.**

**Print the minimum.**

While loop is in chapter 4 we haven’t study it yet

13.Write a program that prints all powers of 2 from 20 up to 220.

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| /\*  Name: Casey Carnnia  Date: 10.09.2012  Scope: Write a program that prints all powers of 2 from 20 up to 220.  Solution: Implement a loop that counts from 0 to 20  \*/    // declare class  **public** **class** powersOfTwo{  //declare the main method  **public** **static** **void** main(String[] args) {  // welcome the user  System.*out*.println("I can all powers of 2 from 2^0 to 2^20.");      System.*out*.println("2 to the power of 0 is equal to: 0");  System.*out*.println("2 to the power of 1 is equal to: 2");  System.*out*.println("2 to the power of 2 is equal to: " + 2\*2);  System.*out*.println("2 to the power of 3 is equal to: " + 2\*2\*2);  System.*out*.println("2 to the power of 4 is equal to: " + 2\*2\*2\*2);  System.*out*.println("2 to the power of 5 is equal to: " + 2\*2\*2\*2\*2);  System.*out*.println("2 to the power of 6 is equal to: " + 2\*2\*2\*2\*2\*2);  System.*out*.println("2 to the power of 7 is equal to: " + 2\*2\*2\*2\*2\*2\*2);  System.*out*.println("2 to the power of 8 is equal to: " + 2\*2\*2\*2\*2\*2\*2\*2);  System.*out*.println("2 to the power of 9 is equal to: " + 2\*2\*2\*2\*2\*2\*2\*2\*2);  System.*out*.println("2 to the power of 10 is equal to: " + 2\*2\*2\*2\*2\*2\*2\*2\*2\*2);  System.*out*.println("2 to the power of 11 is equal to: " + 2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2);  System.*out*.println("2 to the power of 12 is equal to: " + 2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2);  System.*out*.println("2 to the power of 13 is equal to: " + 2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2);  System.*out*.println("2 to the power of 14 is equal to: " + 2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2);  System.*out*.println("2 to the power of 15 is equal to: " + 2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2);  System.*out*.println("2 to the power of 16 is equal to: " + 2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2);  System.*out*.println("2 to the power of 17 is equal to: " + 2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2);  System.*out*.println("2 to the power of 18 is equal to: " + 2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2);  System.*out*.println("2 to the power of 19 is equal to: " + 2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2);  System.*out*.println("2 to the power of 20 is equal to: " + 2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2\*2);        }//main END  }//class END |
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