# IS 2063: PA1 ASSIGNMENT

| |
|---|
| **TOTAL POINTS: 100** |
| **DUE: *CHECK BLACKBOARD* BY 11:59 PM *Plan and PA have separate due dates.*** |
| **PLAN GRADE: *PLAN (pseudocode) this program from the planning video posted in Blackboard. 10% OF GRADE. IMPORTANT: The planning video "gives" you the logic upon which the rest of your PAs are based, so it is critical your PA1 follows the plan's logic.*** |
| ▪ **READ CAREFULLY "ALL" THE INSTRUCTIONS!!!**<br>▪ **Do not submit code that doesn't compile, run, or generate correct output.**<br>▪ **No assistance given via email.**<br>▪ **Seek help during open tutoring or instructor office hours.** |

**CONTENTS: Press Alt, Left Arrow to return to table of contents.**



**UTSA HONOR CODE**: As a UTSA student, you are **bound** by the honor code, so DO NOT cheat on any of your coursework. ***By submitting this assignment, you affirm that there has been no cheating or collusion in its completion;*** that the material you've used is from your textbook, professor, or Java tutors. Cheating can result in anyone, or combination, or all of the following: reduced or failing grade for the assignment, a signed statement of the infraction, reduced or failing grade for the course, reporting of student to the Department Chair, Dean's Office, and/or elevation to Student Conduct and Community Standards. It is not only cheating, but an infringement of copyright, if you post this assignment or your completed code to any website for broad consumption or distribution. The idea behind this assignment is not yours. The logic given to you for the assignment by the faculty is not yours. The code that is written embodies the idea.

**OBJECTIVE *(this is not the program purpose)*:** Code a program that uses the concepts covered in chapters 1-4 and lecture.

**PREP WORK:** Material from chapters 1, 2, 3, and 4 (including instructor PowerPoint slides, demo programs, and completed exercises).

**GRADING:** You'll be graded on *how well* you follow the program instructions and the ***accuracy of your output as reflected in the prompts, the output specifications, and the sample output***. ***This includes spacing and line advancing.*** **Each line of output can be associated with multiple points in the code!** The instructions, prompts and output are what the user wants. You are **not** at liberty to change anything, but code to these requirements. You'll also be graded on the code given to you by your professor for this PA.

**PROGRAM INSTRUCTIONS:**

1. Create a program that computes annual sales revenue to-date to determine the status of the company's sales revenue and whether a year-end bonus is in store for the employees. Sales revenue is captured by month within a quarter; therefore, the user can enter as many quarters as needed as long as the quarters are not less than 1 or greater than 4. If sales revenue is on target by 50% or more for a sales rep, an encouraging message is sent; otherwise, a warning is sent. If sales revenue to date for the company is greater than or equal to 100% of projected annual sales, then employees qualify for a 2-5% year-end bonus; otherwise, no year-end bonus can be expected. Use printf() with format specifiers where needed.

2. **Work and submit this PA on your own** (no partner).

3. **UML Diagrams** for the class*: Data members are variables. The variables can be derived from the prompts and/or the output. The complete code for the PA is outlined in logical progression within this UML.*

| | |
|---|---|
| Class Name | YourLastNameFirstInitialYourSectionNoPA1 ShepherdL001PA1 |
| Class Data Members | N/A |
| Method Data Members | input: Scanner<br>dateTime: Calendar<br><br>salesRep, monthNo, quarter: String<br><br>salesRevenue, quarterlySales, annualSales, projectedSales, percOfTargetCo, perceOfTargetRep: double<br><br>qtrChoice, monthCounter, qtrCounter, noOfQtrs, noOfMonths, noSalesReps, salesRepCtr: int |
| Methods | +main(args: String[]): static void<br><br>**PROMPTS:** *Code what is in **bold** from the prompts below in printf() statements for capturing data. The actual output is **not** in bold. The prompts tell you your input variables.* |

***1st Prompt***:

**What is the projected annual sales for Tandem?**

***2nd Prompt:***

**How many sales reps work for Tandem?**

***3rd Prompt:***

**Enter the name of a sales rep:**

**OR**

**Enter the name of the next sales rep:**

*Use this ternary in a printf() to determine which prompt is used by inserting the words to put in %s based on the value in salesRepCtr.*

```
"%nEnter the name of %s sales rep:  ", salesRepCtr == 1 ? "a" : "the next"
```

***4th Prompt:***

**Enter the number of quarters worked (no less than 1 or greater than 4):**

***5th Prompt:***

1. **First Quarter**
2. **Second Quarter**
3. **Third Quarter**
4. **Fourth Quarter**

**Choose the quarter in which sales were earned:**

**OR**

**Choose the next quarter in which sales were earned:**

*Insert this code as the last concatenated line in the printf() for Prompt 5. The argument is a ternary that decides to put "next " or nothing in the %s. Note there is a space after the word next in the String literal. There is no space in-between the double quotes.*

```
"%n%nChoose the %squarter in which sales were earned:  ",
                    qtrCounter > 1 ? "next " : ""
```

*Right after the printf(), code the following ternary to setup for Prompt 6. The ternary is a shortened if-else-if.*

```
quarter = (qtrChoice == 1) ? "First Quarter" : (qtrChoice == 2) ?
 "Second Quarter" : (qtrChoice == 3) ? "Third Quarter" : "Fourth Quarter";
```

***6th Prompt:***

**Enter the sales revenue for the Xxx month of the Xxxxxx Xxxxxxx:**

*where Xxx holds* **1st**, **2nd**, or **3rd** *and Xx Xxxxxx holds* **First Quarter**, **Second Quarter**, **Third Quarter**, **Fourth Quarter**.

## Sequencing and Logical Control Structures:

1. Prompts 1 and 2 are code before the `do-while` loop which controls the sales reps.
2. Within the `do-while` loop:
    a. Reinitialize `qtrCounter` to 1.
    b. Zero out `quarterlySales`.
    c. Post-increment `salesRepCtr`.
    d. Prompt 3.
    c. Prompt 4.
    d. Nested `while` loop controls the number of quarters.
        i. Initialize `monthCounter` to 1.
        ii. Prompt 5 and code for the content of the `quarter` variable.
        iii. Nested, nested `while` loop controls the number of months within a quarter.
            1) Use `if-else-if` to assign "1st", "2nd", "3rd" to `monthNo` based on `monthCounter`.
            2) Prompt 6.
            3) Use combined assignment operator to add `salesRevenue` to `quarterlySales`.
            4) Pre-increment `monthCounter`.
    d. Use combined assignment operator to add `quarterlySales` to `annualSales`.
    e. Pre-increment `qtrCounter`.
    f. Print output for sales rep.
    g. Calculate the `percOfTargetRep` which determines whether the sales rep is on target for their portion of the projected sales.
    h. if the `noOfQtrs` is less than 4
        i. Test if `percOfTargetRep` is greater than or equal to 50, if so print

where the `substring()` grabs the first name.

```
"%nKeep up the GOOD work, %s.  There is a "
                + "possible year-end bonus!%n",
                  salesRep.substring(0, salesRep.indexOf(' '))
```

*There is a space between the single quotes.*

ii. Otherwise, print:

**So far sales are lagging behind projections.**

3. Calculate the `percOfTargetCo`.
4. Print:

   **CORPORATE SALES PERFORMANCE**

   a. If `percOfTargetCo` is greater than or equal to 100, print exactly as seen using the proper line advancing.

```
It's been a GOOD year so far.  There could be a year-end bonus of
about 2-5% if we can keep on top of our sales goals.  Thank you all
and please continue your excellent effort!
```

   b. Otherwise, print the following all on the same line, no word wrap.

```
Sales are lagging projections.  A year-end bonus may not be
possible.
```

5. Exit.
6. The Prompts, the output specs, and the sample output show you in what order to place your code. To return from these links press Alt, left arrow.
7. You are to generate output from your program according to the instructions in the sample output section.

**SALES REP OUTPUT SPECIFICATIONS:** *The Zs and 9s represent the output as formatted numbers. Zs indicate zero-suppression of leading numbers. 9s represent numbers printed as digits from 0-9. Xs are text. Zs, 9s, Xs are values that will change, everything else are headers, titles, and labels. Use System.out.printf() and the appropriate format specifiers to properly format the output. The year is NOT to be hard coded into the header, instead, you will capture the system's date and format for the year only (refer to Appendix I). This is so the year corresponds to when the program is run. What is printed is for each sales rep.*

Header (Title). Triple line advance uses 2 %n's with 2nd and 3rd lines of the header using 1 %n.

**TANDEM ENTERPRISES**
**SALES REVENUE FOR 9 QUARTER(S) OF 9999**
**SALES REP: Xxxxxxxxxxx Xxxxxxxxxxxxxxxxxx**

**Total Year-To-Date: $ZZZ,ZZZ,ZZ9.99**

Total Label with year-to-date sales figure which tells you your output variable. When printed, the $ sign will not float to the leading digit.

*****END SALES REP OUTPUT SPECIFICATIO**

**FINAL OUTPUT SPECIFICATIONS:** *Printed after the last sales rep.*

**CORPORATE SALES PERFORMANCE**

**It's been a GOOD year so far. There could be a year-end bonus of about 2-5% if we can keep on top of our sales goals. Thank you all and please continue your excellent effort!**

***OR***

**Sales are lagging projections. A year-end bonus may not be possible.**

*****END FINAL OUTPUT SPECIFICATIONS*****

**SUBMISSIONS REQUIREMENT:**

1. **Plan:** Upload your plan to Blackboard under this PA.

2. **Word Document:** Copy your .java code into a Word document and save it with the same name as your program. Upload the document to Blackboard under this PA.

3. **Zipping Folders: Your Java files "must be" in a folder.**
   a. Create a folder named for the program (excluding the file extension).
   b. Put your **.java, .class**, **.java~** files in the folder. You **must** have all 3 files.
   c. Put your completed **PA1 plan** Word document in the folder.
   d. To zip the folder, point to it then right click and
      i. **Filzip** if you have it **OR**
      ii. Click **Send To** then click **Compressed (zipped) Folder**
   e. Upload your zipped folder to Blackboard under this PA.

4. **Uploading to Blackboard: Make sure your browser is properly configured for Blackboard (see syllabus).**
   a. Your submissions are to be uploaded to Blackboard through **Assignments** only.
   b. **Upload your files no later than the due date by 11:55 pm**; otherwise, you don't have time to recover from any problems and your assignment may not be accepted by Blackboard.
   c. Check to make sure your submission is uploaded. Please **do not ask your instructor** to check whether your assignment has been uploaded. You can do this yourself. Or upload during a tutoring session when someone can help you.
   d. If you submit your assignment before the due date, want to make changes or upload additional files, you can **re-upload** your files.

5. **NO ASSIGNMENTS WILL BE ACCEPTED LATE OR VIA E-MAIL. DO NOT UPLOAD PROGRAMS THAT DON'T COMPILE OR DON'T PRODUCE CORRECT OUTPUT.**

**SAMPLE OUTPUT:** *It is always good to test your code using sample data to see if your program meets the output specifications.* ***Run your program using the data in the following sample output. Copy and paste the output into a comment box at the end of your PA1.java file.*** *The comment box needs to be outside of the close brace for the class.* ***Change your font in DrJava to***

TOC

***Monospaced or Courier New if your output is out of alignment.*** ***Worth 5 points!*** ***Your output will not print in bold.*** The TOC in the top right-hand corner of the page is **not** part of the output. It takes you to the table of contents on page 1.

*****SALES NOT ON TRACK***** ***Not part of output.***

```
What is the projected annual sales for Tandem?  500000

How many sales reps work for Tandem?  2

Enter the name of a sales rep:  Julian Caesar

Enter the number of quarters worked (no less than 1 or greater than 4):  1

1.  First Quarter
2.  Second Quarter
3.  Third Quarter
4.  Fourth Quarter

Choose the quarter in which sales were earned:  2

Enter the sales revenue for the 1st month of the Second Quarter:  100000

Enter the sales revenue for the 2nd month of the Second Quarter:  50000

Enter the sales revenue for the 3rd month of the Second Quarter:  100000


TANDEM ENTERPRISES
SALES REVENUE FOR 1 QUARTER(S) OF 2022
SALES REP:  Julian Caesar

Total Year-To-Date:      $         250,000.00

Keep up the GOOD work, Julian.  There is a possible year-end bonus!

Enter the name of the next sales rep:  Monique La Femme

Enter the number of quarters worked (no less than 1 or greater than 4):  2

1.  First Quarter
2.  Second Quarter
3.  Third Quarter
4.  Fourth Quarter

Choose the quarter in which sales were earned:  1

Enter the sales revenue for the 1st month of the First Quarter:  5000

Enter the sales revenue for the 2nd month of the First Quarter:  6000
```

```
Enter the sales revenue for the 3rd month of the First Quarter:  5000

1.  First Quarter
2.  Second Quarter
3.  Third Quarter
4.  Fourth Quarter

Choose the next quarter in which sales were earned:  2

Enter the sales revenue for the 1st month of the Second Quarter:  5000

Enter the sales revenue for the 2nd month of the Second Quarter:  6000

Enter the sales revenue for the 3rd month of the Second Quarter:  5000


TANDEM ENTERPRISES
SALES REVENUE FOR 2 QUARTER(S) OF 2022
SALES REP:  Monique La Femme

Total Year-To-Date:      $          32,000.00

So far sales are lagging behind projections.

CORPORATE SALES PERFORMANCE

Sales are lagging projections.  A year-end bonus may not be possible.
```

***SALES MET OR EXCEEDED*** ← *Not part of output.*

```
What is the projected annual sales for Tandem?  500000

How many sales reps work for Tandem?  2

Enter the name of a sales rep:  Julian Caesar

Enter the number of quarters worked (no less than 1 or greater than 4):  1

1.  First Quarter
2.  Second Quarter
3.  Third Quarter
4.  Fourth Quarter

Choose the quarter in which sales were earned:  2

Enter the sales revenue for the 1st month of the Second Quarter:  100000

Enter the sales revenue for the 2nd month of the Second Quarter:  50000

Enter the sales revenue for the 3rd month of the Second Quarter:  100000
```

```
TANDEM ENTERPRISES
SALES REVENUE FOR 1 QUARTER(S) OF 2022
SALES REP:  Julian Caesar

Total Year-To-Date:      $         250,000.00

Keep up the GOOD work, Julian.  There is a possible year-end bonus!

Enter the name of the next sales rep:  Monique La Femme

Enter the number of quarters worked (no less than 1 or greater than 4):  2

1.  First Quarter
2.  Second Quarter
3.  Third Quarter
4.  Fourth Quarter

Choose the quarter in which sales were earned:  1

Enter the sales revenue for the 1st month of the First Quarter:  25000

Enter the sales revenue for the 2nd month of the First Quarter:  75000

Enter the sales revenue for the 3rd month of the First Quarter:  25000

1.  First Quarter
2.  Second Quarter
3.  Third Quarter
4.  Fourth Quarter

Choose the next quarter in which sales were earned:  2

Enter the sales revenue for the 1st month of the Second Quarter:  10000

Enter the sales revenue for the 2nd month of the Second Quarter:  25000

Enter the sales revenue for the 3rd month of the Second Quarter:  30000


TANDEM ENTERPRISES
SALES REVENUE FOR 2 QUARTER(S) OF 2022
SALES REP:  Monique La Femme

Total Year-To-Date:      $         190,000.00

Keep up the GOOD work, Monique.  There is a possible year-end bonus!

CORPORATE SALES PERFORMANCE
```

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**It's been a GOOD year so far.  There could be a year-end bonus of about 2-5% if we can keep on top of our sales goals.  Thank you all and please continue your excellent effort!**