

SdPd/java Lab Exam 2

Objective: Galway Gyms class and pay management

Galway Gyms maintains classes taught and pay earned by instructors using a sequential text file.

1. **Download** the lab exam 2 **zip** file and extract the folder, **Saved** in the root U: Drive (**No USBs**)
 - Rename the **LastNameFirstName17LabEx2** folder and java file as per your own name
 - E.g. **AgnewGerry17LabEx2** folder and **AgnewGerry17LabEx2.java** program file
 - To be **verified** by your lab supervisor
 - Remember to rename the starter **class name** as per your java program file name
2. Add your **Program Id, Name & Program Description** as comments at the top of the program
3. **10%** of the Lab Exam marks are for the Algorithm sheet (enter your name at the top of the first page) which must be submitted at the end of the lab exam
4. **Warning:** marks will be deducted for **bad programming practices** such as:
 - Lacking meaningful variable names, white-space, indentation, etc.
 - Ensure redundant code is deleted prior to program submission
 - Ensure that non-working code is commented out prior to program submission
5. **Input File layout:** each record consists of the following details about each instructor:

– Instructor ID (int)	– e.g. 301
– Gym Code (char) – either S, R, M, B, A or P	– e.g. a/A
– Instructor Last Name (String – max 8)	– e.g. Agnew
– Instructor First Name (String – max 8)	– e.g. Gerry
– Instructor Pay Code (char) – either C or S	– e.g. s/S
– Number of classes taught (int) – last 5 weeks	– e.g. 5, 6, 4, 5, 6
6. **Input File Contents:** – see Screenshot 1 on page 3
 - Locate the input text file “InstructorDetails.dat” contained in your renamed Lab Exam 2 folder
 - Verify the input text file contents and number of columns using Note Pad (or equivalent)
7. **Constants / Variables:**

Declare constants & variables (inc. file objects) as appropriate with meaningful names & types

 - Ensuring that the file layout is highlighted and not mixed with other ordinary variables
8. **Initialise:**

Initialise any necessary variables especially counts and totals (but not all the variables)
9. **Main Processing / File Input:**
 - Using an EOF controlled **while** loop read each instructor’s details from the file until there are no more records left to be processed
 - Read each field in the order defined by the record layout using an appropriate method according to the field type
 - Using an inner **for** loop read the 5 week class totals for each instructor
10. **Header Output:** – see Screenshot 2 on page 3

Display the program headers including **your name** aligned as specified using `println ()` rather than `printf ()` statements

11. Line Output: – see Screenshot 2 on page 3

Display formatted instructor details only for instructors not on placement:

- Instructor Id, Gym Name, Instructor Name, Pay Code, Weekly Class totals (*5), Total Classes and Pay
- Name is concatenated and displayed in the single column as per the screenshot
- Competitors with a p/P (Placement) for the gym code are not processed/displayed
- The Gym code character is mapped to the Gym name using a **switch** statement with default “Placement” if an invalid gym code is encountered
E.g. s/Salthill, r/Renmore, m/Merlin, b/Barna, a/Athenry otherwise Placement
- The pay code character is mapped to the pay code name using a **if/else/if** statement with default “Code Invalid” if an invalid pay code is encountered
E.g. c/By Class, s/Salary otherwise Code Invalid type
- Calculate the total classes (int) covered by summing the 5 weekly class totals
- Pay Rates are: €22 per class for the first 20 classes and €25 for every additional class over 20. Instructors with ‘s’ pay code are paid a base salary rate of €600.00 per month
- Calculate total pay for ‘s’ pay rate using (salary rate + (total number of classes * pay rates)) and for the ‘c’ pay rate using (total number of classes * pay rates)
- Otherwise, display unformatted instructor details if unable to format the output

12. Footer Output: – see Screenshot 2 on page 3

After all the data has been processed display the following footers:

- Placement & Instructor count, Gym counts (Salthill, Renmore, Merlin, Barna, Athenry)
- Pay Type counts (By Class and Base Salary)
- Instructor who taught the highest number of classes including the gym name & high value
- Instructor and Gym name who had the least number of weekly classes
- Number of instructors whose pay is over a specified amount entered using an Input dialog

13. Output/Mirror Report: – see screenshot 3 on page 4

Output or mirror the screen contents to a Report file called “InstructorReport.dat”

14. Output Placement Report: - see screenshot 4 on page 4

- Write instructor details (as indicated) who are on placement and therefore have a “p” for the gym code out to a new report file called “PlacementRep.dat”

15. Output Pay By Class File: - see screenshot 5 on page 4

- Write instructor details (as indicated) who are paid by class and therefore have a “c” for the pay code out to a new output report file called “PayByClass.dat”

16. Close Files:

Close the file objects, especially any newly created Output files to ensure they are saved permanently, otherwise they might appear empty

17. Input and Message Dialogues: – see screenshots 6 on page 4

- Input the Find Gym Name and Pay Limit using 2 seeded **Input dialogs** at the start of the program (with Gym Name = Renmore and Pay Limit = 1000.00)
- Output the corresponding Gym Name Found message summary if the Gym name is matched, case insensitively, using a **Message dialogue** with appropriate “Gym Name”, Title and Icon otherwise, show an appropriate error if the Gym name entered is not found

18. Save – The End:

- When finished exit TextPad
- Zip (R/click: Zip format – **not RAR or 7 Zip**) your **LastNameFirstName17LabEx2** folder
- Upload your **LastNameFirstName17LabEx2** zip file to the Moodle link provided

Instructor Details Input Text File – Screenshot 1

ID	Initial	Last Name	First Name	Gender	Wk1	Wk2	Wk3	Wk4	Wk5	Total
301	a	Murphy	Mary	s	5	6	4	5	6	
302	p	Moran	Derek	S	5	6	6	5	6	
303	A	Shortt	Declan	C	4	5	5	8	7	
304	r	Little	Maeve	s	3	3	4	5	3	
305	B	walsh	Lisa	C	4	5	3	4	6	
306	S	walsh	Shane	c	6	5	4	5	4	
307	m	Lyons	Joe	c	5	4	6	5	5	
308	r	Flynn	Sina	S	4	4	5	5	6	
309	S	Byrne	Dean	s	3	3	4	2	5	
310	s	Nolan	Jane	C	4	4	4	4	4	
311	M	Ryan	Jim	s	6	5	6	5	5	
312	P	Lynch	Ryan	s	6	6	5	5	6	

Screen Output – Screenshot 2

ID	Gym	Instructor Name	Pay Code	wk1	wk2	wk3	wk4	wk5	Total	Pay
301	Athenry	Murphy, Mary	Salary	5	6	4	5	6	26	1190.00
303	Athenry	Shortt, Declan	By Class	4	5	5	8	7	29	665.00
304	Renmore	Little, Maeve	Salary	3	3	4	5	3	18	996.00
305	Barna	Walsh, Lisa	By Class	4	5	3	4	6	22	490.00
306	Salthill	Walsh, Shane	By Class	6	5	4	5	4	24	540.00
307	Merlin	Lyons, Joe	By Class	5	4	6	5	5	25	565.00
308	Renmore	Flynn, Sina	Salary	4	4	5	5	6	24	1140.00
309	Salthill	Byrne, Dean	Salary	3	3	4	2	5	17	974.00
310	Salthill	Nolan, Jane	By Class	4	4	4	4	4	20	440.00
311	Merlin	Ryan, Jim	Salary	6	5	6	5	5	27	1215.00

Instructor and Class Counts:

Placement Count: 2 Instructor Count: 10
 Gyms: Salthill: 3 Renmore: 2 Merlin: 2 Barna: 1 Athenry: 2
 Instructors Paid by Class: 5 Instructors Paid with base salary: 5

Declan Shortt from the Athenry gym taught the most weekly classes over the past 5 weeks of 8.
 Salthill's Dean Byrne had the lowest total number of classes taught in 1 week with only 17 classes being taught.
 3 instructors got paid more than 1000.00 euros over the 5 weeks.

Screen Output/Mirrored Report File – Screenshot 3

InstructorReport - Notepad

Gerry Agnew - Lab Exam 2 (December 2017)

ID	Gym	Instructor Name	Pay Code	wk1	wk2	wk3	wk4	wk5	Total	Pay
301	Athenry	Murphy, Mary	Salary	5	6	4	5	6	26	1190.00
303	Athenry	Shortt, Declan	By Class	4	5	5	8	7	29	665.00
304	Renmore	Little, Maeve	Salary	3	3	4	5	3	18	996.00
305	Barna	Walsh, Lisa	By Class	4	5	3	4	6	22	490.00
306	Salthill	Walsh, Shane	By Class	6	5	4	5	4	24	540.00
307	Merlin	Lyons, Joe	By Class	5	4	6	5	5	25	565.00
308	Renmore	Flynn, Sina	Salary	4	4	5	5	6	24	1140.00
309	Salthill	Byrne, Dean	Salary	3	3	4	2	5	17	974.00
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Placement Report File – Screenshot 4

PlacementRep - Notepad

ID	Gym	Instructor	Pay Code
302	p	Moran, Derek	S
312	P	Lynch, Ryan	S
END OF REPORT			

Pay By Class File – Screenshot 5

PayByClass - Notepad

ID	Gym	Instructor	Pay Code	wk1	wk2	wk3	wk4	wk5	Total	Pay
303	A	Declan Shortt	C	29	665.00					
305	B	Lisa Walsh	C	22	490.00					
306	S	Shane Walsh	C	24	540.00					
307	m	Joe Lyons	C	25	565.00					
310	s	Jane Nolan	C	20	440.00					

Start of Program Input Dialogs – Screenshot 6

Input

Find Gym Name:

Renmore

OK Cancel

Input

Enter pay limit for instructor:

1000.00

OK Cancel

End of Program Output Dialog – Screenshot 6

Gym Name Renmore Found

304 Little, Maeve Salary 996.00
 308 Flynn, Sina Salary 1140.00
 Total Salary: €2136.00

OK

Gym Name Ballybrit Not Found

Sorry Gym Name: Ballybrit not found
 Please try again

OK