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)
Gym Code (char) – either S, R, M, B, A or P
Instructor Last Name (String – max 8)
Instructor First Name (String – max 8)
Instructor Pay Code (char) – either C or S
e.g. 301
e.g. 301
e.g. 4A
e.g. Agnew
e.g. Gerry
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

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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

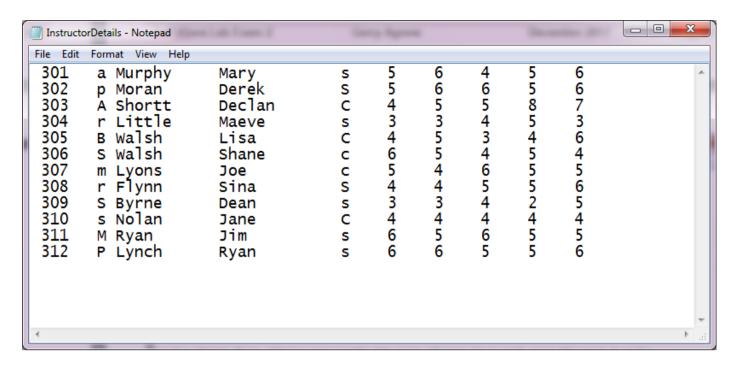
- Input the Find Gym Name and Pay Limit using 2 seeded Input dialogs at the start of the program (with Gym Name = Renmore and Pay Limit = 1000.00)
- Output the corresponding Gym Name Found message summary if the Gym name is matched, case insensitively, using a **Message dialogue** with appropriate "Gym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

18. Save - The End:

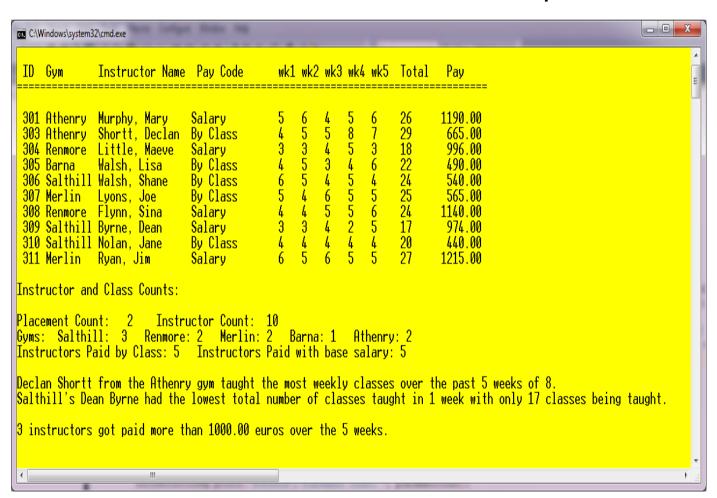
- When finished exit TextPad
- Zip (R/click: Zip format not RAR or 7 Zip) your LastNameFirstName17LabEx2 folder
- Upload your LastNameFirstName17LabEx2 zip file to the Moodle link provided

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Instructor Details Input Text File - Screenshot 1

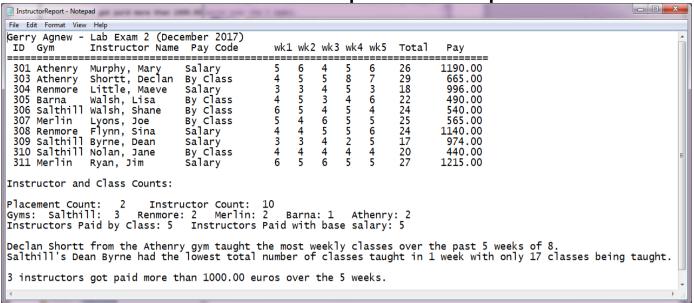


Screen Output - Screenshot 2

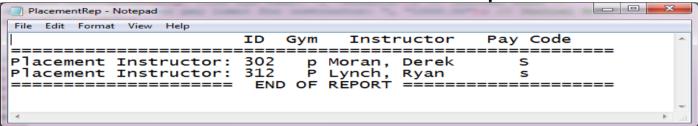


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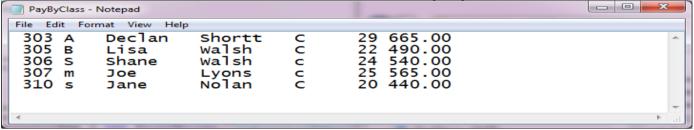
Screen Output/Mirrored Report File - Screenshot 3



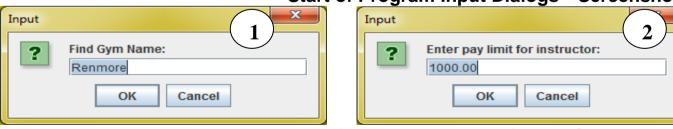
Placement Report File - Screenshot 4



Pay By Class File - Screenshot 5



Start of Program Input Dialogs - Screenshot 6



End of Program Output Dialog - Screenshot 6



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